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Item 6 of the provisional agenda*

**Nomination and selection of the members of the
Multidisciplinary Expert Panel**

**Compilation of curricula vitae of proposed members from
Asia-Pacific States of the Multidisciplinary Expert Panel**

Note by the secretariat

The annex to the present note, prepared by the secretariat of the United Nations Environment Programme, compiles the full curricula vitae of the candidates proposed as members from Asia-Pacific States of the Multidisciplinary Expert Panel, as submitted by Members of the Platform. The annex has been reproduced as received, without formal editing.

The candidates are the following:

Bojie Fu, China
Randolph R. Thaman, Fiji
Vinod B. Mathur, India
L. M. S. Palni, India
N. H. Ravindranath, India
Singh Parajmit, India
Raman Sukumar, India
K. Venkataraman, India
Dedy Darnaedi, Indonesia
Mehrasa Mehrdadi, Iran (Islamic Republic of)
Naser Moghaddasi, Iran (Islamic Republic of)
Mostafa Panahi, Iran (Islamic Republic of)
Kazuhiko Takeuchi, Japan
Kwi-Gon Kim, Republic of Korea

* IPBES/1/1.



Anantha Kumar Duraiappah, Malaysia
Leng Guan Saw, Malaysia
Umesh Kumar Mandal, Nepal
Angel C. Alcala, Philippines
Yousef Saleh al-Hafedh, Saudia Arabia
Utis Kutintara, Thailand

Annex

Compilation of curricula vitae of proposed members from Asia-Pacific States of the Multidisciplinary Expert Panel

CURRICULUM VITAE of Bojie FU

First Name: Bojie
Family Name: FU
Sex: Male
Date of Birth: Jan. 4, 1958
Place of Birth: Shaanxi, China
Nationality: Chinese

Present Position and Address:

Professor of Landscape Ecology
 State Key Lab. of Urban and Regional Ecology
 Research Center for Eco-Environmental Sciences
 Chinese Academy of Sciences
 PO Box 2871, Beijing, 100085, CHINA
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EMPLOYMENT

2009-present. *Professor*, Research Center for Eco-Environmental Sciences, Chinese Academy of Sciences
2001-2008. *Director-General, Professor*, Bureau of Sciences & Technology for Resources & Environment, Chinese Academy of Sciences
1996-2001. *Deputy-Director, Professor*, Research Center for Eco-Environmental Sciences, Chinese Academy of Sciences
1994-1996. *Division Director, Professor*, Research Center for Eco-Environmental Sciences, Chinese Academy of Sciences
1992-1994. *Post-doctoral Research Fellow*, Institute for Land and Water Management, Catholic University of Leuven, Belgium,
1991-1992. *Associate Professor*, Research Center for Eco-Environmental Sciences, Chinese Academy of Sciences
1989-1990. *Assistant Professor*, Research Center for Eco-Environmental Sciences, Chinese Academy of Sciences

QUALIFICATIONS

PhD. (1989) *Landscape Ecology and Environmental Sciences*, Split PhD Programme in Peking University (Beijing, China) and University of Stirling (Stirling, UK)
MSc. (1984) *Physical Geography*, Shaanxi Normal University (Xi'an, China)
BSc. (1982) *Geography*, Shaanxi Normal University (Xi'an, China)

RESEARCH ACTIVITIES

Research Area

Ecosystem Assessment and Management, Landscape pattern and ecological processes, Land use change and environmental effects, Land degradation and land evaluation.

ACADEMIC AWARDS AND HONORS

1. Fellow of the Academy of Sciences for Developing World, 2012.
2. Academician of Chinese Academy of Sciences, 2011.
3. Award of Distinguished Service, International Association for Landscape Ecology, 2011.
4. "Eleventh Five-Year" National Award for outstanding contributions to science and technology plan implementation, Ministry of Science and Technology, 2011.
5. National Award for Outstanding Science and Technology Workers, China Association for Science and Technology, 2010.
6. The Sciences & Technology Advanced Prize (First Class), Ministry of Environmental Protection, 2009.
7. Award of Outstanding Teachers of Chinese Academy of Sciences, 2006
8. National Natural Sciences Prize (Second Class), 2005.
9. Visiting Scholars and Artists Award, Western Michigan University, USA, 2005.
10. Chief Scientist of Innovation Research Group Fund, National Natural Sciences Foundation of China (NSFC), 2003
11. Award for Young Scientist, Chinese Academy of Sciences (CAS), 2001
12. The Sciences & Technology Advanced Prize (Second Class), Ministry of Land Resources, 1998.
13. "National Science Fund for Distinguished Young Scholars", NSFC, 1997
14. The Sciences & Technology Advanced Prize (Third Class), CAS, 1993.
15. Award for Young Geographer, Chinese Society of Geography, 1991

PROFESSIONAL SERVICE

Executive Board Member of International Association for Ecology (INTECOL), 2005-

Vice President of International Association of Landscape Ecology (IALE), 2009-2013

Vice Chair of International Long-term Ecological Research Network (ILTER), 2009-2014

Chairman of IALE China, 2005-2013

The Member of Steering Committee of the Global Climate Change Adaptation Network in Asia-Pacific Region, 2009-2012

Consultative Group Member of the Intergovernmental science-policy platform on

biodiversity and ecosystem services (IPBES) of UNEP, 2009-2011
 Vice Chairman of SCOPE China, 1999-
 Vice Chairman of IGBP China, 2001-2009
 Vice Chairman of Scientific Committee of Chinese Ecosystem Research Network, 2000-
 Vice President of the Chinese Society of Geography, 2004-
 Vice President of the Ecological Society of China, 2009-
 The Executive Council Member of Soil Science Society of China, 2003-

Editor in Chief:

Chinese Geographical Science (Springer), 2009-

Vice Editor in Chief:

Sustainability Sciences (Springer), 2006-2009

Advance in Earth Sciences (China), 2003-2009

Journal of Ecology (China) 2007-

Arid Zone Research (China) 2007-

Chinese Journal of Applied Ecology, 2003-2007.

Editorial Board Member:

Landscape Ecology (Springer) 2006-,

Landscape and Urban Planning (Elsevier), 2006-

Soil Use and Management (Blackwell), 2007-2011

Landscape and Ecological Engineering (Springer), 2005-

Journal of Ecology and Field Biology (Korea), 2004-

Acta Ecologica Sinica, 1996-

Chinese Journal of Plant Ecology, 1999-

Scientia Geographica Sinica, 1996-2009

Journal of Natural Resources (China), 1996-

Geographical Research (China), 1999-

Resources Science (China), 2000-

Quaternary Sciences (China), 2004-

Progress in Geography (China), 2004-

RESEARCH PROJECTS

- (1) Impact of climate change on multiple ecosystem services :process and adaptation options at landscape scale. (2012-2014), Project of CAS and Academy of Finland.
- (2) Coupled landscape pattern and soil erosion processes. (2010-2013), Key project of NSF China.
- (3) Soil carbon sequestration for “Grain to Green” project in the loess plateau of China. (2010-2012), supported by NSF China.
- (4) Ecosystem Processes and Services. (2009-2013), Project of CAS.
- (5) China’s Ecosystem services and Ecological security. (2009-2013), Key project of National basic research Programme of MOST.

- (6) Land use pattern and ecological processes. (2004-2009), Key project of NSF China.
- (7) Regional ecological security pattern assessment, (2006-2008), supported by NSF China
- (8) Ecosystem restoration in the western China. (2001-2005), Key project of Ministry of Sciences and Technology
- (9) Farming system analysis and land use evaluation towards sustainable land use in the loess hilly area of China. (2002-2005).Cooperation Programme Project of China and Belgium.
- (10) Land use change and biodiversity conservation, (2000-2005), Key project for National basic research Programme of MOST.
- (11) Landscape pattern change and soil erosion in the Loess hilly area. (2002-2004), Key project of NSF China.
- (12) China's Ecosystem Assessment, (2000-2003), Key project of Chinese Academy of Sciences.
- (13) Land use change and sustainable land use in the circum-Bo Hai region, China, (1999-2001), Key project of NSF China.
- (14) Landscape pattern, ecological process and sustainable land use in the loess plateau of China, (1998-2001), Project of state outstanding young scientist foundation of China of NSFC.
- (15) A participatory approach for soil and water conservation planning, integrating soil erosion modeling and land evaluation, to improve the sustainability of land use on the Loess Plateau in Northern China, (1998-2000), INCO-DC Project of European Commission.
- (16) Ecological Regionalization of China, (1998-2000), Key project of Chinese Academy of Sciences.
- (17) The effect of landscape spatial pattern on soil erosion and element transportation, (1996-1998), supported by NSF China
- (18) The forest landscape pattern and landscape diversity, (1996-1998), supported by NSF China
- (19) Land evaluation in the loess plateau of China, (1994-1996), supported by NSF China
- (20) Early warning of environmental issues in China, (1990-1992), Key project of Ministry of Sciences and Technology

LIST OF PUBLICATIONS

More than 300 articles and books on landscape ecology, Land use, land evaluation, and physical geography, more than 140 published in English.

Publications in English

Peer-Reviewed Journal Papers

1. Lü Yihe, **Fu Bojie***, Feng Xiaoming, Zeng Yuan, Liu Yu, Chang Ruiying, Sun Ge, Wu Bingfang. 2012. A Policy-Driven Large Scale Ecological Restoration: Quantifying Ecosystem Services Changes in the Loess Plateau of China. *PLoS ONE* 7(2):e31782. doi: 10.1371/journal.pone.0031782.
2. Yao Xueling, **Fu Bojie***, Lü Yihe, Chang Ruiying, Wang Shuai, Wang Yafeng, Su Changhong. 2012. The multi-scale spatial variance of soil moisture in the semi-arid Loess Plateau of China. *Journal of Soils and Sediments*, Doi: 10.1007/s11368-012-0481-5.
3. Su Changhong, **Fu Bojie***, He Chansheng, Lü Yihe. 2012. Variation of ecosystem services and human activities: A case study in the Yanhe watershed of China. *Acta Oecologica*, doi:10.1016/j.actao.2011.11.006.
4. Xu Yanda, **Fu Bojie***, He Chansheng, Gao Guangyao. 2012. Watershed discretization based on multiple factors and its application in the Chinese Loess Plateau. *Hydrology and Earth System Sciences*, 16:59-68.
5. Liu Yu, **Fu Bojie***, Lü Yihe, Wang Zhi, Gao Guangyao. 2012. Hydrological responses and soil erosion potential of abandoned cropland in the Loess Plateau, China. *Geomorphology*, 138: 404-414.
6. Su Changhong, **Fu Bojie***, Wei Yongping, Lü Yihe, Liu Guohua, Wang Daolong, Mao Kebiao, Feng Xiaoming. 2012. Ecosystem management based on ecosystem services and human activities: a case study in the Yanhe watershed. *Sustainability Science*, 7(1): 17-32.
7. Chang Ruiying, **Fu Bojie***, Liu Guohua, Wangshui, Yao Xueling. 2012. The effects of afforestation on soil organic and inorganic carbon: A case study of the Loess Plateau of China. *Catena*, Doi:10.1016/j.catena.2012.02.012.
8. Lü Yihe, Liu Shuguang, **Fu Bojie***. 2012. Ecosystem Services: from virtual reality to ground truth. *Environmental Science & Technology*, 46:2492-2493.
9. Gao Guangyao, Zhan Hongbin, Feng Shaoyuan, **Fu Bojie***, Huang Guanhua. 2012. A mobile-immobile model with an asymptotic scale-dependent dispersion function. *Journal of Hydrology*, doi:10.1016/j.jhydrol.2011.12.041.
10. Chang Ruiying, **Fu Bojie***, Liu Guohua, Yao Xueling, Wang Shuai. 2012. Effects of soil physicochemical properties and stand age on fine root biomass and

- vertical distribution of plantation forests in the Loess Plateau of China. *Ecological Research*, 27: 827 – 836.
11. Feng Xiaoming, Sun Ge, **Fu Bojie**, Su Changhong, Liu Yu, and H. Lamparski. 2012. Regional effects of vegetation restoration on water yield across the Loess Plateau, China. *Hydrology and Earth System Sciences*, 16:2617–2628.
 12. Gao Guangyao, **Fu Bojie***, Lü Yihe, Liu Yu, Wang Shuai, and J. Zhou. 2012. Coupling the modified SCS-CN and RUSLE models to simulate hydrological effects of restoring vegetation in the Loess Plateau of China. *Hydrology and Earth System Sciences*, 16: 2347–2364.
 13. Liang Di, **Fu Bojie***, Lü Yihe, Liu Yu, Gao Guangyao, Li Yifeng & Li Zhaoxia. 2012. Effects of retired steep land afforestation on soil properties: A case study in the Loess Plateau of China. *Soil and Plant Science*, doi:10.1080/09064710.2012.673008.
 14. Wang Shuai, **Fu Bojie***, Gao Guangyao, Yao Xueling, and Zhou Ji. 2012. Soil moisture and evapotranspiration of different land cover types in the Loess Plateau, China. *Hydrology and Earth System Sciences*, 16:2883–2892.
 15. Zhao Wenwu, **Fu Bojie***, and Chen Liding. 2012. A comparison between soil loss evaluation index and the C-factor of RUSLE: a case study in the Loess Plateau of China. *Hydrology and Earth System Sciences*, 16: 2739–2748.
 16. **Fu Bojie***, Liu Yu, Lü Yihe, He Chansheng, Zeng Yuan, Wu Bingfang. 2011. Assessing the soil erosion control service of ecosystems change in the Loess Plateau of China. *Ecological Complexity*, 8:284–293.
 17. **Fu Bojie***, Su Changhong, Wei Yongping, Ian R. Willett, Lü Yihe, Liu Guohua. 2011. Double counting in ecosystem services valuation: causes and countermeasures. *Ecological Research*, 26: 1–14.
 18. **Fu Bojie***, Liang Di, Lü Nan. 2011. Landscape Ecology: Coupling of Pattern, Process, and Scale. *Chinese Geographical Science*, 21(4):385–391.
 19. Chang Ruiying, **Fu Bojie***, Liu Guohua, Liu Shuguang. 2011. Soil Carbon Sequestration Potential for “Grain for Green” Project in Loess Plateau, China. *Environmental Management*, 48:1158–1172.
 20. Jin Tiantian, **Fu Bojie***, Liu Guohua, Wang. Z. 2011. Hydrologic feasibility of artificial forestation in the semi-arid Loess Plateau of China. *Hydrology and Earth System Sciences*, 15:2519–2530.
 21. Lü Yihe, **Fu Bojie***, Wei Wei, Yu Xiubo, Sun Ranhao. 2011. Major Ecosystems in China: Dynamics and Challenges for Sustainable Management.

- Environmental Management*, 48:13–27.
22. Su Changhong, **Fu Bojie***, Lü Yihe, Lü Nan, Zeng Yuan, He Anna, Halina LAMPARSKI. 2011. Land Use Change and Anthropogenic Driving Forces: A Case Study in Yanhe River Basin. *Chinese Geographical Science*, 21(5): 587–599.
 23. Wang Yafeng, **Fu Bojie***, Lü Yihe, Chen Liding. 2011. Effects of vegetation restoration on soil organic carbon sequestration at multiple scales in semi-arid Loess Plateau, China. *Catena*, 85: 58–66.
 24. Wang Shuai, **Fu Bojie***, He Chan Sheng, Sun Ge, Gao Guangyao. 2011. A comparative analysis of forest cover and catchment water yield relationships in northern China. *Forest Ecology and Management*, 262: 1189–1198.
 25. Wang Yafeng, **Fu Bojie**, Chen Liding, Lu Yihe, Gao Yang, 2011. Check Dam in the Loess Plateau of China: Engineering for Environmental Services and Food Security. *Environmental Science and Technology*, 45:10298-10299.
 26. Jin Tiantian, Liu Guohua, **Fu Bojie**, Ding Xiaohui, Yang Lei. 2011. Assessing Adaptability of Planted Trees Using Leaf Traits: A Case Study with Robinia pseudoacacia L. in the Loess Plateau, China. *Chinese Geographical Science*, 21(3): 290–303.
 27. Li Zongshan, Liu Guohua, **Fu Bojie**, Zhang Jinlong. 2011. The Potential Influence of Seasonal Climate Variables on the Net Primary Production of Forests in Eastern China. *Environmental Management*, 48:1173–1181.
 28. Sun Ranhao, Chen Liding, and **Fu Bojie**. 2011. Predicting monthly precipitation with multivariate regression methods using geographic and topographic information. *Physical Geography*, 32(3): 269–285.
 29. Zhang Yuxin , Ma Keming, Madhur Anand , **Fu Bojie**. 2011. Multifractal pattern and process during a recent period of forest expansion in a temperate mountainous region of China. *Ecological Informatics*, 6: 384–390.
 30. Cao Shixiong, Sun Ge, Zhang Zhiqiang, Chen Liding, Feng Qi, **Fu Bojie**, Steve McNulty, David Shankman, Tang Jianwu, Wang Yanhui, Wei Xiaohua. 2011. Greening China Naturally. *AMBIO*, 40:828–831.
 31. **Fu Bojie**, Li Shenggong, Yu Xiubo, Yang Ping, Yu Guirui, Feng Renguo, Zhuang Xuliang, 2010. Chinese ecosystem research network: Progress and perspectives. *Ecological Complexity*, 7:225–233.
 32. Liu Zhanfeng, **Fu Bojie**, Zheng Xiaoxuan, Liu Guohua, 2010. Plant biomass, soil water content and soil N:P ratio regulating soil microbial functional diversity in a

- temperate steppe: A regional scale study. *Soil Biology & Biochemistry*, 42: 445–450.
33. Hu Chanjuan, **Fu Bojie**, Liu Guohua, Jin Tiantian, Guo Lei, 2010, Vegetation patterns influence on soil microbial biomass and functional diversity in a hilly area of the Loess Plateau, China. *J Soils Sediments*, 10:1082–1091.
 34. Qiu Y., **Fu B.**, Wang J., Chen L., Meng Q., Zhang Y., 2010, Spatial prediction of soil moisture content using multiple-linear regressions in a gully catchment of the Loess Plateau, China. *Journal of Arid Environments*, 74:208–220.
 35. Wang Yafeng, **Fu Bojie**, LüYihe, Song Chengjun, Luan Yong, 2010, Local-scale spatial variability of soil organic carbon and its stock in the hilly area of the Loess Plateau, China. *Quaternary Research*, 73: 70–76.
 36. Liu Zhanfeng, Liu Guohua, **Fu Bojie**, Wu Yaqiong, Hu Huifeng, Fu Shenglei, 2010, Changes in the soil microbial community with a pine plantation restoration in a dry valley of the upper reaches of the Minjiang River, southwest China. *Ann. N.Y. Acad. Sci.*, 1195 :E82–E95.
 37. Song Cheng Jun, Ma Ke Ming, **Fu Bo Jie**, Qu Lai Ye, Xu Xian Li, Liu Yang, Zhong Jian Fei, 2010, Distribution patterns of shrubby N-fixers and non-N fixers in an arid valley in Southwest China: implications for ecological restoration. *Ecol Res*, 25: 553–564.
 38. Wei Wei, Chen Liding , **Fu Bojie** , Chen Jin, 2010, Water erosion response to rainfall and land use in different drought-level years in a loess hilly area of China. *Catena*, 81: 24–31.
 39. Zhang Jieyu , Ma Keming, **Fu Bojie**, 2010, Wetland loss under the impact of agricultural development in the Sanjiang Plain, NE China. *Environ Monit Assess* , 166:139–148.
 40. Zheng XiaoXuan, Liu GuoHua, **Fu BoJie**, Jin TianTian, Liu ZhanFeng, 2010, Effects of biodiversity and plant community composition on productivity in semiarid grasslands of Hulunbeir, Inner Mongolia, China. *Ann. N.Y. Acad. Sci.*, 1195: E52–E64.
 41. Chen Liding, Wang Jiping, Wei Wei, **Fu Bojie**, Wu Dongping, 2010, Effects of landscape restoration on soil water storage and water use in the Loess Plateau Region, China. *Forest Ecology and Management*, 259: 1291–1298.
 42. Feng Xiaoming, Wang Yafeng, Chen Liding , **Fu Bojie**, Bai Gangshuan, 2010, Modeling soil erosion and its response to land-use change in hilly catchments of the Chinese Loess Plateau. *Geomorphology*, 118:239–248.

43. Guangyao Gao, Hongbin Zhan, Shaoyuan Feng, **Bojie Fu**, Ying Ma, Guanhua Huang, 2010, A new mobile-immobile model for reactive solute transport with scale-dependent dispersion. *Water Resources Research*, 46: W08533, doi:10.1029/2009WR008707.
44. Song C.-J. , Ma K.-M., Qu L.-Y. , Liu Y. , Xu X.-L. , **Fu B.-J.** , Zhong J.-F., 2010, Interactive effects of water, nitrogen and phosphorus on the growth, biomass partitioning and water-use efficiency of *Bauhinia faberi* seedlings . *Journal of Arid Environments*. 74:1003–1012.
45. **Fu Bojie**, Wang Yafeng, Lv Yihe, He Chansheng, Chen Liding, Song Chengjun. 2009, The effects of land use combination on soil erosion-a case study in Loess Plateau of China. *Progress in Physical Geography*, 33(6):793-804.
46. Wei Wei, Chen Liding, **Fu Bojie**. 2009, Effects of rainfall change on water erosion processes in terrestrial ecosystems: a review. *Progress in Physical Geography*, 33 (3): 307-318.
47. Wei Wei, Chen Liding, **Fu Bojie**, Lü Yihe, Gong Jie, 2009, Responses of water erosion to rainfall extremes and vegetation types in a loess semiarid hilly area, NW China, *Hydrological Processes*, 23: 1780-1791.
48. Xu Xianli, Ma Keming, **Fu Bojie**, Song Chengjun, Liu Wen, 2009, Soil and water erosion under different plant species in a semiarid river valley, SW China: the effects of plant morphology, *Ecological Research*, 24:37-46
49. Chen Liding, Tian Huiying, **Fu Bojie**, Zhao Xinfeng, 2009, Development of a New Index for Integrating Landscape Patterns with Ecological Processes at Watershed Scale, *Chinese Geographical Science*. 19(1) 37–45.
50. Lu Tao, Ma Keming, **Fu Bojie**, et al. 2009, Diversity and composition of wetland communities along an agricultural drainage ditch density gradient. *Polish Journal of Ecology* 57: 113-123
51. **Fu Bojie**, 2008, Blue Skies for China. *Science*, 321:611.
52. **Fu Bojie**, Lu Yihe, Chen Liding 2008, Expanding the bridging capability of landscape ecology. *Landscape Ecology*, 23:375-376.
53. Liu Zhanfeng Liu Guohua **Fu Bojie** Zheng Xiaoxuan 2008, Relationship between plant species diversity and soil microbial functional diversity along a longitudinal gradient in temperate grasslands of Hulunbeir, Inner Mongolia, China. *Ecological Research*, 23:511-518.
54. Wang De, **Fu Bojie**, Zhao Wenwu , Hu Huifeng , Wang Yafeng, 2008, Multifractal characteristics of soil particle size distribution under different

- land-use types on the Loess Plateau, China, *CATENA*, 72: 29 – 36.
55. Kong Wei-dong, Zhu Yong-guan, **Fu Bo-jie**, Han Xiao-zeng, Zhang Lei, and He Ji-Zheng. Effect of Long-Term Application of Chemical Fertilizers on Microbial Biomass and Functional Diversity of a black soil. *Pedosphere*, 2008, 18(6): 801-808.
 56. Lü Yihe, Chen Liding, **Fu Bojie**. 2008, Land-cover effects on red soil rehabilitation in China: a meta-analysis. *Progress in Physical Geography*, 32(5):487-498.
 57. Meng Qinghua, **Fu Bojie**, Tang Xiaoping, Ren Hongchang. 2008, Effects of land use on phosphorus loss in the hilly area of the Loess Plateau, China. *Environmental Monitoring and Assessment*, 139: 195-204.
 58. Xu Xianli, Ma Keming, **Fu Bojie**, Song Chengjun, Liu Wen. 2008, Relationships between vegetation and soil and topography in a dry warm river valley, SW China. *Catene*, 75:138-145.
 59. Xu Xianli, Ma Keming, **Fu Bojie**, Song Chengjun, Liu Wen. 2008, Influence of three plant species with different morphologies on water runoff and soil loss in a dry-warm river valley, SW China. *Forest Ecology and Management*, 2008, 256: 656-663.
 60. **Fu Bojie** Zhuang Xuliang, Jiang Guibing, Shi Jianbo, Lu Yihe. 2007, Environmental Problems and challenges in China. *Environmental Science & Technology*, 42: 7597-7602.
 61. Lü Yihe, **Fu Bojie**, Chen Liding, Liu Guohua, Wei Wei. Nutrient transport associated with water erosion: progress and prospect. *Progress in Physical Geography*, 31(6):607-620.
 62. Yin Fei, **Fu Bojie**, Mao Renzhao, 2007, Effects of Nitrogen Fertilizer application on nitrate nitrogen distribution in Saline soil in the Hai River Basin, China. *Journal Soils and Sediments*, 7(3):136-142.
 63. Lian Gang Guo Xu-Dong **Fu BoJie** Wang Jing and He Ting , Farmer' s perception and response towards land policy and eco-environment based on participatory rural appraisal: A case study in the Loess hilly area, China The *International Journal of Sustainable Development and World Ecology*, 2007. 14: 182-191.
 64. Chen, Liding, Wei Wei, **Fu Bojie**, Lü Yihe. Soil and water conservation on the Loess Plateau in China: review and perspective. *Progress in Physical Geography*, 2007, 31(4): 389-403.
 65. Chen Liding, Gong Jie, **Fu Bojie**, Huang Zhilin, Huang Yilong Gui Lide, Effect of land use conversion on soil organic carbon sequestration in the loess hilly area,

- loess plateau of China, *Ecological Research*, 2007, 22: 641 – 648.
66. Xu Jian-Ying, Chen Li-Ding, Lu Yi-He, **Fu BoJie**, Sustainability Evaluation of the Grain for Green Project: From Local People's Responses to Ecological Effectiveness in Wolong Nature Reserve, *Environ Manage* (2007) 40:113–122.
 67. Gong J., Chen L. D., **Fu B. J.** and Wei W., Integrated effects of slope aspect and land use on soil nutrients in a small catchment in a hilly loess area, China, *International Journal of Sustainable Development & World Ecology* 14 (2007) 307 – 316.
 68. Wei W., Chen L.D., **Fu B.J.**, Huang Z.L., Wu D.P., Gui L.D. 2007. The effect of land uses and rainfall regimes on runoff and soil erosion in the semi-arid loess hilly area, China. *Journal of Hydrology*, 335:247-258.
 69. Liu S.L., Guo X.D., **Fu B.J.**, Lian G., Wang J. 2007, The effect of environmental variables on soil characteristics at different scales in the transition zone of the loess plateau in China. *Soil Use and Management*, 23: 92-99.
 70. Chen L.D., Huang Z.L., Gong J. **Fu B.J.** Huang Y.L. 2007. The effect of land cover/vegetation on soil water dynamic in the hilly area of the loess plateau, China. *Catena*, 70:200-208.
 71. Chen M.M., Zhu Y.G., Si Y.H., Chen B.D., **Fu B.J.**, Marschner P. 2007. Effects of soil moisture and plant interactions on the soil microbial community structure, *European Journal of Soil Biology*, 43:31-38.
 72. Li Qi, Chen Liding, Qi Xin, Zhang Xinyu, Ma Yan, **Fu Bojie**. Assessing field vulnerability to phosphorus loss in Beijing agricultural area using revised field phosphorus ranking scheme. *Journal of Environmental Sciences*, 19: 977-985.
 73. **Fu B.J.**, Hu C.X., Chen L.D., Homnay, O., and Gulinck, H. 2006. Evaluating Change in agricultural landscape pattern between 1980 and 2000 in the loess hilly region of Ansai county, China. *Agriculture, Ecosystems and Environment*, 114: 387-396.
 74. **Fu B.J.**, Zhang Q.J., Chen L.D., Zhao, W.W., Gulinck, H., Liu, G.B., Yang, Q.K., and Zhu, Y.G. 2006. Temporal change in land use and its relationship to slope degree and soil type in a small catchment on the Loess Plateau of China. *Catena*, 65: 41-48.
 75. **Fu, B.J.**, Lu, Y.H., Chen, L.D and Li Jimmy. 2006. Progress and prospects of Integrated physical geography in China. *Progress in Physical Geography*, 30(5): 659-672.
 76. **Fu B.J.**, Zhao W.W., Chen L.D., Lu, Y.H., and Wang, D. 2006. A multiscale soil

- loss evaluation index. *Chinese Science Bulletin*, 51(4):448-456.
77. **Fu B.J.** and Lu Y.H. 2006. The progress and perspectives of landscape ecology in China. *Progress in Physical Geography*, 30(2): 232-244.
 78. Lu, Y.H., **Fu, B.J***, Chen, L.D., Xu, J.Y., and Qi, X. 2006. Resolving the conflicts between biodiversity conservation and socioeconomic development in China: fuzzy clustering approach. *Biodiversity and Conservation*, 15: 2813-2827.
 79. Lu, Y.H., **Fu, B.J***, Chen, L.D., Ouyang, Z.Y., and Xu, J.Y. 2006. The effectiveness of incentives in protected area management: an empirical analysis. *International Journal of Sustainable Development and World Ecology*, 13: 409-417.
 80. Wu, Y.Q., Liu, Q.H., **Fu, B.J.**, Liu, Z.F., and Hu, H.F. 2006. Comparing soil CO₂ emission in pine plantation and oak shrub: dynamics and correlations. *Ecological Research*, 21: 840-848.
 81. Gong, J., Chen, L.D., **Fu, B.J.**, Huang, Y.L., Huang, Z.L., and Peng, H.J. 2006. Effect of land use on soil nutrients in the loess hilly area of the loess plateau, China. *Land Degradation & Development*, 17: 453-465.
 82. Kong, W.D. Zhu Y.G., **Fu B.J.**, Marshner P. and He J.Z. 2006. The veterinary antibiotic oxytetracycline and Cu influence functional diversity of the soil microbial community. *Environmental Pollution*, 143: 129-137.
 83. Hu C.X., Chen L.D., **Fu B.J***, and Gulinck, H. 2006. Farmer's attitude towards Grain for Green Program in the hilly area of the Loess Plateau. *International Journal of Sustainable Development and World Ecology*, 13: 211-220.
 84. Huang, Z.L., Chen, L.D., **Fu, B.J.**, Lu, Y.H., Huang, Y.L., and Gong, J. 2006. The relative efficiency of four representatives cropland conversion in reducing water erosion: evidence from long-term plots in loess hilly area, China. *Land Degradation & Development*, 17: 615-627.
 85. Li, G.Q., Ma, K.M., **Fu, B.J.**, and Liu, S.L. 2006. Designing regional pattern for ecosystem restoration: a case study. *Science in China: Series E*, 49(Supp. I): 86-97.
 86. Lu T, Ma K.M., Zhang W.H., **Fu, B.J.** 2006. Differential responses of shrubs and herbs present at the upper Minjiang River basin (Tibetan Plateau) to several soil variables. *Journal of Arid Environments*, 67: 373-390.
 87. Xu, J.Y., Chen, L.D., Lu, Y.H., and **Fu, B.J.** 2006. Local people's perceptions as decision support for protected area management in Wolong Biosphere Reserve of China. *Journal of Environmental Management*, 78: 362-372.

88. Zhang Y.X., Ma K.M., Anand M., and **Fu, B.J.** 2006. Do generalized scaling laws exist for species abundance distribution in mountains. *Oikos*, 115: 81-88.
89. **Fu Bojie**, Zhao, W.W., Chen, L.D., et al. 2005. Assessment of soil erosion at large watershed scale using RUSLE and GIS: a case study in the Loess plateau of China. *Land Degradation and Development*, 16(1): 73-85.
90. **Fu Bojie**, Zhao, W.W., Chen, L.D., et al. 2005. Eco-hydrological effects of landscape pattern change. *Landscape and Ecological Engineering*, 1(1): 25-32.
91. Chen Li-ding, Peng Hong-jia, **Fu Bo-jie**, et al. 2005. Seasonal variation of nitrogen concentration in the surface water and its relationship with land use in a catchment of northern China. *Journal of Environmental Sciences*, 17(2): 224-231.
92. Huang Yilong, Chen Liding, **Fu Bojie**, Huang Zhilin, Gong Jie. 2005. The wheat yields and water-use efficiency in the Loess Plateau: straw mulch and irrigation effects. *Agricultural Water Management*, 72(3): 209-222.
93. Huang Yilong, Chen Liding, **Fu Bojie**, et al. 2005. Evapotranspiration and soil moisture balance for vegetative restoration in a gully catchment on the loess plateau, China. *Pedosphere*, 15(4): 509-517.
94. Yang Rongjin, Liu Guohua, Zhao Jingzhu, **Fu Bojie** 2005. Eco-Environmental benefit assessment of the western route in China's South-North Water Transfer Project. *International Journal of Sustainable Development and World Ecology*. 12(4):.
95. **Fu Bojie**, Liu Guohua, Lu Yihe, Chen Liding, Ma Keming. 2004. Ecoregions and Ecosystem Management in China. *International Journal of Sustainable Development and World Ecology*. 11(4): 397-409.
96. **Fu Bojie**, Liu Shiliang, Ma Keming and Zhu Yongguan. 2004. Relationships between soil characteristics, topography and plant diversity in a heterogeneous deciduous broad-leaved forest near Beijing, China. *Plant and Soil*, 261: 47-54.
97. **Fu Bojie**, Liu Guohua, Ouyang zhiyun, Wang Xiaoke. 2004. Ecological issues and risk assessment of China. *International Journal of Sustainable Development and World Ecology*. 11 (2):42-49.
98. **Fu Bojie**, Wang Kelin, Lu Yihe, et al. 2004. Entangling the complexity of protected area management: The case of Wolong Biosphere reserve, southwestern China. *Environmental Management*, 33(6):788-798.
99. **Fu Bojie**, Liu Shiliang, Chen Liding, Lu Yihe and Qiu Jun. 2004. Soil Quality regime in relation to land cover and slope position across a high modified slope landscape. *Ecological Research*, 19:111-118.
100. **Fu Bojie**, Meng Qinghua, Qiu Yang, Zhao Wenwu, Zhang Qiuju and D.A.Davidson. 2004. Effect of land use on soil erosion and nitrogen loss in the hilly area of the Loess Plateau, China. *Land Degradation and Development*, 15:87-96.
101. Zhang Qiuju, **Fu Bojie**, Chen Liding, Zhao Wenwu, Yang Q.K., Liu G.B., and Hubert Gulinck. 2004. Dynamics and driving factors of agricultural landscape in

- the semiarid hilly area of the Loess Plateau, China. *Agriculture Ecosystem & Environment*, 103: 535-543.
102. Guo Xudong, **Fu Bojie**, Chen L.D., Ma K.M., and Li J.R. 2004. Land use effects on soil properties in a hilly area, Northern China. *Ekologia*, 23(1): 1-13.
 103. Zhao Wenwu, **Fu Bojie**, Meng Qinghua, Zhang Qiuju Zhang YH. 2004. Effects of land-use pattern on rainfall-runoff and runoff-sediment relations: a case study in Zichang watershed of the Loess Plateau of China. *Journal of Environmental Sciences*, 16: 436-442.
 104. Ma Keming, **Fu Bojie**, Liu Shiliang, Guan Wenbin, Liu Guohua, Lu Yihe and M. Anand. 2004. Multiple-scale soil moisture distribution and its implication for ecosystem restoration in an arid river valley, China. *Land Degradation and Development*, 15:75-85.
 105. **Fu Bojie**, Wang Jun, Chen Liding & Qiu Yang. 2003. The effect of Land use on soil moisture variation in the Danangou Catchment, the Loess Plateau of China. *Catena*, 54(1-2):197-214.
 106. **Fu Bojie**, Liu Shiliang, Lu Yihe, Chen Liding, Ma Keming and Liu Guohua. 2003. Comparing the soil quality changes of different land uses determined by two quantitative methods. *Journal of Environmental Sciences*, 15(2):167-172.
 107. Chen Liding, I. Messing, S. Zhang, **Fu Bojie** and S. Ledin. 2003. Land use evaluation and scenario analysis towards sustainable planning on the Loess Plateau in China. *Catena*, 54(1-2):303-316.
 108. Lu Yihe, Chen Liding, **Fu Bojie** and Liu Shiliang. 2003. A framework for evaluating the effectiveness of protected areas: the case of Wolong Biosphere Reserve. *Landscape & Urban Planning*, 63:213-223.
 109. Qiu Yang, **Fu Bojie**, Jun Wang and Liding CHEN. 2003. Spatio-temporal prediction of soil moisture content using multi-linear regression in a small catchment of the Loess Plateau, China. *Catena*, 54(1-2):173-196.
 110. Wang Jun, **Fu Bojie**, Qiu Yang & Chen Liding. 2003. Analysis on soil nutrient characteristics for sustainable land use in Danangou catchment of the Loess Plateau, China. *Catena*, 54(1-2):17-30.
 111. Wang Jun, **Fu Bojie**, Qiu Yang & Chen Liding. 2003. The effects of land use and its pattern on soil properties in a small catchment of the Loess Plateau. *Journal of Environmental Sciences*, 15(2):263-266.
 112. Messing I., M.H. Fagerström, Chen Liding and **Fu Bojie**. 2003. Criteria for land suitability evaluation in a small catchment on the Loess Plateau in China. *Catena*, 54(1-2):215-234.
 113. Li Y., Poesen J., Yang J C., **Fu Bojie**, J. H. Zhang. 2003. Evaluating gully erosion using ^{137}Cs and $^{210}\text{Pb}/^{137}\text{Cs}$ ratio in a reservoir catchment. *Soil and Tillage Research*, 69(1-2):107-115
 114. Chen Liding, **Fu Bojie**, Shurong Zhang, Jun Qiu, Xudong Guo, Fulin Yang, 2002, A comparative study on nitrogen-concentration dynamics in surface water

- in a heterogeneous landscape, *Environmental Geology*, 42,424-432
- 115.Liu S.L., **Fu B.J.**, Y.H. Lü & L.D. Chen, 2002, Effects of reforestation and deforestation on soil properties in humid mountainous areas: a case study in Wolong nature reserve, Sichuan province, *Soil Use and Management*, 19,1-5,
 - 116.Meng Qinghua, **Fu Bojie**, Qiu yang and Zhao Wenwu, 2002, Land Use Effects on Soil Erosion and Phosphorus Loss in the Hilly Area of the Loess Plateau, China,12th ISCO Conference, Beijing,116-121
 - 117.**Fu Bojie**, Guo Xudong, Chen Liding, Ma Keming, and Li Junran. 2001. Soil nutrient changes due to land use changes in Northern China—a case study in Zunhua County, Hebei Province. *Soil Use and Management*, 17(4):294-296.
 - 118.**Fu Bojie**, YANG Zhijian, WANG Yanglin & ZHANG Pingwen,2001.A mathematical model of soil moisture spatial distribution on the hill slopes of the Loess Plateau, *SCIENCE IN CHINA*, 44(5):395-402
 - 119.Meng Qinghua, **Fu Bojie** & Yang Linzhang. 2001.Effects of land use on soil erosion and nutrient loss in the There Gorges Reservoir Area, China, *Soil Use and Management* 17:288-291
 - 120.Qiu Yang, **Fu Bojie**, Wang Jun, Chen Liding, 2001, soil moisture variation in relation to topography and land use in hillslope catchment of the loess plateau of China, *Journal of Hydrology* 240:243-263.
 - 121.Qiu Yang, **Fu Bojie**, Wang Jun & Chen Liding, 2001. Spatial variability of soil moisture content and its relation to environmental indices in a semi-Arid gully catchment of the loess plateau, China. *Journal of Arid Environments*, 49:723-750.
 - 122.WANG Jun, **Fu Bojie**, Qiu Yang, Chen Liding, Wang Zhi, 2001.Geostatistical analysis of soil moisture variability on Da Nangou catchment of the Loess plateau, China, *Environmental Geology* ,41:113-120
 - 123.Wang Jun, **Fu Bojie**, Qiu Yang, Chen Liding, 2001, Soil nutrients in relation to land use and landscape position in the semi-arid small catchment on loess plateau in China, *Journal of Arid Environments*. 48:537-550
 - 124.Guo Xudong, **Fu Bojie**, Ma Keming, Chen Liding. 2001.The utility of semivariogram for spatial variation of soil nutrients and robust analysis of semivariogram. *Journal of Environmental Science*, 13(4): 451-457.
 125. Chen Liding, Wang Jun, **Fu Bojie**, Qiu Yang, 2001, Land use change in a small catchment of northern loess plateau, China. *Agriculture, Ecosystem and Environment*. 86:163-172
 - 126.**Fu Bojie**, Chen, Liding. Ma Keming, Zhou Huafeng, Wang Jun, 2000, The relationships between land use and soil conditions in the hilly area of the loess plateau in northern Shaanxi, China, *CATENA*,39: 69-78
 - 127.**Fu Bojie** , Chen Liding, 2000, Agricultural landscape spatial pattern analysis in the semiarid hill area of loess plateau, China. *Journal of Arid Environments*.44: 291-303
 - 128.Ma Keming, **Fu Bojie**, Guo Xudong, Zhou Huafeng, 2000, Finding spatial regularity in mosaic landscapes: Two methods integrated. *Plant Ecology*,

- 149(2):195-205.
129. He Chansheng, S.B.Malcolm, K.A.Dahlberg, **Fu Bojie**, 2000, A conceptual framework for integrating hydrological and biological indicators into watershed management, *Landscape and Urban Planning*, 49:25-34
 130. **Fu Bojie**, Ma kemin, Zhou Huafeng, Chen Liding, 1999, The effect of land use structure on the distribution of soil nutrients in the hilly area of the loess plateau, China, *Chinese Sciences Bulletin*, 44(8): 732-736.
 131. **Fu Bojie**, Chen Liding, He Chansheng, 1999, Integrating landscape ecological principles and land evaluation for sustainable land use, *Journal of Environmental Sciences*, 11(2):136-140.
 132. Ma Kemin, **Fu Bojie**, 1999, Fractal properties of patch perimeters in a disturbed mountain landscape, Beijing, China, *Journal of Environmental Sciences*, 11(2): 195-199.
 133. Chen Liding, **Fu Bojie**, 1999, Application of landscape connectivity in habitat suitability evaluation, *Journal of Environmental Sciences*, 11(2): 221-226.
 134. Chen Liding and **Fu Bojie**, 1996, The evaluation of Eco-environmental susceptibility to human activity in Yulin region, "Chinese Geographical Science", Vol. 6, No. 1, 57-65.
 135. **Fu Bojie**, Wang, Xilin and H. Gulinck, 1995, Soil erosion types in the loess hilly and gully area of China, *Journal of Environmental Sciences*, Vol.7, No.3, 266-272.
 136. Wang, Yanglin and **Fu Bojie**, 1995, Landscape ecology: the theoretical foundation of sustainable agrolandscape planning design, *Journal of Environmental Sciences*, Vol.7, No.3, 289-296.
 137. Chen Liding and **Fu Bojie**, 1995, Land ecosystem classification and eco-economic evaluation in the Wuding River Basin of Yulin region, China, *Journal of Environmental Sciences*, Vol.7, No.3, 273-282.
 138. **Fu Bojie** and Chen Liding, 1995, Soil erosion risk assessment in the Quanjiaogou catchment of Loess Plateau, China, *Chinese Journal of Arid Land Research*, Vol.8, No.1, 33-40, Allerton Press, USA.
 139. **Fu Bojie** and H. Gulinck, 1994, Land evaluation in area of severe erosion: The loess Plateau of China, *Land Degradation & Rehabilitation*, Vol.5, No.1, 33-40.
 140. **Fu Bojie**, H. Gulinck and M. Z. Masum, 1994, Loess erosion in relation to land use changes in the Ganspoel Catchment, Central Belgium, *Land Degradation & Rehabilitation*, Vol.5, No.4, 261-270.
 141. Sun Honglie, Hu, Angang and **Fu Bojie**, 1991, The Experience and models of land use in China, *Chinese Geographical Science*, Vol.1, No.4, 293-305.
 142. **Fu Bojie**, D. A. Davidson and G. E. Jones, 1990, A computer based land resource information system, *Chinese Journal of Arid Land Research*, Vol.3, No.1, 27-35, Allerton Press, USA.
 143. **Fu Bojie**, 1989, Soil erosion and its control in the loess plateau of China, *Soil*

Use and Management, Vol.5, No.2, 76-82.

144. **Fu Bojie**, 1989, A land information system for land evaluation in the Loess Plateau of Northern Shaanxi Province, *Chinese Journal of Arid Land Research*, Vol.2, No.3, 293-298, Allerton Press, USA.
145. **Fu Bojie**, 1989, Land use and management on the Loess Plateau, *Chinese Journal of Arid Land Research*, Vol.2, No.4, 361-368, Allerton Press, USA.
146. **Fu Bojie**, 1988, The evaluation of land resources in China, *Scottish Geographical Magazine*, Vol.104, No.1, 41-44.

Peer-Reviewed Book Chapters

147. **Fu Bojie**, Niu Dong, Lu Yihe, Liu Guohua, 2010, Land degradation and ecological restoration in China. In *Ecological Restoration: A global Challenge*. Comin F. A (Edited.), Cambridge University Press. P140-174.
148. **Fu B.J.** Niu D, Yu G.R., Chen L.D., Ma K.M., Luo Y., Lu Y. H., Zhao W.W. 2007, Application of landscape ecology in long-term ecological research-Case study in China, in *Landscape Ecological Applications in Man-Influenced Areas: Linking Man and Nature Systems*. Hong S.-K., Nakagoshi, N. Fu B.J. and Morimoto Y. (Eds.), Springer. Dordrecht, the Netherlands, p33-56.
149. Hong S.-K., Nakagoshi, N. **Fu B.J.** and Morimoto Y. (Eds.). 2007. *Landscape Ecological Applications in Man-Influenced Areas: Linking Man and Nature Systems*, Springer. Dordrecht, the Netherlands, pp535.
150. **Fu Bojie**, 1997. GIS application in Agricultural landscape spatial patterns analysis in the loess plateau of China, "*The proceeding of GIS AM/FM ASIA '97 & Geoinformation '97*". Taiwan, 135-142.
151. **Fu Bojie**, 1991, Evaluation of Eco-Environmental qualities in the Provinces of China, "*Haman System Ecology*", (Wang, Ruson et. Al. Eds), Chinese Science & Technology Press, 219-222.
152. **Fu Bojie**, 1989, An optimum model for land use in Xizhuanggou basin, China, *《Land Qualities in Space and Time》*, PUDOC., The Netherlands, 317-320.

RANDOLPH R. THAMAN

Professor of Pacific Islands Biogeography

Fiji-based Professor of Pacific Islands Biogeography, Randy Thaman, the acknowledged resident Pacific Island authority on Pacific Islands biodiversity, has worked with tireless dedication in academia and the natural resources sector in the vast Pacific Island region since he joined The University of the South Pacific (USP) in 1974. The USP is a regional university collectively owned and governed by 12 Pacific island states, nine of which are UN Member states.

Professor Thaman's pioneering research, teaching and community outreach has focused on community-based biodiversity conservation, food and productive security, Pacific floras, traditional agricultural systems and agrobiodiversity, invasive species, integrated coastal management, ecotourism, medicinal plants and ethnobiology, restoration of degraded small islands, and species diversity and recovery in marine managed areas. Of particular importance has been his long dedication to working with local communities to document endangered traditional biodiversity knowledge as a basis for community-based biodiversity conservation and adaptation. He has considerable expertise in the special challenges associated with atolls, small-island and coastal ecosystems in the Pacific that are under threat from climate and environmental change impacts. He has been widely published in books, monographs, scientific papers, technical reports, as well as advocating in the popular and vernacular language print, radio and film media in the region. He is the only person, to our knowledge, to have researched and published on the biodiversity of all of USP's member countries as well as on Papua New Guinea, New Caledonia and Papua New Guinea. There is no one in the Pacific who has his breadth of multidisciplinary knowledge of biodiversity conservation issues across our region.

In addition to his research, Professor Thaman has taught and mentored and thereby empowered countless Pacific islanders, many of whom are regional leaders in biodiversity research and natural resource conservation and management through positions in government institutions and regional and national non-government organizations, including IUCN, UNDP, WWF, WCS, Birdlife International, SPC, USP and SPREP.

He is a past member of the Oceania Regional Committee (ORC) of IUCN; was co-author of the national state of the environment for Kiribati and Tuvalu for 1992 Rio Summit and the state of environment report and environmental management plan for Nauru; has prepared conservation area plans for Fiji, Tonga and Kiribati; given the keynote address on Island Biodiversity at the February 2005 SBSTTA meeting in Bangkok; played a key role in the establishment of the Ramsar Wetland site in Fiji; and recently represented Fiji in the successful establishment of the IPBES; and was responsible for developing Fiji's intersessional submission to IPBES on "Priority Areas for Capacity Building in Fiji and the Pacific Islands: A Fiji Perspective". Most recently, in recognition of his ongoing contributions to biodiversity conservation, Professor Thaman has been awarded the very prestigious Honorary Membership of IUCN at the IUCN World Conservation Congress in Jeju, Korea.

I. BIOGRAPHICAL/PERSONAL DATA

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Place of Birth: Stockton, California, USA

Date of Birth: October 14, 1943

Citizenship: The United States of America

Marital Status: Married

Wife: Dr. Konai Helu Thaman (Tongan citizen; Professor of Pacific Education and Culture; UNESCO Chair as Professor of Teacher Education and Culture; Pro-Vice Chancellor, 1990-93; Head of School of Humanities, 1996-2003; Pro-Vice Chancellor 2004-2005)

Children: Batiri (daughter - 36 yrs); Baravi (son – 32 yrs)

Grandchildren: Keanu (grandson - 5 yrs.), Logan (2 yrs.)

II. EDUCATIONAL HISTORY

1961 High School Graduation, Miramonte High School, Orinda, California

1966 B.A. (Geography), University of California, Berkeley.

1968 M.A. (Geography), University of California, Berkeley. Thesis Title: "The Feasibility of Mapping Vegetation on a World-Scale Using Satellite Photography".

1975 Ph.D. (Geography), University of California, Los Angeles. Thesis Title: "The Tongan Agricultural System: With Special Emphasis on Plant Assemblages".

III. FOREIGN LANGUAGE PROFICIENCY

Tongan: Fluent reading and speaking ability

Fijian: Fluent speaking and reading ability

French: Adequate reading and speaking ability

Spanish: Adequate reading and speaking ability

New Guinea Pidgin: Adequate reading and speaking ability

IV. SELECTED HONOURS/ACHIEVEMENTS

- Eagle Scout (1959)
- Dick David Memorial U.C. Alumni Scholarship for the Outstanding Scholar-Athlete in Contra Costa County (1961)
- Member Order of the Golden Bear Honor Society (1965-67)
- Captain, Universities of California Representative Rugby Touring Team to New Zealand and Australia (1970)(Record 7-1-1)
- National Science Foundation (NFS) Grant to conduct Ph.D. Research in Tonga (1971)
- Recipient of MacArthur Foundation, Chicago \$US 210,000 grant to promote Community-Based Biodiversity Conservation in Melanesia (August 1993 - 1996).
- Invested as a Member of the Order of Fiji (MF) for service to Fiji by the Chancellor of the Order of Fiji, his Excellency, Ratu Sir Kamisese Mara, The President and Commander-in-Chief of Fiji (20 March 1997).
- Recipient of the 1996 Fiji Amateur and Sports Association and National Olympic Committee (FASANOC) Coach of the Year Award (March 1997).
- Had a deepwater garden eel, *Gorgasia thamani*, named after him by Dr. David Greenfield in recognition of assistance provided to a 1997-2001 study of cryptic marine finfishes in Fiji (2002).
- Awarded Honorary Membership of IUCN, World Conservation Congress, Jeju,

V. RELEVANT EMPLOYMENT HISTORY

July 1966 - September 1967: Laboratory Assistant, Forestry Remote Sensing Laboratory, University of California, Berkeley.

October 1967 - April 1969: Peace Corps Volunteer; secondary school teacher at Tonga High School, Nukualofa, Tonga, teaching General Science, Mathematics, Biology and Physical Education and coaching athletics and rugby teams.

May 1969 - December 1970: Project Leader NASA Earth Resource Inventory Project, Forestry Remote Sensing Laboratory, University of California, Berkeley.

January 1971 - January 1972: Ph.D. Research on Tongan Agriculture and part-time 6th Form Biology and Physical Education teacher Tonga High School, Nukunalofo, Tonga.

February 1972 - January 1974: Research Coordinator Geography Remote Sensing Unit and part-time Lecturer in Cultural Geography, University of California, Santa Barbara.

February 1974 - Present: Lecturer (1972-78), Senior Lecturer (1979-85), Reader (1986-1991), Professor of Pacific Islands Biogeography (1991-present), Geography Department, School of Social and Economic Development, The University of the South Pacific, Suva, Fiji.

February 1984 - December 1986: Head of School of Social and Economic Development.

December 1990 - January 1992; February - December 1995; January - July 1998: Acting Head of Geography.

April 2009- Dec. 2010: Head, School of Islands and Oceans.

VI. RELEVANT PART-TIME RESPONSIBILITIES/CONSULTANCIES

Project Leader of SO65 Project: Evaluation of Earth Resources Using Apollo 9 Photography, carried out under NASA Contract No. NAS 9-9348, 1969.

Remote Sensing Consultant to the Indonesian Government National Mapping Agency (BAKOSURTANAL) under contract to the U.S. Geological Survey to teach the use of multispectral remote sensing techniques in Tropical Agriculture, Land Use Mapping, Forestry, Soil Science, Regional Planning and Pest Control, January - February and October 1973 and January 1974.

Foundation Member, Fiji National Food and Nutrition Committee (NFNC), 1976 to present; Chairman, 1979 - 1981 and 1988 to 1991; Deputy Chairman, 1981 - 1988; USP representative 1979 - present.

Consultant to the Nauru Government on the "Environmental and Cultural Importance of Plant Resources", November 1980 to July 1981.

The University of the South Pacific representative to the South Pacific Regional Environment Programme (SPREP), 1982 to 1997.

Founder, current Executive Member, and Chairman (1982 - 1986; 1989 - 90) South Pacific Action Committee for Human Ecology and the Environment (SPACHEE).

Consultant to the Pacific Islands Development Program (PIDP), East-West Center, Hawaii to prepare a Key Issue Paper on "Health and Nutrition in the Pacific Islands" for the Pacific Islands Conference, Rarotonga (7 - 10 August 1985), December 1984 - April 1985.

Visiting Fellow Pacific Islands Development Program (PIDP), East-West Center, Honolulu, to prepare project proposals in the areas of food and nutrition, youth and urban development, April 1986.

Visiting Scholar and Official Guest of the Ministry of Agriculture, Animal Husbandry and Fisheries, Peoples Republic of China to visit agricultural and forestry institutions and developments, April - May 1987.

Expert witness to give testimony on Nauruan ethnobotany and vegetation rehabilitation to The Commission of Inquiry into the Rehabilitation of the Phosphate Mined-out Lands of Nauru, July 1987.

Consultant to the Foundation for the Peoples of the South Pacific (FSP), USAID, and the Ministry for Natural Resource Development to coordinate and edit the proceedings of the Kiribati Applied Atoll Research for Development Consultation, February - March 1989.

Consultant to the Foundation for the Peoples of the South Pacific (FSP) to evaluate the Komiti for the Advancement of Nutrition and Agriculture (KANA) Boarding Schools Meals Programme in Fiji, November 1989.

Resource person, rapporteur and co-organiser of An International Conference on Developing an Agricultural Research Programme for the Atolls, Pacific Harbour, Fiji November 1990.

SPREP/The Nature Conservancy Resource Person to the Regional Workshop to Develop a Regional Terrestrial and Marine Ecosystem Classification for the Pacific Islands, Resource Systems Institute, East-West Center, Honolulu, April and Port Vila, Vanuatu, November 1991.

Consultant to the Institute of Pacific Studies (IPS) and the South Pacific Regional Environment Programme (SPREP) to prepare (with U. Neemia) the Republic of Kiribati and Tuvalu National

- Reports for the United Nations Conference on Environment and Development (UNCED), Rio de Janeiro, Brazil, June 1992.(May to August 1991)
- Project Leader, MacArthur Foundation (Chicago)-funded, University of the South Pacific (Institute of Pacific Studies)-based "Community-Based Biodiversity Conservation" project in Fiji, Vanuatu, Solomon Islands and New Caledonia, 1992-1995.
- Consultant to the Food and Agricultural Organisation of the United Nations South Pacific Regional Forestry Project to conduct a review of the uses and status of trees in agricultural and agroforestry systems in Western Samoa, Tonga, Kiribati and Tuvalu, June - September 1993.
- Consultant to the South Pacific Regional Environment Programme (SPREP) and the Forestry Division (Tonga) to design and implement a "Coastal Protection and Reforestation Project, Houma, Tongatapu, Tonga" - August 1993 to July 1995.
- Consultant, Nauru-Australian Feasibility Study on the Rehabilitation of Post-mining Nauru (July 1994).
- Expedition Leader Earthwatch/USP/UNESCO/Native Lands Trust Board(Fiji)/SPREP Mt. Koroyanitu National Park Biodiversity and Ethnobiological Survey Expedition, Viti Levu, Fiji, July 1994.
- Member, Pacific Science Association Task Force on Pacific Biodiversity, 1994 to present.
- Consultant to the SPREP South Pacific Biodiversity Conservation Programme (SPBCP) and the Government of Tonga to prepare the Project Preparation Document for the Ha'apai Conservation Area, Jan. - June 1995.
- Consultant to the SPREP South Pacific Biodiversity Conservation Programme (SPBCP) and the Government of the Republic of Kiribati to prepare the Project Preparation Documents for the North Tarawa and Cook Islet (Kiritimati) Conservation Areas, June 1995 - present.
- Consultant to the South Pacific Regional Environment Programme (SPREP) and the Government of Nauru to prepare the Nauru National Environmental Management Strategy, Feb. 1995 to April 1996.
- Consultant to the SPREP South Pacific Biodiversity Conservation Programme (SPBCP) and the Government of Tonga to conduct the biodiversity survey of, and prepare a Community-based Biodiversity Conservation Action Plan for the Ha'apai Conservation Area, Sept. 1996 - Nov. 1997.
- Founding and continuing member, Pacific Islands Roundtable on Nature Conservation, 1997-Present.
- Member Fiji National Biodiversity Strategy and Action Plan (BSAP) Steering Committee, June 1997 - present.
- Pacific Island Member Oceania Regional Committee (ORC) of the World Conservation Union (IUCN) January 1998 - 2004..
- Member IUCN World Commission on Protected Areas (WCPA), March 1998 - present.
- Consultant, Pacific Islands Forests & Trees Support Programme, the USDA Forest Service/Natural Resource Conservation Service and the Government of the Republic of the Marshall Islands, to run a Regional Workshop on Agroforestry on Atoll Islands, Republic of the Marshall Islands, 3 - 16 August 1999.
- Consultant, Pacific Islands Forests & Trees Support Programme and the Government of the Republic of Kiribati, to run a Regional Workshop on Agroforestry and Drum Ovens on Atoll Islands, Tarawa, Republic of Kiribati, Republic of Kiribati, October 17 to November 1, 2000.
- Consultant for the Foundation for the Peoples of the South Pacific, Suva and the Shangri-La Fijian Resort, Fiji to conduct studies on change over time and current status of the coastline, reef and biological organisms in the channel between Yanuca Island and the coastline of Cuvu, Nadroga, Viti Levu, Fiji Islands, February 2001.
- Consultant, Pacific Islands Forests & Trees Support Programme and the Government of the Republic of Kiribati for the establishment of the Kiribati Pandanus Conservation Project to establish a pandanus varietal collection and to record of ethnobotanical information, 10-16 September, 2001.
- Consultant and resource person for the First Herbal Plant Workshop Melele Room, Outrigger Marshall Islands Resort, November 8 - 9, 2001, The University of the South Pacific Marshall Islands Centre, Majuro.
- Member, Tuvalu and USP Delegations to the United Nations Rio+10 Johannesburg Summit on Sustainable Development, 2002.
- Member SPREP and Tuvalu Delegations to COP 8, Curitiba, Brazil, March 2006.
- Senior Consultant and Team Leader (with D.C. Hassall, S. Takeda and C. Padolina) for the Secretariat of the Pacific Community (SPC) Forest and Trees Programme and Land Resources Division to resurvey the vegetation and flora of Nauru to produce a guide on the plants of Nauru and a

- report containing the up-dated flora and suggestions for the restoration, rehabilitation, agroforestry and food, health and economic security in Nauru, Nov. 2007.
- Member Technical Advisory Group (TAG) for the EU-funded Facilitating Agricultural Commodity Trade (FACT) Project, Secretariat of the Pacific Community, Suva. Jan. 2009- present.
- Co-Team Leader with D. Dominey-Howes of the UNESCO-IOC International Tsunami Survey Team of over 100 scientists to assess the impacts of the 29 September 2009 Tsunami in Samoa, October 2009.
- Founding member Pacific Invasives Partnership (PIP), 2009 – present.
- Member Technical Advisory Committee on Invasive Species Management, Birdlife International, 2011 to present.
- Senior Resource Person to SPC. Regional Training Workshop on Tree Propagation for Agroforestry in the Pacific, Suva, Fiji 5-6 March, 2012.
- Member of Fiji Delegation to the 2nd Session of the Plenary Meeting on the Intergovernmental Science Platform on Biodiversity and Ecosystem Services, Panama City, 16-21 April, 2012.
- Consultant to the National Trust of Fiji (with J. Niukula and Shingo Takeda) to carry out a baseline assessment of the vegetation and flora of Monuriki Island in the Mamanuca Islands of Fiji as a basis for assessment of the impact of the eradication of goats and rats from the island, which is a globally significant wedge-tailed shearwater nesting site and one of the few island with natural breeding populations of the endemic Fiji crested iguana.

VII. SELECTED PUBLICATIONS

BOOKS, MONOGRAPHS, PROCEEDINGS OR REPORTS ON CONFERENCES/WORKSHOPS AND OTHER MAJOR WORKS

- Thaman, R.R. 1976. *The Tongan agricultural system: With special emphasis on plant assemblages* (published version of Ph.D thesis, University of California, Los Angeles, 1975). University of the South Pacific, Suva. 433pp.
- Thaman, R.R. (ed.). 1976. *Food production in the South Pacific* (The R.W. Parkinson Memorial Lecture Series). The University of the South Pacific, Suva. 52pp.
- Thaman, R.R. and Clarke, W.C. (eds.). 1983. *Food and national development in the Pacific Islands*. Ray Parkinson Memorial Lectures 1982. The University of the South Pacific, Suva. 156pp.
- Thaman, R.R. 1985. *Health and nutrition in the Pacific Islands*. Commissioned Theme of Conference publication for the Pacific Islands Conference, Rarotonga, Cook Islands, August 7-10, 1985. Pacific Islands Development Programme (PIDP), East-West Center, Honolulu. 136pp.
- Thaman, R.R. 1988. *Environmental issues in the Pacific Islands: Constraints to sustainable island development. Pacific Issues 1:1-77* (complete). Pacific Circle Consortium, Woden, Canberra, Australia.
- Thaman, R.R. (ed.). 1989. *Applied atoll research for development: Proceedings of the Kiribati Applied Atoll Research for Development Consultation, Tarawa 27 February to 2 March 1989*. Ministry for Natural Resource Development, Bairiki, Tarawa, Kiribati. 253pp.
- Thaman, R.R. and Seniloli, S. 1990. *KANA oti KANA tale: Past performance and future prospects for the KANA/CARITAS Boarding Schools Meals Project, Fiji*. Foundation for the Peoples of the South Pacific, Suva.
- Bakker, M.L. and Thaman, R.R. (eds.) 1991. *Population, Food and Development: Proceedings - USP/SPC/UNFPA Regional Symposium, The University of the South Pacific, Suva, Fiji, 12-16 November, 1990*. Demographic report 2. Population Studies Programme, University of the South Pacific, Suva.
- Thaman, R.R. and Neemia, U. 1991. *Republic of Kiribati: National Report for the United Nations Conference on Environment and Development (UNCED), Rio de Janeiro, Brazil, June 1992*. Ministry of The

- Environment and Natural Resources Development, Bairiki, Tarawa and South Pacific Regional Environment Programme (SPREP), Noumea. 279pp.
- Thaman, R.R. and Neemia, U. 1991. *Tuvalu: National Report for the United Nations Conference on Environment and Development (UNCED), Rio de Janeiro, Brazil, June 1992*. Office of the Prime Minister, Vaiaku, Funafuti, Tuvalu and South Pacific Regional Environment Programme (SPREP), Noumea. 231pp.
- Chase, R. and Thaman, R.R. (eds.). 1991. *Atoll agricultural research: Problems and prospects. Proceedings of the International Conference on Developing Agricultural Research Programmes for Atolls, Pacific Harbour, Fiji, November 9 - 13, 1990*. Institute for Extension, Research and Training in Agriculture (IRETA), University of the South Pacific, Alafua, Western Samoa.
- Thaman, R.R. 1992. *Bibliographies and referencing made simple: guidelines for students*. Centre Bay Publishers, Suva. 68pp.
- Clarke, W.C. and Thaman, R.R. (eds.). 1993. *Pacific Island agroforestry: Systems for sustainability*. United Nations University Press, Tokyo. 297pp.
- Thaman, R. R., Fosberg, F.R., Manner, H.I. and Hassall, D.C. 1994. *The Flora of Nauru. Atoll Research Bulletin No. 392:1-223*. National Museum of Natural History, Smithsonian Institution, Washington, D.C.
- Thaman, R.R. and Tebano, T. 1994. *Kiribati plant and fish names: A preliminary listing*. Atoll Research Programme, University of the South Pacific, Tarawa in cooperation with Fisheries and Agricultural Divisions, Ministry of Environment and Natural Resources Development and Curriculum Development and Resource Centre, Ministry of Education, Science and Technology, Tarawa. 64pp.
- Thaman, R.R. and Whistler, W.A. 1996. *A review of uses and status of trees and forests in land-use systems in Samoa, Tonga, Kiribati and Tuvalu with recommendations for future action*. Working Paper 5, June 1996 (RAS/92/361). South Pacific Forestry Development Programme, Suva. 171pp.
- Atherton, J., Martel, F., Clarke, W. and Thaman, R. 1996. *Guidelines for the collection & development of baseline data in conservation areas*. South Pacific Biodiversity Conservation Programme, Apia. 96pp.
- Thaman, R.R. and Hassall, D.C. 1998. *Republic of Nauru NEMS: National Environmental Management Strategy and Action Plan*. Prepared for the Department of Island Development and Industry, Nauru and produced with financial assistance from the United Nations Development Programme (UNDP). South Pacific Regional Environment Programme (SPREP), Apia. 204 pp.
- Taylor, N. and Thaman, R. 1999. *Plants of the Pacific Islands*. Addison Wesley Longman New Zealand, Auckland. (Primary School Reader) 20pp.
- Wilkinson, K., Elevitch, C. and Thaman, R. 2000. *Choosing timber species for Pacific Island agroforestry*. Agroforestry guides for Pacific Islands No. 6. Permanent Agricultural Resources, Holualoa. 25pp.
- Thaman, R.R., Bulai, S. and Pouru, K. (eds.). 2002. *Report on Sub-regional Training Workshop on Agroforestry/Drum Ovens for Atoll Islands, 17 October – 1 November, 2000*. Working Paper No. 3. Forests and Trees Programme, Secretariat of the Pacific Community, Suva, Fiji Islands.
- Thaman, R.R. and Vander Velde, N. 2003. *The vascular plants of Majuro Atoll, Republic of the Marshall Islands. Atoll Research Bulletin No. 503: 1-141 (complete)*.
- Thaman, R.R., Bulai, S. and Mathias, A. (eds.). 2004. *Trees outside forests in the Pacific Islands: Proceedings of the Regional Forestry Workshop on Trees Outside Forests, Raffles Gateway Hotel, Nadi, Fiji Islands, 10-14 December 2001*. Food and Agricultural Organization of the United Nations Pacific Regional Office Apia, Samoa and Pacific Islands Trees and Forests Programme, Secretariat of the Pacific Community, Suva. 219pp.

- Thaman, R.R. and Pene, F. 2004. *Three Rs for academic success – Research, recording and referencing: Guidelines for students doing library, internet and field research*. Institute of Education, The University of the South Pacific, Suva. 85pp.
- Taafaki, I.J., Fowler, M.K. and Thaman, R. R. (eds.). 2006. *Traditional medicine of the Marshall Islands: The women, the plants, the treatments*. IPS Publications, University of the South Pacific, Suva. 300pp.
- Taafaki, I.J., Fowler, M.K. and Thaman, R. R. (eds.)(M.K. Fowler, trans). 2007. *Uno in aelōñ in Majōl: Kōrā ro, marīn uno ko, uno ko*. IPS Publications, University of the South Pacific, Suva. 199 pp.
- Thaman, R.R., D. C. Hassall and Shingo Takeda. 2008. *The vegetation and flora of Nauru – 2007: Current status, cultural importance and suggestions for conservation, restoration, rehabilitation, agroforestry and food, health and economic security*. Report prepared for the Ministry of Commerce, Industry and Resources and the Nauru Rehabilitation Corporation, Republic of Nauru. Secretariat of the Pacific Community Forests and Trees Programme, Suva, Fiji Islands (173 pp.).
- Thaman, R.R., D. C. Hassall, and S. Takeda. 2008. *Plants of Nauru: Guide to indigenous and introduced plants of particular cultural importance and weeds of potential threat to Nauru*. Secretariat of the Pacific Community Forests and Trees Programme, Suva, Fiji Islands (222 pp. - photos).
- Thaman, R.R., Hassall, D.C. and Takeda, S. 2008. *The vegetation and flora of Nauru: Current status, cultural importance and suggestions for conservation, restoration, rehabilitation, agroforestry and food, health and economic security*. Secretariat of the Pacific Community, Forests and Trees Programme, Suva. 149 pp.
- Fenemore, A., Meurk, C., Hunter, G., Aalbersberg, B, Thaman, R., Tuiwawa, M., Buliruarua, L.-A., Thomson, L., Miller, D. and Dayal, B. 2011. *Best practice guide for watershed management in Pacific Islands*. Component 1A-Project 1A4, Integrated coastal Management COWRIE Project. Conservation International and The University of the South Pacific, Suva.
- Thaman, R.R. with Gregory, M. and Takeda, S. 2012. *Trees of life: A guide to trees and shrubs of The University of the South Pacific*. The University of the South Pacific Press, Suva. 335 pp.
- Thaman, R.R., Fihaki, E. and T. Fong. 2012. *Plants of Tuvalu: Lākau mo mouku o Tuvalu*. Department of Environment, Funafuti, Tuvalu, United Nations Development Programme (UNDP), Forest and Trees Programme, Land Resources Division, Secretariat of the Pacific Community (SPC) (In press)

CHAPTERS IN BOOKS/EDITED WORKS (Including both Print and Electronic)

- Thaman, R.R. 1974. Remote sensing of agricultural resources. Chapter 8 Estes, J.E. and Senger, L.W. (eds.), *Remote sensing techniques for environmental analysis*. Hamilton Publishing Co., Santa Barbara, California. Pp. 189-224.
- Thaman, R.R. 1976. The Role of indigenous agricultural systems in fulfilling the needs of Pacific societies. Chapter III in Thaman, R.R. (ed.), *Food Production in the South Pacific* (R.W. Parkinson Memorial Lectures), University of the South Pacific, Suva. Pp. 35-52.
- Thaman, R.R. 1977. Urban gardening in Papua New Guinea and Fiji. Chapter 15 in Winslow, J.M. (ed.), *The Melanesian Environment*. Australian National University Press, Canberra. Pp. 146-168.
- Thaman, R.R. 1978. Cooperative yam gardens: An adaptation of a traditional agricultural system to serve the needs of the developing Tongan market economy. Chapter 8 in Fisk, E.K. (ed.), *The adaptation of traditional agriculture*. Development Studies Center Monograph No. 11. Australian National University, Canberra. Pp. 116-130.
- Thaman, R.R. 1982. Urban taro production in the South Pacific. In Lambert, M. (ed.), *Taro cultivation in the South Pacific*. Handbook No. 22. (1982). South Pacific Commission, Noumea. Pp. 103-122.

- Thaman, R.R. 1982. The impact of tourism on agriculture in the Pacific Islands. In Rajotte, F. (ed.), *The Impact of Tourism in the Pacific*. Environmental and Resources Studies Programme Environmental Center, Trent University, Peterborough, Ontario. Pp. 130-155.
- Thaman, R.R. 1984. Intensification of edible aroid cultivation in the Pacific Islands. Chapter 14 in Chandra, S. (ed.), *Edible aroids*. Clarendon Press, Oxford. Pp. 102-122.
- Thaman, R.R. and Thomas, P.M. 1985. Cassava and change in Pacific Island food systems. Chapter 9 in Cattle, D.J. and Schwerin, K.H. (eds.), *Food energy in tropical ecosystems*. Gordon & Breach, New York. Pp. 191-228.
- Thaman, R.R. 1986. Trees, conflict resolution and peace: The preservation of trees as a precondition for environmental and social stability. In Maas, J.P. and Stewart, R.A.C. (eds.), *Toward a World of Peace, People Create Alternatives*. The University of the South Pacific, Suva. Pp. 379-396.
- Thaman, R.R. 1988. By the people and for the people: Home gardening and national development in the Pacific Islands. In Hirst, J., Overton, J., Allen, B. and Byron, Y. (eds.), *Small scale agriculture*. Commonwealth Geographical Bureau, London and Department of Human Geography, Research School of Pacific Studies, Australian National University, Canberra. Pp. 167-182.
- Thaman, R.R. 1989. Fijian agroforestry: Trees, people and sustainable polycultural development. In Overton, J. (ed.), *Rural Fiji*. Institute of Pacific Studies, The University of the South Pacific, Suva. Pp. 31-58.
- Thaman, R.R. 1990. Coastal reforestation and coastal agroforestry as strategies to address global warming and to promote sustainable development in the Pacific Islands. In Hughes, P.J. and McGregor, G. (eds.), *Global warming-related effects on agriculture and human health and comfort in the South Pacific*. South Pacific Regional Environment Programme (SPREP), Noumea and United Nations Environment Programme (UNEP), Nairobi. Pp. 65-84.
- Thaman, R.R. 1990. The evolution of the Fiji food system. In Jansen, A.A.J., Parkinson, S. and A.F.S. Robertson, A.F.S. (eds.), *Food and nutrition in Fiji: A historical review. Volume One: Food production, composition and intake*. Department of Nutrition and Dietetics, Fiji School of Medicine and the Institute of Pacific Studies, The University of the South Pacific, Suva. Pp. 23-107.
- Thaman, R.R. 1990. Mixed home gardening in the Pacific Islands: Present status and future prospects. In Landauer, K. and Brazil, M. (eds.), *Tropical home gardens*. United Nations University Press, Tokyo. Pp. 41-65.
- Thaman, R.R. 1992. Agrodeforestation as a major threat to sustainable development. Box 19.4 in Thistlethwaite, R. and Votaw, G., *Environment and development: A Pacific Island perspective*. Asian Development Bank, Manila and South Pacific Regional Environment Programme, Apia. Pp. 194-195.
- Thaman, R.R. and Clarke, W.C. 1993. Introduction. Chapter 1 Clarke, W.C. and Thaman, R.R. (eds.), *Pacific Island agroforestry: Systems for sustainability*. United Nations University Press, Tokyo. Pp. 1-16.
- Thaman, R.R. and Clarke, W.C. 1993. Pacific island agroforestry: Functional and utilitarian diversity. Chapter 2 in Clarke, W.C. and Thaman, R.R. (eds.), *Pacific Island agroforestry: Systems for sustainability*. United Nations University Press, Tokyo. Pp. 17-33.
- Thaman, R.R. 1993. Kologhona Village, Weather Coast, Guadalcanal, the Solomon Islands. In Clarke, W.C. and Thaman, R.R. (eds.), *Pacific Island agroforestry: Systems for sustainability*. United Nations University Press, Tokyo. Pp. 35-40.
- Thaman, R.R. and Clarke, W.C. 1993. The south-eastern Solomon Islands. In Clarke, W.C. and Thaman, R.R. (eds.), *Pacific Island agroforestry: Systems for sustainability*. United Nations University Press, Tokyo. Pp. 48-53.

- Thaman, R.R. and Clarke, W.C. 1993. Agroforestry on Aneityum and Tanna, Vanuatu. In Clarke, W.C. and Thaman, R.R. (eds.), *Pacific Island agroforestry: Systems for sustainability*. United Nations University Press, Tokyo. Pp. 54-63.
- Thaman, R.R. 1993. Fijian agroforestry at Namosi and Matainasau. In Clarke, W.C. and Thaman, R.R. (eds.), *Pacific Island agroforestry: Systems for sustainability*. United Nations University Press, Tokyo. Pp. 63-84.
- Thaman, R.R. 1993. Tongatapu Island, Tonga. In Clarke, W.C. and Thaman, R.R. (eds.), *Pacific Island agroforestry: Systems for sustainability*. United Nations University Press, Tokyo. Pp. 89-95.
- Clarke, W.C. and Thaman, R.R. 1993. Rotuma island, Fiji. In Clarke, W.C. and Thaman, R.R. (eds.), *Pacific Island agroforestry: Systems for sustainability*. United Nations University Press, Tokyo. Pp. 95-98.
- Thaman, R.R. 1993. Rarotonga and Aitutaki, the Cook Islands. In Clarke, W.C. and Thaman, R.R. (eds.), *Pacific Island agroforestry: Systems for sustainability*. United Nations University Press, Tokyo. Pp. 99-111.
- Decker, B. and Thaman, R.R. 1993. The Marquesas Islands, French Polynesia. In Clarke, W.C. and Thaman, R.R. (eds.), *Pacific Island agroforestry: Systems for sustainability*. United Nations University Press, Tokyo. Pp. 111-121.
- Thaman, R.R. 1993. Atoll agroforestry on Tarawa and Abemama, Kiribati. In Clarke, W.C. and Thaman, R.R. (eds.), *Pacific Island agroforestry: Systems for sustainability*. United Nations University Press, Tokyo. Pp. 130-144.
- Thaman, R.R. 1993. Pacific Island urban agroforestry. Chapter 7 in Clarke, W.C. and Thaman, R.R. (eds.), *Pacific Island agroforestry: Systems for sustainability*. United Nations University Press, Tokyo. Pp. 145-156.
- Thaman, R.R. and Ali, I. 1993. Agroforestry on smallholder sugar-cane farms in Fiji. Chapter 8 in Clarke, W.C. and Thaman, R.R. (eds.), *Pacific Island agroforestry: Systems for sustainability*. United Nations University Press, Tokyo. Pp. 157-161.
- Thaman, R.R., Manner, H.I and Clarke, W.C. 1993. Institutionalized agroforestry in the Pacific Islands. Chapter 9 in Clarke, W.C. and Thaman, R.R. (eds.), *Pacific Island agroforestry: Systems for sustainability*. United Nations University Press, Tokyo. Pp. 162-190.
- Thaman, R.R. and Clarke, W.C. 1993. Agroforestry in the Pacific Islands: Systems for sustainability. Chapter 10 in Clarke, W.C. and Thaman, R.R. (eds.), *Pacific Island agroforestry: Systems for sustainability*. United Nations University Press, Tokyo. Pp. 191-215.
- Thaman, R.R. 1993. One hundred Pacific Island agroforestry trees. In Thaman, R.R. and Clarke, W.C. (eds.), *Pacific island agroforestry: Systems for sustainability*. Prepared for the United Nations University, Tokyo, Japan. Geography Department. The University of the South Pacific, Suva. Pp. 216-266.
- Thaman, R.R. 1993. Moana nui, vanua and wantoks. In Waddell, E., Naidu, V. and Hau'ofa, E. *A new Oceania: Rediscovering our sea of islands*. A USP 25th Anniversary publication. School of Social and Economic Development, University of the South Pacific, Suva. Pp. 38-48.
- Thaman, R.R. 1993. Pacific Island biodiversity: A basis for ecological, cultural and economic survival. In Waddell, E. and Nunn, P.D. (eds.), *The margin fades: Geographical itineraries in a world of islands*. Institute of Pacific Studies, the University of the South Pacific, Suva. Pp. 49-65.
- Thaman, R.R. 1994. Pacific Island agroforestry: An endangered science. In Morrison, J., Geraghty, P. and Crowl, L. (eds.), *Science of Pacific Island peoples. Vol. 2: Land use and agriculture*. Institute of Pacific Studies, University of the South Pacific, Suva. Pp. 191-221.

- Thaman, R.R. 1994. Ethnobotany of Pacific Island coastal plants. In Morrison, J., Geraghty, P. and Crowl, L. (eds.), *Science of Pacific Island peoples. Vol. 3: Land use and agriculture*. Institute of Pacific Studies, University of the South Pacific, Suva. Pp. 147-184.
- Thaman, R.R. 1996. Distant fields: The relevance of field studies for distance education in the Pacific Islands. In Ravaga, V., Vatucaawaqa, L., Hola, L., Faasalaina, T. and Singh, V. (eds.), *Negotiating the distance: A collection of experiences in teaching extension courses at The University of the South Pacific (Celebrating 25 years of distance education at The University of the South Pacific)*. University Extension, The University of the South Pacific, Suva. Pp. 125-142.
- Thaman, R.R. 1999. Coastal biodiversity and ethnobiology: An ecological, cultural, and economic safety net for Pacific peoples. Chapter 12 in Eldredge, L.G., Maragos, J.E., Holthus, P.F. and Takeuchi, H.F. (eds.), *Marine and coastal biodiversity in the tropical island Pacific Region. Vol.2. Population, development, and conservation priorities*. Programme on Environment, East-West Center and Pacific Science Association, Bishop Museum, Honolulu. Pp. 235-265.
- Clarke, W.C., Manner, H.I. and Thaman, R.R. 1999. Agriculture and forestry. In Rapaport, M. (ed.), *The Pacific Islands: Environment and Society*. The Bess Press, Honolulu. Pp. 353-365.
- Mueller-Dombois, D., Thaman, R.R., Juvik, J.O., MacClatchy, W.C., and Kitayama, K. 1999. The Pacific-Asia Biodiversity Transect (PABITRA): A new conservation biology initiative. In Chou, C.-H., Waller, G.R. and Reinhardt, C. (eds.), *Biodiversity and allelopathy: From organisms to ecosystems in the Pacific*. Academia Sinica, Taipei. Pp. 13-20.
- Thaman, R.R., Elevitch, C.R. and Wilkinson, K.M. 2000. Multipurpose trees for agroforestry in the Pacific Islands. In Elevitch, C.R. and Wilkinson, K.M. (eds.), *Agroforestry guides for Pacific Islands*. Permanent Agriculture Resources (PAR), Holuhua, Hawaii. Pp. 24-69. Web Site: <http://www.agroforestry.net>.
- Thaman, R.R., Elevitch, C.R. and Wilkinson, K.M. 2001. Traditional Pacific Island agroforestry systems. In Elevitch, C.R. and Wilkinson, K.M. (eds.), *The overstory book: Cultivating connections with trees*. Permanent Agriculture Resources, Holualoa, Hawai'i. Pp. 21- 26.
- Thaman, R.R., Tukiuha, C., Tukiuha, V., Kulatea, M. and Aue, S. 2004. Niue's biodiversity: A foundation for ecological, cultural and economic survival of a small island nation. In Terry, J. and Murray, W. (eds.), *Niue island: Geographical perspectives on the Rock of Polynesia*. International Scientific Council for Island Development (INSULA), Paris. Pp. 125-202.
- Thaman, R. R. 2006. An introduction to the ethnobiodiversity and plants of the Marshall Islands. In Taafaki, I.J., Fowler, M.K. and Thaman, R. R. (eds.), 2006. *Traditional medicine of the Marshall Islands: The women, the plants, the treatments*. IPS Publications, University of the South Pacific, Suva. Pp. 41-56.
- Thaman, R.R., Thomson, L.A.J., DeMeo, R., Areki, F. and Elevitch, C.R. 2006. *Intsia bijuga* (vesi) Fabaceae (legume family). *Traditional trees of Pacific Islands: Their culture, environment, and use*. Permanent Agriculture Resources, Holualoa, Hawai'i. Pp. 245-440.
- Thaman, R.R., Elevitch, C.R. and Kennedy, J. 2006. Urban and homegarden agroforestry in the Pacific Islands: Current status and future prospects. In Kumar, B.M. and Nair, P.K.R. *Tropical home gardens: A time-tested example of sustainable agroforestry*. Springer, Dordrecht, The Netherlands. Pp. 25-42.
- Terry, J.P. and R.R. Thaman 2008. Physical geography of Majuro Atoll and the Marshall Islands. In J.P. Terry and F. R. Thomas (eds.), *The Marshall Islands: Environment, history and society in the atolls*. Faculty of Islands and Oceans, The University of the South Pacific, Suva. Pp. 1-22.
- Thaman, R.R. 2008. The ecosystems and flora of Majuro Atoll. In J.P. Terry and F. R. Thomas (eds.), *The Marshall Islands: Environment, history and society in the atolls*. Faculty of Islands and Oceans, The University of the South Pacific, Suva. Pp. 23-68.

- Thaman, R.R. 2009. Sustainability. In Gillespie, R.G. and Clague (eds.), *Encyclopedia of Islands*, University of California Press, Berkeley. Pp. 888-896.
- Thaman, K.H. and Thaman, R.R. 2009. Pacific Island principles: Learning to live wise and sustainable lives. In P.B. Corcoran and P.M. Osano (eds.), *Young people, education and sustainable development: Exploring principles, perspectives and praxis*. Wageningen Academic Publishers, Wageningen. Pp. 63-76.
- Thaman, R.R. 2010. Foreword. In B.R. French. *Food plants of Solomon Islands: A compendium*. Food Plants International, Devonport, Tasmania. Pp. vi-vii.
- Thaman, R., Smith, A. and Faka'osi, T. 2011. Coastal reforestation in Tonga to protect coastlines. Case study 22 in Wilkinson, C. and Brodie, J. (eds.), *Catchment management and coral reef conservation: A practical guide for coastal resource managers to reduce damage from catchment areas based on best practice case studies*. Global Coral Reef Monitoring Network and Rainforest Research Centre, Townsville. Pp. 82-83.
- Thaman, R.R. 2011. Foreword: Agroforestry conservation and enrichment as a basis for biodiversity conservation and sustainable island life. In Elevitch, C.R. (ed.), *Specialty crops for Pacific Islands*. Permanent Agricultural Resources, Holoaloa, Hawai'i. Pp. ix-xiv.
- Thaman, R. 2011. Rare giant box crab reappears in Fiji after almost 50 years. In *Valuing island biodiversity: It's our life!* Secretariat of the Pacific Regional Environment Programme (SPREP), Apia. Pg. 5.
- Faka'osi, T. and Thaman, R. 2011. Tonga. In Moorhead, A. (ed.) *Forests of the Pacific Islands: Foundation for a sustainable future*. Secretariat of the Pacific Community, Suva and Noumea. Pp. 138-143.
- Lausaveve, I. and Thaman, R. 2011. Tuvalu. In Moorhead, A. (ed.) *Forests of the Pacific Islands: Foundation for a sustainable future*. Secretariat of the Pacific Community, Suva and Noumea. Pp. 144-150.
- Moorhead, A. and Thaman, R. 2011. Introduction. In Moorhead, A. (ed.) *Forests of the Pacific Islands: Foundation for a sustainable future*. Secretariat of the Pacific Community, Suva and Noumea. Pp. 1-12.
- Moorhead, A. and Thaman, R. 2011. Tokelau. In Moorhead, A. (ed.) *Forests of the Pacific Islands: Foundation for a sustainable future*. Secretariat of the Pacific Community, Suva and Noumea. Pp. 133-137.
- Moorhead, A., Thaman, R. and Ohlson, J. 2011. Nauru. In Moorhead, A. (ed.) *Forests of the Pacific Islands: Foundation for a sustainable future*. Secretariat of the Pacific Community, Suva and Noumea. Pp. 78-84.

JOURNAL ARTICLES

- Thaman, R.R. 1974. *Lantana camara*: Its introduction, dispersal and impact on the islands of the tropical Pacific Ocean. *Micronesica* 10(1):17-40.
- Thaman, R.R. 1976. Detrimental and favourable effects of exotic weed species on Pacific Island ecosystems and cultural complexes. *Journal of Pacific Studies* 2:67-87.
- Thaman, R.R. 1977. Plant resources of the Suva Municipal Market, Fiji. *Ethnomedicine* IV 1/2 (1976/77):23-62.
- Thaman, R.R. 1982. Deterioration of traditional food systems, increasing malnutrition and food dependency in the Pacific Islands. *Journal of Food and Nutrition* 39(3):109-121.
- Thaman, R.R. 1982. The foods that came first. *Alafua Agricultural Bulletin* 7(3):105-116.
- Thaman, R.R. 1983. Food for urbanising Polynesian peoples. *Proceedings of the Nutrition Society of New Zealand* 8:26-37.

- Thaman, R.R. 1983. Urban gardening in Fiji: A direct means for sustainable national development. *Proceedings of the Fiji Society* 13:1-27.
- Thaman, R.R. 1984. The poisoning of paradise: Pesticides, people, environmental pollution and increasing dependency in the Pacific Islands. *South Pacific Forum* 1(2):165-200.
- Manner, H.I., Thaman, R.R. and Hassall, D.H. 1984. Phosphate-mining induced vegetation changes on Nauru Island. *Ecology* 65(5):1454-1465.
- Manner, H.I., Thaman, R.R. and Hassall, D.H. 1985. Plant succession after phosphate mining on Nauru. *Australian Geographer* 17:185-195.
- Thaman, R.R. 1987. Urban agroforestry: The Pacific Islands and beyond. *Unasylva* 39(155):2-13.
- Thaman, R.R. 1987. Plants of Kiribati: A listing and analysis of vernacular names. *Atoll Research Bulletin* 296:1-42.
- Thaman, R.R. 1987. Environmental education as a basis for ecological development in the Pacific Islands. *Directions* 9(2):89-102.
- Thaman, R.R. and Clarke, W.C. 1987. Pacific Island agrosilviculture: Systems for cultural and ecological stability. *Canopy International* 13(1):6-7; 13(2):8-10; 13(1):8-9 (three-part series).
- Thaman, R.R. 1988. Health and nutrition in the Pacific Islands: Development or underdevelopment. *GeoJournal* 16(2):211-227.
- Thaman, R.R. 1988. Consumerism, the media, and malnutrition in the Pacific Islands. *The Journal of Pacific Studies* 14:68-96.
- Thaman, R.R. 1989. Agrodeforestation and the neglect of trees: Threat to the wellbeing of Pacific societies. *Ples: An Environmental Education Journal for the South Pacific Region* 5:48-64.
- Thaman, R.R. 1990. Kiribati agroforestry: Trees, people and the atoll environment. *Atoll Research Bulletin* 333:1-29.
- Thaman, R.R. 1992. Vegetation of Nauru and the Gilbert Islands. *Pacific Science* 46(2):128-158.
- Thaman, R.R. 1992. Batiri kei Baravi: The ethnobotany of Pacific Island coastal plants. *Atoll Research Bulletin* 361:1-62.
- Thaman, R.R. 1993. Children and the future of the Pacific Islands. *Directions: Journal of Educational Studies* 15(1):1-18.
- Thaman, R.R. 1994. Community-based biodiversity management: A foundation for sustainable island development. In Thomas, P., Bliss, E. and Hussain, R. (eds.), *Managing resources in the South Pacific. Development Bulletin* (Special issue) 31:76-78. Australian Development Network, Australian National University, Canberra.
- Thaman, R.R. 1994. Land, plants, animals and people: Community-based biodiversity conservation (CBBC) as a basis for ecological, cultural and economic survival in the Pacific Islands. *Pacific Science Association Information Bulletin* 46 (1-2):1-15.
- Thaman, R. R. 1994. Marine ethnobiology: A foundation for marine science education in the Pacific Islands. *Pacific Curriculum Network*: 8-11.
- Thaman, R.R. 1995. Urban food gardening in the Pacific Islands: A basis for food security in rapidly urbanising small-island states. *Habitat International* 19 (2):209-224.

- Thaman, R.R., Smith, A., Faka'osi, T. and Filiai, L. 1995. Tonga coastal reforestation and protection project. *Pacific Islands Forests & Trees* 3/95 (September): 8-10 and 2.
- Thaman, R.R. (Johansen, H., trans.). 1995. Mennesker og kulturer på Stillehavsoerne (People and cultures of the Pacific Islands). *Geografisk Orientering* (Special issue on Oceania) 25 (6)(Nov.- Dec.): 240-245.
- Thaman, R.R. 1995. (Johansen, H., trans.). Moderne udvikling på Stillehavsoerne - er den bæredygtig? (Modern Pacific Island development - is it sustainable?). *Geografisk Orientering* (Special issue on Oceania) 25 (6)(Nov.- Dec.): 254-257.
- Thaman, R.R. 1996. The biodiversity of Koroyanitu National Park. *Domodomo: A scholarly journal of the Fiji Museum*. 10 (1): 28-51.
- Clarke, W.C. and Thaman, R.R. 1997. Incremental agroforestry: Enriching Pacific landscapes. *Contemporary Pacific* 9 (1): 121-148.
- Thaman, R.R. 1999. Pacific Island biodiversity on the eve of the 21st Century: Current status and challenges for its conservation and sustainable use. *Pacific Science Association Information Bulletin* 51 (1-4): 1- 37.
- McClatchey, W., Thaman, R. and Vodonaivalu, S. 2000. A preliminary checklist of the flora of Rotuma and Rotuman names. *Pacific Science* 54 (4): 345-363.
- Thaman, R. R. 2002. Trees outside forests as a foundation for sustainable development in the Small Island Developing States of the Pacific Ocean. *The International Forestry Review* 4 (4)(December): 268- 276.
- Thaman, R. R., Meleisea, M. and Makasiale, J. 2002. Agricultural diversity and traditional knowledge as insurance against natural disasters. *Pacific Health Dialogue* 9 (1): 76-85.
- Thaman, R.R. 2002. Threats to Pacific biodiversity and biodiversity conservation in the Pacific Islands. In Thomas, P.M. (ed.), *Environmental sustainability and poverty reduction: Pacific Issue*. Special issue of *Development Bulletin* 58 (July): 23-27.
- Thaman, R.R. 2003. Consumerism, the media and malnutrition in the Pacific Islands. *Pacific Health Dialogue* 10 (4): 86-97.
- Thaman, R.R. 2004. Sustaining culture and biodiversity in Pacific Islands with local and indigenous knowledge. *Pacific Ecologist* Autumn-Winter (7 & 8): 43-48.
- Thaman, R.R. 2004. Urban gardening on the small islands of the Pacific. *Urban Agriculture Magazine* (www.ruaf.org:) 12-14.
- Rigamoto, R.R., Tyagi, A. and Thaman, R.R. 2004. Ethnobotanical importance of the coastal plant species of Rotuma Island. *The South Pacific Journal of Natural Science* 22: 22-26.
- Thaman, R.R., Keppel, G., Watling, D., Thaman, Batiri, Gaunavinaka, T., Naikatini, A., Thaman, Baravi, Bolaqaci, N., Sekinoco, E. and Maseri, M. 2005. Nasoata mangrove island, the PABITRA coastal study site for Viti Levu, Fiji Islands. *Pacific Science* 59: 193-204.
- Thaman, Randy. 2005. Biodiversity is the key to food security. *Spore* 117 (June):1-3.
- Thaman, R. R. 2007. Biodiversity, ethnobiodiversity and biospirituality: A foundation of cultural survival and sustainable living on small islands. *The Pacific Journal of Theology* Series 2 (38): 70-84.
- Thaman, Randy. 2007/08. Restoring the Pacific Islands' rich agricultural traditions: An urgent priority. *Pacific Ecologist* 15 (Summer): 51-57.

- Thaman, R.R. 2008. Pacific Island agrobiodiversity and ethnobiodiversity: A foundation for sustainable Pacific Island life. *Biodiversity: Journal of Life on Earth (Special issue: The value of biodiversity to food & agriculture)* 9 (1 & 2): 102-110.
- Thaman, Randy. 2008. A matter of survival: Pacific Islands' vital biodiversity, agricultural biodiversity and ethno-biodiversity heritage. *Pacific Ecologist* 16 (Winter): 53-61.
- Thaman, R.R. 2008. Atolls – the “biodiversity cool spots” vs “hot spots”: A critical new focus for research and conservation. *Micronesica* 40 (1/2): 33-61.
- Thaman, R.R., Tepaieka Puia, Wilson Togabaea, Ashley Namona and Teddy Fong. 2010.. Marine biodiversity and ethnobiodiversity of Bellona (Mungiki) Island, Solomon Islands. *Singapore Journal of Tropical Geography* 31 (1): 70-84.
- Thaman, Randy 2011. Wedelia – daisy invader of Melanesia: The worst weed in the Pacific? *Melanesian Geo Magazine* May-Aug.: 6-12.

PAPERS PUBLISHED IN CONFERENCE/SYMPOSIUM PROCEEDINGS

- Thaman, R.R., Estes, J.E. and Senger, L.W. 1973. Practical applications of ERTS-1 satellite imagery for land use mapping and resource inventories in the central coastal region of California. *Proceedings of the Third Earth Resources Technology Satellite Symposium*. Volume 1: Technical Presentations. Goddard Space Flight Center, Washington, D.C., December 10-14. Pp. 457-490.
- Thaman, R.R. 1974. Tongan agricultural land use: A study of plant resources. In Stokes, E. (ed.), *Proceedings of the International Geographical Union Regional Conference and Eighth New Zealand Geography Conference*. Palmerston North, December 1974. New Zealand Geographical Society (Inc.), Wellington. Pp. 153-160.
- Thaman, R.R. 1977. Urban root crop production in the southwest Pacific. Chapter XI in Lambert, M. (ed.), *Collected papers: Regional Meeting on Production of Root Crops 24-29 October 1975, Suva, Fiji*. Technical Paper No. 174. South Pacific Commission, Noumea. Pp. 73-82.
- Thaman, R.R. 1977. The nature and importance of Tongan root crop production. Chapter XII in Lambert, M. (ed.), *Collected papers: Regional Meeting on Production of Root Crops 24-29 October 1975, Suva, Fiji*. Technical Paper No. 174. South Pacific Commission, Noumea. Pp. 83-89.
- Thaman, R.R. 1979. Food scarcity, food dependency and nutritional deterioration in small island communities. In Moran, W., Hosking, P. and Aitken, G. (eds.), *Proceedings of the 10th New Zealand Geographical Conference and 49th ANZAAS Congress, Auckland: Geographical Sciences*. N.Z. Geographical Society Conference Series, No. 10. Pp. 191-197.
- Thaman, R.R. and Ba, T. 1979. Energy needs and forest resources of small islands. In Moran, W., Hosking, P. and Aitken, G. (eds.), *Proceedings of the 10th New Zealand Geographical Conference and 49th ANZAAS Congress, Auckland: Geographical Sciences*. N.Z. Geographical Society Conference Series, No. 10. Pp. 198-204.
- Thaman, R.R., Meleisea, M. and Makasiale, J. 1979. Agricultural diversity and traditional knowledge as insurance against natural disasters. Annex 10 in *Natural Disaster Prevention, preparedness and Rehabilitation Meeting, SPEC Headquarters, Suva 26-30 November: Summary Record*. South Pacific Bureau for Economic Cooperation Report (79) 25: 75-96.
- Thaman, R.R. 1981. Land, people, and distance education in the Pacific Islands. In Livingston, K. and Crumps, R. (eds.), *ASPESA Forum 81 Papers: Supplementary Volume*. Australian and South Pacific External Studies Association Fifth Biennial Forum, Suva. Pp. 89-108.

- Thaman, R.R. 1982. The Natural Ecology of Food Production and Nutrition Systems. In Orozco, R.C., Jus'at, I., Barba, C. and Nube, M. (eds.), *Guidelines for curriculum content in food and nutrition planning and management* (Proceedings of the Second FNP Workshop 8-13 November, 1982, Jakarta, Indonesia). Regional Training Programme on Food and Nutrition Planning, University of Philippines, Los Banos. Pp. 119-130.
- Thaman, R.R. and Thomas, P.M. 1982. The cassava invasion: The cultural, nutritional and ecological impact of cassava on Pacific Island food systems. In Bourke, R.M. and Kesavan, V. (eds.), *Proceedings of the Second Papua New Guinea Food Crops Conference: Part Two*. Department of Primary Industries, Port Moresby. Pp. 330-350.
- Thaman, R.R. 1985. Pacific Islands health and nutrition: Trends and areas for action. In *Development and change: Issue Papers*. Pacific Islands Conference, Rarotonga, Cook Islands, August 1985. Pacific Islands Development Programme, East-West Center, Honolulu. Pp. III-A.1-27.
- Thaman, R.R. 1986. Microparks in the Pacific Islands: The relevance of traditional and modern small-scale conservation areas in the context of nature conservation in the Pacific Islands. In Thomas, P.E.J. (ed.), *Report of the Third South Pacific National Parks and Reserves Conference (Apia, Western Samoa). Vol. II: Collected Key Issue and Case Study Papers*. South Pacific Regional Environmental Programme (SPREP), South Pacific Commission, Noumea. Pp. 215-236.
- Thaman, R.R. 1986. Coming down to earth: Strengthening remote sensing applications in island countries. In *Remote sensing in the Pacific Islands (Report of the Pacific Island Regional Workshop and Training Course on Resource Mapping, Suva, Fiji)*. UNDP/ESCAP Regional Remote Sensing Programme, Economic and Social Commission for Asia and the Pacific (ESCAP), Bangkok. Pp. 46-48.
- Thaman, R.R. 1986. Mapping and field inventory with a case study of Tonga. In *Remote sensing in the Pacific Islands (Report of the Pacific Island Regional Workshop and Training Course on Resource Mapping, Suva, Fiji)*. UNDP/ESCAP Regional Remote Sensing Programme, Economic and Social Commission for Asia and the Pacific (ESCAP), Bangkok. Pp. 49-50.
- Thaman, R.R. 1987. Food, fortune and fatality: Economic, social and nutritional challenges of the urbanization of Pacific Island food systems. In Bruss, M.B. (ed.), *Nutrition Challenges in a Changing World: Proceedings of the Pacific Conference, July 13-14, 1987, University of Hawaii, Manoa, Honolulu, Hawaii*. Hawaii Nutrition Council and the Select Committee on International Nutrition, Society for Nutrition Education, Honolulu. Pp. 32-75.
- Thaman, R.R. 1987. Consumerism, the media and malnutrition in the Pacific Islands. In Bruss, M.B. (ed.), *Nutrition Challenges in a Changing World: Proceedings of the Pacific Conference, July 13-14, 1987, University of Hawaii, Manoa, Honolulu, Hawaii*. Hawaii Nutrition Council and the Select Committee on International Nutrition, Society for Nutrition Education, Honolulu. Pp. 76-101.
- Thaman, R.R. 1988. The forgotten fruit: Overspecialisation in agricultural and forestry development and the need for professional reversals and a whole-farm approach. In Drysdale, P. (ed.), *Agricultural extension in Fiji: Proceedings of the Congress of the Fiji Institute of Agricultural Science, February 4 and 6, Suva*. Fiji Institute of Agricultural Science, Lautoka. Pp. 10.1-33.
- Thaman, R.R. 1989. Rainforest management within the context of existing agroforestry systems. In Heuvelodp, J., Homola, M., Maydell, H.J von, and Tuyll, C. van (eds.), *Proceedings: GTZ Regional Forestry Seminar, Fiji, 3-14 October 1988*. Fiji-German Forestry Project, Ministry of Forests, Suva, on behalf of Deutsche Gesellschaft für Technische Zusammenarbeit, Hamburg. Pp. 354-371.
- Thaman, R.R. 1989. Research for atoll resource development and management: Priorities and capabilities for applied research in Kiribati. In Thaman, R.R. (Ed.), *Applied atoll research for development: Proceedings of the Kiribati Applied Atoll Research for Development Consultation, Tarawa 27 February to 2 March 1989*. Ministry for Natural Resource Development, Bairiki, Tarawa, Kiribati. Pp. 108-129.

- Thaman, R.R. 1989. Agrodeforestation and agricultural development: The role of modern agricultural development in deforestation and the neglect of trees. In Haynes, R.J. and Naidu, R. (eds.), *Agricultural development in the Pacific Islands in the 90s: Proceedings of an International Conference and Workshop held in Suva Fiji, March 31 to April 1, 1989*. Fiji Institute of Agricultural Science, Chemical Society of the South Pacific and The University of the South Pacific, Suva. Pg. 124-134.
- Thaman, R.R. 1990. Coastal reforestation and agroforestry as immediate ameliorative measures to address global warming and to promote sustainable habitation of lowlying islands and coastal areas. In Streets, D.G. and Siddiqi, T.A. (eds.), *Responding to the Threat of Global Warming: Options for the Pacific and Asia. Proceedings of a Workshop Sponsored by Argonne National Laboratory and Environment and Policy Institute, East-West Center, Honolulu, Hawaii 21-27 June 1989*. Argonne National Laboratory, Illinois. Pp. 4.33-4.57.
- Thaman, R.R. 1990. Hybrid agroforestry: A strategy for addressing deforestation, agrodeforestation and forest degradation in the South Pacific. In Reti, I. (ed.), *A better environment for development: Country reviews and technical papers, UNDP Regional Workshop on Environmental Management and Sustainable Development, Suva, 17-21 April, 1990*. Pp. 343-370.
- Thaman, R.R. 1990. Challenges and constraints to sustainable development in the Pacific islands - Is there a way forward? In Reti, I. (ed.), *A better environment for development: Country reviews and technical papers, UNDP Regional Workshop on Environmental Management and Sustainable Development, Suva, 17-21 April, 1990*. Pp. 371-380.
- Thaman, R.R. 1990. Root crops in the nutritional future of the Pacific Islands. In Howeler, R.H. (ed.), *Tropical root and tuber crops - Changing role in a modern world: Proceedings of the Eighth Symposium of the International Society for Tropical Root Crops, Bangkok, Thailand, Oct. 30 - Nov. 5, 1988*. International Society for Tropical Root Crops (ISTRIC), Wageningen, Netherlands. Pp. 130-146.
- Thaman, R.R. 1991. Agroforestry and fuelwood resources in the Pacific Islands: Present status and future prospects. In *Household and rural energy: Pacific household and rural energy seminar, Port Vila, Vanuatu, November 5-9, 1990 (Proceedings). Vol. 2. Energy Sector Management and Assistance Programme (ESMAP), World Bank, Washington, D.C. and UNDP Pacific Energy Development Programme (PEDP), Suva*. Pp. 246-285.
- Thaman, R.R. 1991. Evolution and change in Pacific Island food systems. Background paper no. 3. In Bakker, M.L. and Thaman, R.R. (eds.), *Population, Food and Development: Proceedings - USP/SPC/UNFPA Regional Symposium, The University of the South Pacific, Suva, Fiji, 12-16 November, 1990*. Demographic report 2. Population Studies Programme, University of the South Pacific, Suva. Pp. 81-100.
- Thaman, R.R. 1992. Atoll agroforestry and plant resources: a basis for sustainable atoll agricultural development. In Chase, R.G. (ed.), *A review of agricultural development in the atolls: Invited papers from the International Conference on Developing Agriculture Research Programmes for Atolls, Pacific Harbour, Fiji, November 1990*. Institute for Research, Extension and Training in Agriculture, University of the South Pacific, Apia, Western Samoa. Pp. 55-81.
- Thaman, R.R. 1993. Climate change, forestry and agroforestry in the Pacific Islands: Impacts and appropriate responses. In Hay, J.E. and Kaluwin, C. (eds.), *Climate change and sea level rise in the South Pacific Region: Proceedings of the Second SPREP Meeting, Noumea, New Caledonia, 6-10 April 1992*. South Pacific Regional Environment Programme, Apia, Western Samoa. Pp. 119-136.
- Thaman, R.R. 1994. Land, plants, animals and people: Community-based biodiversity conservation as a basis for ecological, cultural and economic survival in the Pacific islands. In Capecchi, B. (ed.), *La terre: Acts du sixieme Colloque C.O.R.A.I.L., Noumea, 27, 28 et 29 Octobre 1993*. L'association C.O.R.A.I.L (Coordination pour l'Océanie des Recherches sur les Arts, les Idees et les Litteratures), Noumea. Pp. 165-195.

- Thaman, R.R. and Devoe, N.N. 1995. Ethnobotany and changing land use in North Ambrym, Vanuatu. In Tang, H.T., Finiasi, L.S. and Enevoldsen, K. (eds.), *What value forests and trees: Proceedings of Heads of Forestry Meeting 1993, 20-24 September, Nadi, Fiji*. Field Document No. 6 (RAS/92/361). South Pacific Forestry Development Programme, Suva. Pp. 179-189.
- Thaman, R. R. and Whistler, W.A. 1995. Strategies for the protection and planting of trees: A preliminary report of a study of uses, husbandry and performance of trees in forestry and agroforestry systems in Samoa, Tonga, Kiribati and Tuvalu. In Tang, H.T., Finiasi, L.S. and Enevoldsen, K. (eds.), *What value forests and trees: Proceedings of Heads of Forestry Meeting 1993, 20-24 September, Nadi, Fiji*. Field Document No. 6 (RAS/92/361). South Pacific Forestry Development Programme, Suva. Pp. 170-178.
- Thaman, R.R. 1996. Evolutionary agroforestry: Traditional Pacific Island agroforestry as a foundation for modern agroforestry development. In Rogers, S. and Thorpe, P. (eds.), *Agroforestry research and practices in the Pacific: Reports and papers from the Second Annual Meeting of Collaborators, Port Vila, Vanuatu, 22-26 April, 1996*. PRAP report No. 3. Pacific Regional Agricultural Programme, Suva. Pp. 85-113.
- Thaman, R.R. 1996. Critical issues for sustainable farming system development in the Pacific Islands. In Norman, D., Umar, M., Tofinga, M. and Bammann, H. (eds.), *The farming systems approach to sustainable agriculture development in the South Pacific: Proceedings of an FAO/IRETA Workshop, The University of the South Pacific, Suva, Fiji, 5-8 August 1996*. Institute for Research Extension and Training in Agriculture (IRETA), University of the South Pacific, Apia, Western Samoa. Pp. 19-23.
- Thaman, R.R. 1999. Thinking globally and acting locally: Community-based biodiversity conservation in Oceania as a basis for addressing the erosion of coastal biodiversity. In Koshy, K. (ed.), *Inaugural START - Oceania Workshop: Proceedings of the Joint Coastal Zone Management and Climate Change Workshops, The University of the South Pacific Marine Studies Programme Facility, Suva, Fiji, 5-9 October 1998*. START – Oceania Secretariat, University of the South Pacific, Suva. Pp. 125-175.
- Thaman, R.R. 1999. Concepts and information related to the protection and development of atoll agroforestry systems in the Pacific Islands. In Wescom, R. and Bulai, S. (eds.), *Report on Sub-regional Training Workshop on Agroforestry/Drum Ovens for Atoll Islands, 3-16 August 1999, Majuro, Republic of the Marshall Islands with an annotated checklist of important Pacific Island atoll agroforestry species*. SPC/UNDP/FAO Pacific Islands Forests and Trees Support Programme, Suva. Pp. 18-25.
- Thaman, R.R. 1999. Annotated checklist of important Pacific Island atoll agroforestry species. In Wescom, R. and Bulai, S. (eds.), *Report on Sub-regional Training Workshop on Agroforestry/Drum Ovens for Atoll Islands, 3-16 August 1999, Majuro, Republic of the Marshall Islands with an annotated checklist of important Pacific Island atoll agroforestry species*. SPC/UNDP/FAO Pacific Islands Forests and Trees Support Programme, Suva. Pp. 26-69.
- Thaman, R. R. 2001. Ecotourism and the natural environment: Protecting Fiji's unique environments. In Bricker, K. S. (ed.), *Shaping the future of ecotourism in Fiji: Proceedings of the 1st Annual Fiji Ecotourism Association Conference, Tanoa International Hotel, Nadi Fiji, December 11-12, 2000*. Fiji Ecotourism Association, Suva, Fiji Islands. Pp. 52-72.
- Thaman, R.R., Eritaia, B. and Faka'osi, S. 2001. Community-based biodiversity surveys and conservation action plans as tools for nature conservation in the Pacific Islands: Lessons learned from Fiji, Tonga and Kiribati (Melanesia, Polynesia and Micronesia). In Miller, S. and Sim, J. (eds.), *Tools for conservation: 6th South Pacific Conference on Nature Conservation & Protected Areas, 29 September – 3 October 1997, Pohnpei, Federated States of Micronesia. Volume 3: Conference papers*. South Pacific Regional Environment Programme, Apia. Pp. 225-285.
- Thaman, R.R. 2002. Concepts and information related to the protection and development of atoll agroforestry systems in the Pacific Islands. In Thaman, R.R., Bulai, S. and Pouru, K. (eds.), *Report on Sub-regional Training Workshop on Agroforestry/Drum Ovens for Atoll Islands, 17 October – 1 November, 2000*. Working Paper No. 3. Forests and Trees Programme, Secretariat of the Pacific Community, Suva, Fiji Islands. Pp. 12-20.

- Thaman, R.R. with input from Andrew Smith and Noah Idechong. 2002. Island life in the 21st century: Current status and challenges for mainstreaming the conservation and sustainable use of biodiversity in the Pacific Islands. *Conference papers of 6th Pacific Islands Conference on Nature Conservation and Protected Areas, Rarotonga, Cook Islands, 8 to 12 July 2002* (On line and distributed to delegates in conference binders).
- Thaman, R.R., Gillett, R.D. and Faka'osi, S. 2002. Community-based marine biodiversity surveys and marine resource management plan (MRMPs) as a basis for the conservation and sustainable use of coral reef ecosystems in the Pacific Islands. In Kulbicki, M. (ed.), *Coral reefs in the Pacific: Status and monitoring, resources and management. Proceedings of the International Coral Reef Initiative (ICRI) Regional Symposium, 22-24 May 2000, Noumea, New Caledonia*. Institute de recherche pour le développement (IRD), Noumea, New Caledonia. Pp. 441-460.
- Thaman, Batiri and Randy Thaman. 2003. The value of mangroves and mangrove ecosystems: Cultural and ethnobiological importance. In Aalbersberg, W., Thaman, B., Sauni, L. and Power, M. (eds.), *Proceedings of the Pacific Regional Workshop on Mangrove Wetland Protection and Sustainable Use, The University of the South Pacific Marine Studies Facility, Suva, Fiji, June 12-16, 2001*. South Pacific Regional Environment Programme, Apia. Pp. 17-27.
- Thaman, R. R. 2004. Ecotourism redefined: the greening of ecotourism as a foundation for sustainable development and poverty alleviation in the Pacific Islands. In Benson, C. (ed.), *The green pay-off: Sustainable development = economic growth*. 2002 Parkinson Memorial Lecture Series. University of the South Pacific, Suva. Pp. 61-71.
- Thaman, R.R. 2004. Trees of Life: Trees Outside Forests and Agroforestry as a Foundation for Biodiversity Conservation and Sustainable Development in the Small Island States of the Pacific Islands Thaman, R.R., Bulai, S. and Mathias, A. (eds.), *Trees outside forests in the Pacific Islands: Proceedings of the Regional Forestry Workshop on Trees Outside Forests, Raffles Gateway Hotel, Nadi, Fiji Islands, 10-14 December 2001*. Food and Agricultural Organization of the United Nations Pacific Regional Office Apia, Samoa and Pacific Islands Trees and Forests Programme, Secretariat of the Pacific Community, Suva. Pp. 27-103.
- Thaman, R.R. 2004. "Cool spots under threat: The conservation status of atoll biodiversity and ethno-biodiversity in the Pacific Islands. *Changing islands – changing worlds: Proceedings of Islands of the World VIII*: (Lee, K.J. and Tsai, H.-M. (eds.). International Small Islands Studies Association (ISISA). Pp. 60-64.
- Thaman, R.R. 2005. Sinking island arks - Island biodiversity and island living under threat: The uniqueness, threatened status and priority need to conserve island and associated marine biodiversity as the foundation for sustainable island life. Keynote presentation at the Tenth Meeting of the Subsidiary Body on Scientific, Technical and Technological Advice (SBSTTA) of the Convention on Biological Diversity (CBD), Bangkok, Thailand, 7-11 February 2005.
- Thaman, R.R. 2005. Indigenous and local knowledge as a foundation for the conservation and sustainable use of biodiversity in the Pacific Islands. In *UNESCO Pacific sub-regional workshop on indigenous science and traditional knowledge, 2-7 September 2001, Wellington, New Zealand: Programme, papers and participants*. New Zealand National Commission for UNESCO, Wellington. Pp. 59-96.
- Thaman, R.R. 2006. Coastal littoral vegetation of Suva Lagoon and Makuluva Reef Islet: A study of degradation, extirpation and the need for restoration. In Morrison, R.J. and Aalbersberg, B. (eds.), *At the Crossroads: Science and management of the Suva Lagoon*. Proceedings of a symposium, University of the South Pacific, 30 March – 1 April 2005. Institute of Applied Sciences, University of the South Pacific, Suva. Pp. 33-54.

- Thaman-Hughes, B and Thaman, R.R. 2006. The mangroves of Suva Lagoon. In Morrison, R.J. and Aalbersberg, B. (eds.), *At the Crossroads: Science and management of the Suva Lagoon*. Proceedings of a symposium, University of the South Pacific, 30 March – 1 April 2005. Institute of Applied Sciences, University of the South Pacific, Suva. Pp. 55-71.
- Thaman, R.R. 2007. Island biodiversity and ethnobiodiversity: Conservation, sustainable use and equitable sharing of biodiversity and ethnobiodiversity as a foundation for sustainable island life. In Tsai, H.-M. (ed.), *Proceedings of the Inaugural Meeting of the IGU Commission on Islands: "Island Geographies"* International Conference, October 29-November 3, 2007, Taiwan University, Taipei, Taiwan. Pp. D.4.1-D.4.34.
- Thaman, R.R., 2009. *Wedelia (Sphagneticola trilobata)* - daisy invader of the Pacific Islands: The worst weed in the Pacific? In: Frogier, P. and Mery, P. (eds.), *Proceedings of the 11th Pacific Science Inter-congress and 2nd Symposium on French Research in the Pacific*, Papeete, Tahiti, French Polynesia, 2-6 March 2009, 7p.
- Thaman, R.R. and Salvat, B., 2009. Cooperation in science and education in the Pacific: Accomplishments and opportunities. In: Frogier, P. and Mery, P. (eds.), *Proceedings of the 11th Pacific Science Inter-congress and 2nd Symposium on French Research in the Pacific*, Papeete, Tahiti, French Polynesia, 2-6 March 2009, 6p.
- Léopold, M., Herrenschmidt, J.-B. and Thaman, R. 2010. The Relevance of Traditional Ecological Knowledge for Modern Management of Coral Reef Fisheries in Melanesia. *Proceedings of the 11th International Coral Reef Symposium, Ft. Lauderdale, Florida, 7-11 July 2008*. Session number 22: pp. 1007-1011.
- Thaman, R.R. 2010. Conserving "cool spots" and writing the unwritten: Ethical considerations for biodiversity research and conservation in Austronesia. In *Proceedings of the International Austronesian Conference 2010, 8-11 June 2010*. Council of Indigenous Peoples, Taipei. Pp. 288-295.

PROJECT/TECHNICAL REPORTS

- Thaman, R.R. 1984. The firewood crisis and smallholder fuelwood systems on Tongatapu Island, Tonga: Present systems and development potential. PEDP Report. Tonga 85:1. United Nations Pacific Energy Programme (UNPEDP), Suva. 22pp.
- Thaman, R.R. 1990. Agroforestry and fuelwood resources in the Pacific Islands: Present status and future potential. PEDP Report RED 90 - 8 (November). United Nations Development Programme (UNDP), Pacific Energy Development Programme (PEDP), Suva. 44pp.
- Guinther, E.B., Maragos, J.E. and Thaman, R.R. 1992. National biodiversity overview: Republic of Kiribati. The South Pacific Biodiversity Conservation Programme (SPBCP), South Pacific Regional Environment Programme (SPREP), Apia. 62pp.
- Guinther, E.B., Maragos, J.E. and Thaman, R.R. 1992. National biodiversity overview: Tuvalu. The South Pacific Biodiversity Conservation Programme (SPBCP), South Pacific Regional Environment Programme (SPREP), Apia. 26pp.
- Thaman, R.R. and Baba, J. 1994. Cloud forest of Fiji: Botanical survey. *Earthwatch Ground Truth Report: Closing the knowledge gap - sustainable development, capacity building and environmental education in a developing world*. A final report on the UNESCO Partnerships in Trinidad and Tobago, Russia, Kenya and Fiji. Earthwatch, Watertown, Mass. Pp. 31-33.
- Thaman, R.R. and Baba, J. 1994. Cloud forest of Fiji: Botanical survey. *Earthwatch Ground Truth Report: Closing the knowledge gap - sustainable development, capacity building and environmental education in a developing world*. A final report on the UNESCO Partnerships in Trinidad and Tobago, Russia, Kenya and Fiji. Earthwatch, Watertown, Mass. Pp. 31-33.

- Thaman, R.R., Clarke, W.C., Tebano, T., Taniera, T. and Eritaia, B. 1995. North Tarawa Conservation Area: South Pacific Biodiversity Programme Project Preparation Document. Environment Unit, Ministry of Environment and Social Development, Bikenibeu, Tarawa, Kiribati. 112 pp.
- Faka'osi, T., Filiai, L., Thaman, R. R. and Smith, A.J. 1995. SPREP/AusAID Tonga Coastal Reforestation and Protection Project: Final Project Report. Forestry Division, Ministry of Agriculture and Forestry, Nuku'alofa, Tonga. 30 pp.
- Thaman, R.R. and Whistler, W.A. 1995. *Samoa, Tonga, Kiribati and Tuvalu: A review of uses and status of trees and forests in land use systems with recommendations for future actions*. Part II. Annotated checklist of important agroforestry species of Samoa, Tonga, Kiribati and Tuvalu. TSS - 1 Technical Support Services at Programme Level. UNDP/FAO Work Programme 1992-1993 (Project RAS/92/TD4). South Pacific Forestry Development Programme, Suva and Food and Agricultural Organization of the United Nations, Rome. 76pp.
- Thaman, R.R. and Tuxson, R.W. 1997. Environmental guidelines for the sustainable development of Kiritimati Atoll, Republic of Kiribati: Preliminary guidelines for the environmental impact assessment of the proposed NASDA Hope-X Landing Site (Information paper prepared at the request of the Ministry for Environment and Social Development, Republic of Kiribati). University of the South Pacific, Suva.
- Thaman, R.R., Gillett, R. and Faka'osi, S. 1997. Ha'apai Conservation Biodiversity Survey and Community-Baased Biodiversity Conservation Action Plan. Land and Environmental Planning Unit, Ministry of Lands, Survey and Natural Resources, Nuku'alofa, Tonga. 181 pp.
- Thaman, R.R., Tuxson, R. and Eritaia, B. 1997. Kiritimati Atoll Conservation Area: South Pacific Biodiversity Programme Project Preparation Document. Environment Unit, Ministry of Environment and Social Development, Bikenibeu, Tarawa, Kiribati. 93 pp.
- Thaman, R.R. (compiler). 1998. Traditional ethnobiological knowledge, resource use and community-based biodiversity conservation in Fiji: Findings and recommendations. Report prepared by Fiji National Biodiversity Strategy and Action Plan Working Group 4. Department of Environment, Suva. 102 pp.
- Thaman, R.R. 1999. *Wedelia trilobata: Daisy invader of the Pacific Islands*. IAS Technical Report 99/2. Institute of Applied Science, University of the South Pacific. 12pp + photographs.
- Thaman, R.R., Wilson, L., Tuiwawa, M., Vodonaivalu, S and Tuisese, S.V. 2000. *Trees, forest genetic resources and arboreal diversity in Fiji: Current status and prospects for conservation and sustainable use -a view from the village*. South Pacific Regional Initiative on Forest Genetic Resources (SPRIG), Canberra and The University of the South Pacific, Suva.
- Thaman, R. R. 2001. Community-based agroforestry surveys and the development of community-based agroforestry action plans (CAAPs) for atolls. Report on Activities Carried out as Part of the Regional Workshop on Agroforestry and Drum Ovens on Atoll Islands, held in Tarawa, Republic of Kiribati from October 17 to November 1, 2000. SPC Forest and Trees Programme, Secretariat of the Pacific Community, Suva, Fiji.
- Whistler, A., Thaman, R. and Game, J. 2000. Botanical survey of the Koroyanitu Conservation Area, Ba, Viti Levu, Fiji. South Pacific Regional Environment Programme, Apia.
- Thaman, R.R., Tawake, A., Thaman, B. and Niukula, J. 2001. Change over time and current status of the coastline, reef and biological organisms in the channel between Yanuca Island and the coastline of Viti Levu, Cuvu, Nadroga, Viti Levu, Fiji Islands: Preliminary findings. Consultancy report to the Shangri-La Fijian Resort. In Terry, J.P. and Thaman, R. R. (eds.), Investigation of current flow, sedimentation and health of the marine ecosystem in Yanuca Channel, Shangri-La Fijian Resort, Cuvu, Sigatoka. Report prepared for the Foundation for the Peoples of the South Pacific, Suva, Fiji.

- Terry, J.P. and Thaman, R. R. (eds.). 2001. Investigation of current flow, sedimentation and health of the marine ecosystem in Yanuca Channel, Shangri-La Fijian Resort, Cuvu, Sigatoka. Report prepared for the Foundation for the Peoples of the South Pacific, Suva, Fiji.
- Thaman, R.R. 2004. Vascular plants and vegetation of Makuluva reef islet, Rewa Province, Viti Levu, Fiji Islands. SPRH Biodiversity and Ethnobiobiodiversity Report No. 3/2004 (March). South Pacific Regional Herbarium, Institute of Applied Science, The University of the South Pacific, Suva (29 pp.).
- Thaman, R.R. 2004. 'Akau, poto mo e 'ofa fonua: ko e makatu'unga 'o e tukufakaholo: Trees, Arboreal Diversity and Ethnobiobiodiversity: An Agroforestry Action Plan for Sustainable Development in the Kingdom of Tonga. IAS Technical Report No. 2004/04 (July). Institute of Applied Science, The University of the South Pacific, Suva (129 pp.).
- Thaman, R. R. 2008. Agroforestry and plant propagation in the northern Pacific: Report on a Sub-regional Workshop, Pohnpei, Federated States of Micronesia, 26-30 November 2007
- Thaman, R. R., Fong, T. and Balawa, A. 2008. *Ilava ni Navakavu: Finfishes of Vanua Navakavu*, Viti Levu, Fiji Islands. SPRH – FIO Biodiversity and Etnobiobiodiversity Report No 4. Institute of Applied Sciences (IPS), University of the South Pacific, Suva.
- Dominey-Howes, D. and R. Thaman (compilers). 2009. UNESCO-IOC International Tsunami Survey Team Samoa (ITST Samoa): Interim Report of Field Survey 14th – 21st October 2009 (Report presented to the Government of Samoa Monday 26th October 2009). Miscellaneous Report No. 2 (Oct. 2009). Australian Tsunami Research Centre, University of New South Wales, Sydney. 172pp.
- Thaman, R., Niukula, J. and Takeda, S. 2012. The Flora and Vegetation of Monuriki Island, Mamanuca Islands, Fiji, with Recommendations for Conservation and Enrichment. National Trust of the Fiji Islands, Suva.

OCCASIONAL PAPERS/WORKING PAPERS, ON-LINE PUBLICATIONS, ETC.

- Thaman, R.R. 1984. Trees, Tongans and reforestation in Tonga 1965 to 1984. *Occasional Paper No. 4. Institute of Rural Development (IRD), University of the South Pacific, 'Atele, Tonga*. 26pp.
- Thaman, R.R. 1984. Vunga: An extinct Tongan sacred tree and Polynesian natural and cultural resource. *Occasional Paper No. 5. Institute of Rural Development (IRD), University of the South Pacific, 'Atele, Tonga*.
- Thaman, R.R., Manner, H.I. and Hassall, D.C. 1985. Nauruan plant names. *Environmental Studies Report 21*. Institute of Natural Resources (INR), University of the South Pacific, Suva, Fiji. Pp. 1-15.
- Thaman, R.R. 1989. Agrodeforestation and the neglect of trees: Threat to the wellbeing of Pacific societies. *SPREP Occasional Paper No. 5*. South Pacific Regional Environment Programme, South Pacific Commission, Noumea.
- Thaman, R.R. and Murti, R. 1989. Oceanic Drift Gillnet Fishing: A Threat to Our Fisheries. *SPACHEE Environmental News Alert No. 1*. South Pacific Action Committee for Human Ecology and the Environment, University of the South Pacific, Suva.
- Thaman, R.R. 1997. *Vascular plants of Makuluva reef islet, Rewa Province, Viti Levu, Fiji (A preliminary listing)*. Technical Report 97/3. Marine Studies, University of the South Pacific, Suva. 23 pp.
- Thaman, R.R. 1997. *Vascular plants of Mabualau reef islet, Tailevu Province, Fiji*. Technical Report 97/7. Marine Studies, University of the South Pacific, Suva. 23 pp.

Thaman, R.R. 1997. *For life in Fiji - What can we do?: The protection of our plants, animals, lands and waters - Our gift to Fiji's future generations*. Eight-panel brochure prepared for nation-wide distribution during Fiji National Environment Week 1997. Environment Department, Suva.

Thaman, R.R., Thomson, L.A.J., DeMeo, R., Areki, F. and Elevitch, C.R. 2006. *Intsia bijuga* (vesi) Fabaceae (legume family). *Species profiles for Pacific Island Agroforestry*. Pp. 1-17 (<http://www.traditionaltree.org>)

ARTICLES IN POPULAR JOURNALS, MAGAZINES, NEWSPAPERS

Thaman, R.R. 1980. The environmental impact of nuclear radiation on the Pacific region. *Review* (Quarterly publication of the School of Social and Economic Development, University of the South Pacific, Suva) 2(4):5-11.

Manning, G. and Thaman, R.R. 1980. Eating ourselves to death in paradise: Has economic development improved the quality of life in Fiji? *Review* (Quarterly publication of the School of Social and Economic Development, University of the South Pacific, Suva) 1(3):49-52.

Thaman, R.R. and P.M. Thomas. 1980. Tavioka in Fiji's future: Satan or saviour? *Review* (Quarterly publication of the School of Social and Economic Development, University of the South Pacific, Suva) 2(4):42-44.

Thaman, R.R. 1981. Food, culture and education: The critical role of food and nutrition education. *Education Gazette and Fiji Education*. 56(3):28-34.

Thaman, R.R. 1982. Hurricane Isaac and Tonga: A natural or cultural disaster? *Review* (Quarterly publication of the School of Social and Economic Development, University of the South Pacific, Suva) 3(8):22-34.

Thaman, R.R. 1982. Micronutrients for macrohealth: Importance of micronutrients, fresh local food, and dietary diversity in Pacific Island development. *Review* (Quarterly publication of the School of Social and Economic Development, University of the South Pacific, Suva) 3(9):47-51.

Thaman, R.R. 1985. Food and nutrition for maximum performance. *Science Journal (Fiji)* 1(5):23-27.

Thaman, R.R. 1985. Fuel famine dilemma. *Islands Business* 11(2):49-51.

Thaman, R.R. 1986. The real cost of pesticides to the Pacific Islands. *Science Journal (Fiji)* 2(2):16-17.

Thaman, R.R. 1989. Consumerism and malnutrition in the Pacific Islands. *Tok Blong SPPF: A quarterly of news and views on the Pacific Islands* 29:26-30.

Thaman, R.R. 1989. World Food Day 1989 theme: Food and Fiji's environment (A Healthy Environment - The Foundation for Feeding Fiji). *Fiji Food and Nutrition Newsletter* Third Quarter 10(3):1-2.

Thaman, R.R. 1990. A crisis of cultural and economic survival. *Trade News of the South Pacific* No. 14 (March):10.

Thaman, R.R. 2004. Biodiversity and food security World Food Day – Lead Article). *FijiTimes* Oct. 7:7.

Thaman, R.R. and T. Fong. 2009. Sekoula – A gift for the season. *Mai Life*: Jan: 61-62.

Thaman, R.R., T. Fong and A. Balawa. 2009. The crab that returned after 50 years! *Mai Life*: Feb: 60-61.

Thaman, R.R. and T. Fong. 2009. Lobsters – The uro knights of the sea. *Mai Life*: March: 60-61.

Thaman, R.R. and T. Fong. 2009. Mokosoi: Ylangylang, the perfume flower. *Mai Life*: April: 60-61.

Thaman, R.R. 2009. Our biodiversity as food security. *Mai Life*: May: 46-48.

- Thaman, R.R. 2009. Wedelia: Daisy Invader. *Mai Life*: July: 51-52.
- Thaman, R.R. and T. Fong. 2009. The Western Pacific: Goldmine of biodiversity. *Mai Life*: August: 52-53.
- Thaman, R.R. 2009. Dau qoli: Jack Randall – Life scientist and man for all seasons (Island Life). *Mai Life* Sept: 64-65.
- Thaman, R.R., N. Thomas and T. Fong. 2009. Tomaniivi and Navuonulevu: Two of Fiji's island wonders. *Mai Life* Oct: 56-59.
- Thaman, R.R. 2009. Samoa and the Black Tuesday tsunami 2009: Part 1. *Mai Life* Nov. 54-57.
- Thaman, R.R. 2009. Samoa and the Black Tuesday tsunami 2009: Part 2. *Mai Life* Dec. 57-59.
- Thaman, R.R. 2010. Trees were lifesavers in Samoa tsunami: Part 3. *Mai Life* Jan. 56-58.
- Fong, T., R.R. Thaman and A. Balawa. 2010. Eating Nemo's home: Fiji's edible anemones. *Mai Life* 33 (February): 56-58.
- Thaman, R.R. 2010. The mysterious king of the seabirds (Frigatebird). *Mai Life* 34 (March): 56-57.
- Thaman, R.R. and T. Fong 2010. Ivi: The power of the Tahitian chestnut. *Mai Life* 35 (April): 58-59.
- Thaman, R.R. and T. Fong 2010. Parrotfishes: Transvestite saviours of our reefs and beaches. *Mai Life* 36 (May): 60-65.
- Thaman, R.R. and T. Fong. 2010. Vesi: Fiji's iconic national tree? *Mai Life* 39 (Aug): 58-60.
- Thaman, R.R. 2010. 40 years of biodiversity challenges. *Mai Life* 41 (Oct): 60-65.
- Thaman, R.R. 2010. Name it, record it, or lose it: Tackling the island biodiversity crisis. *Mai Life* 42 (Nov): 60-61.
- Thaman, R.R. 2010. USP aims for 1000 new trees. *Mai Life* 43 (Dec): 64-65.
- Thaman, R.R. 2011. Araucaria: The dinosaurs' Christmas trees. *Mai Life* 44 (Jan): 56-57.
- Thaman, R.R. 2011. Avocado: Super fruit on a tree. *Mai Life* 45 (Feb): 60-61.
- Thaman, R.R. 2011. Vau: The miracle hibiscus tree. *Mai Life* 46 (March): 56-57.
- Thaman, R.R. 2011. Celebrating forests & trees. *Mai Life* 48 (May): 56-57.
- Thaman, R.R. and K. O'Brien. 2011. Caterpillar devastates *kanava* and undermines resilience to climate change in Tuvalu. *Mai Life* 50 (July): 56-57.
- Thaman, R.R., A. Balawa, A. and T. Fong. 2011. Celebrating marine areas (Part 1). *Mai Life* 52 (Sept): 68-69.
- Thaman, R.R., Balawa, A. and Fong, T. 2011. Celebrating the return of marine life. *Mai Life* 53 (Oct): 72-73.
- Thaman, R.R., Balawa, A. and Fong, T. 2011. The restoration of reef ecosystems. *Mai Life* 54 (Nov): 64-65.
- Thaman, R. R. 2011. The silent invasion of our islands. *Mai Life* 55 (Dec): 64-65.
- Thaman, R. 2012. Mai Veikau: A call for action, not wonder. *Mai Life* 57 (February): 76-77.

CURRICULUM VITAE OF DR. VINOD B. MATHUR, D.Phil. (Oxon.)

Name : Dr. Vinod Bihari Mathur

Present Designation & Address : Senior Professor & Dean,
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Date of Birth/ : 03 August, 1959

Age and Gender : 53 years, Male

Nationality : Indian

**Summary**

Dr. Vinod B. Mathur is the Dean, Faculty of Wildlife Sciences at Wildlife Institute of India (WII). He obtained his doctorate degree in wildlife ecology from the University of Oxford, United Kingdom in 1991. He is also the Vice-Chair of the IUCN-World Commission on Protected Areas (WCPA-South Asia); Deputy Coordinator, IUFRO (Wildlife Conservation and Management) and member of the International Association of Impact Assessment (IAIA). He is currently serving as member of Ministry of Environment & Forests (MoEF), Government of India Committees on World Heritage Conservation, Biosphere Reserves, Management Effectiveness Evaluation and Environment Appraisal of Coal and Thermal Projects. He started his career as a professional forester by joining the Indian Forest Service in 1983 and has now spent over two and half decades in WII, actively contributing to its wide range of training, research and academic programmes in the field of biodiversity conservation and research-policy interface. He has extensive experience as an international trainer and his special interest include biodiversity conservation, environmental and strategic impact assessment, biodiversity informatics and natural heritage conservation.

He has been actively contributing on research-policy interface issues and has been part of the official Indian delegation for CBD and UNESCO World Heritage Convention Meetings since 2006 and has in-depth knowledge about the working of these conventions.

Detailed CV

Education:

Degree	Year	University	Subjects	Marks obtained with %	Remarks
D.Phil*	1991	University of Oxford, United Kingdom	Wildlife Ecology	-	-
M.Sc.	1981	University of Rajasthan, Jaipur	Zoology	931/1200 77.5%	First in the Order of Merit
B.Sc.	1979	University of Rajasthan, Jaipur	Zoology, Botany & Chemistry	1079/1350 79.9%	First in the Order of Merit

**Thesis Title: The ecological interaction between habitat composition, habitat quality and abundance of some wild ungulates in India.*

Summary of Professional Qualifications:

Degree/ Diploma etc.	Year	Institution	Subjects	Marks obtained	Remarks
Associate of Indian Forest College (A.I.F.C)	1985	Indian Forest College, Dehradun	Forestry & Allied Subjects	Honours Diploma	First in the Order of Merit
X.L.V. Foundational Course	1985	LBS National Academy of Administration, Mussoorie	Law, History, Economics & Public Administration	325/500	First in the Order of Merit

Area of Specialization

Major discipline : Biodiversity Conservation

Subject specialization : ♦ Forest, Wildlife and Protected Area Management
 ♦ Natural/ World Heritage Conservation
 ♦ Environmental & Strategic Impact Assessment
 ♦ Information Technology, Remote Sensing & GIS Applications
 ♦ Project Monitoring and Evaluation

Membership of Professional Bodies/Societies

- ♦ Vice Chair, IUCN-World Commission on Protected Areas (WCPA), South Asia
- ♦ CBD Focal Point for Programme of Work on Protected Areas
- ♦ UNESCO Focal Point for World Heritage Conservation
- ♦ Member, IUCN Commission on Ecosystems Management (CEM)
- ♦ Member, International Association for Impact Assessment (IAIA)

- ◆ Member, Oxford University Society
- ◆ Member, Indian Institute for Public Administration (IIPA)
- ◆ Member, Computer Society of India
- ◆ IUFRO, Dy. Coordinator, Division 8.06 (Wildlife Conservation and Management).
- ◆ Member, Board of Studies of Saurashtra University and Indian Institute of Forest Management, Bhopal.
- ◆ Member, Expert Appraisal Committee for Coal and Thermal projects, Ministry of Environment and Forests, Government of India.

Professional Experience

The Wildlife Institute of India (WII) is a premier national institute with a mission to nurture the development of wildlife science and promote its application in the field conservation (www.wii.gov.in). To foster the above mission, the Institute has a wide array of capacity building and research development programmes in the field of forest and wildlife conservation, protected area management and conservation of biological diversity, strongly supported by national and international agencies. The WII is also the technical arm of the Ministry of Environment & Forests, Government of India and provides vital support in the planning and implementation of government policies and programmes relating to biodiversity and wildlife conservation, management, education, research & training and application of information technology in biodiversity conservation. I have been providing professional inputs in these programmes for the last 26 years and have contributed significantly in their development at the policy level as well as their implementation in the field. As Dean, Faculty of Wildlife Sciences at the Wildlife Institute of India my major responsibilities are to plan, develop, coordinate and monitor the wide array of capacity building programmes in the field of natural resource and biodiversity conservation and to lead '*action focused*' research in new and emerging areas of biodiversity conservation and to deliver high quality conservation outcomes.

The Institute has an annual budget of ca. US \$ 6 million, 33% of which is earmarked for research activities. As Dean, Faculty of Wildlife Sciences (2004 to present), I am directly responsible to steer the research mandate and lead a competent multidisciplinary team of 40 full time scientists and over 75 researchers.

Academic and Professional Qualifications

I possess an outstanding scholastic record having passed with top honours both at the college and university levels and also in the professional forestry course at the Indira Gandhi National Forest Academy, Dehradun. I am a recipient of the prestigious Overseas Research Scholarship (ORS) Award by the Committee of Vice-Chancellors and College Principals (CVCP) of the United Kingdom, which culminated in the award of doctorate degree to me by the University of Oxford in 1991. I am currently an active member of the IUCN World Commission on Protected Areas (WCPA) and the IUCN Commission on Ecosystem Management (CEM) and am also an Associated Fellow of the United Nations Institute for Training & Research (UNITAR), Hiroshima, Japan.

Work Experience

In my professional career spanning over two and half decades, I have gained vast experience in the design, development, implementation, coordination and oversight of research and conservation programmes and in dealing with research-policy interface issues. I have worked in various capacities viz. as forest and wildlife manager, researcher and scientist, teacher and trainer and administrator and policy maker. In each of these roles, I have excelled and have contributed significantly to the professional growth of my organization, which is now an internationally acclaimed institution in the field of natural resource conservation. I have substantial experience at the national as well as international level having worked on research and collaborative projects of institutions/organizations such as the World Bank, FAO, UNDP, GEF, UNEP, UNESCO, UNITAR, SCBD, WWF and IUCN. I have considerable project formulation, implementation, assessment and monitoring experience. I led the formulation and fund-raising of a 4 year '*World Heritage Biodiversity Programme for India*', which received a funding support of US \$ 5 million from the United Nations Foundation (UNF) and its partners. This project is currently under implementation at 4 natural world heritage sites in India under my direct supervision. I was also assigned the responsibility by the UNEP-GEF in 2003 for conducting an independent evaluation of a mountain ecosystem project in which UNEP-WCMC was one of the implementing agencies. I also conducted the final in-depth evaluation of a UNEP project on networking and capacity development in the Asia-Pacific region in 2005. I have considerable capacity building experience in the field of natural resource conservation. I have worked as an international protected area trainer in 1994 and as an international protected area planner in 1998-99 under a FAO-GEF project in Sri Lanka. I have also worked as national counterpart of the mission members of the project evaluation teams sponsored by the FAO, UNDP, UNESCO, World Bank for various international projects at the Wildlife Institute of India. As Head of the Computer & GIS Centre of the Wildlife Institute of India, I have considerable experience of design and development of spatial databases for biodiversity conservation especially their role in monitoring and assessment of landuse/landcover changes. I have been spearheading the e-governance initiative for strengthening natural resource management and am well versed with the modern tools of remote sensing and GIS.

I am actively involved in the process of mainstreaming biodiversity in development planning and conducting Environmental Assessments of developmental projects. I have proven ability to identify key-issues in a complex environment and make informed-decisions.

I have extensive experience of dealing with matters relating to the CBD and natural heritage conservation including international negotiations. I was part of the official delegation of the Government of India for the COP-8 in Curitiba, Brazil in March, 2006 and for COP-11 in Hyderabad, India and also for the UNESCO World Heritage Committee meetings in Christchurch, New Zealand in July, 2007, Quebec City, Canada in July, 2008, Brasilia, 2010, Paris, 2011 and Saint Petersburg, Russian Federation in July, 2012

I have formulated the Research Development Plan (2007 to 2012) of the Institute that focuses on 9 thrust areas. This plan is under active implementation under my direct supervision. I have an excellent track record of planning and delivering high quality, multidisciplinary and action oriented conservation outcomes. I possess extensive networking and communication skills along with proven strategic leadership and resource management capabilities. I also have a proven track record of being an institution '*builder*' as well as '*moulder*'. I have adequate experience of research administration including recruitment, implementation, supervision, fundraising and oversight.

Professional Inputs in Capacity Building Programmes (1999-2012)

Agency/Programme	Year	Thematic Area
FAO Capacity Building Programme, Sri Lanka	1999	Protected Area Management Planning
IUFRO Capacity Building Programme, Malaysia	2000	Forestry Research Strategy Formulation, Planning & Management
UNEP Capacity Building Programme, Zambia	2001	Biodiversity Impact Assessment
IUCN Capacity Building Programme, Thailand	2001	Protected Areas Systems Planning
UNESCO Capacity Building Programme, Tanzania	2001	Biodiversity Monitoring
UNESCO World Heritage Centre, Capacity Building Programme, France	2003	Biodiversity Project Formulation
IUCN Regional Biodiversity Capacity Building Programme	2003	Biodiversity and Climate Change
UNITAR Capacity Building Programme, Japan	2004, 2007, 2008 & 2009	Natural Heritage Conservation
IUFRO Capacity Building Programme, Australia	2005	Information Technology
GBIF Capacity Building Programme, India	2009-2012	Bioinformatics
WWF Conservation Assured for Tigers through Standards (CATS)	2011-Ongoing	Management Effectiveness Evaluation and Tiger Conservation
IAIA Capacity Building Programme	2005-ongoing	Environmental Impact Assessment (EIA), Cumulative Impact Assessment (CEA) and Strategic Impact Assessment (SEA)

Consultancy/ Collaborative Work with International Organizations (1999-2012)

Agency/Organization	Thematic Area	Duration	Status
United Nations Food & Agriculture Organization (UN-FAO)	Preparation of Management Plans for Protected Areas in Sri Lanka	1999	Completed. 8 PA Management Plans prepared
World-Bank-Canadian Environmental Collaborative Ltd. (WB-CEC)	Preparation of Environmental Guidelines for South Asia	1999-2000	Completed. Output in the form of a book 'Roads, Sensitive Habitats and Wildlife: Environmental Guideline for India and South Asia' published in October, 2000

Agency/Organization	Thematic Area	Duration	Status
United Nations Food and Agriculture Organization (UN-FAO)	Biodiversity Information Management	1997-2003	Completed. Output in the form of functional Forest Management Information System : Biodiversity Information Module in the States of Uttar Pradesh & Uttaranchal
United Nations Environmental Programme (UNEP)	Preparation of Guidelines for Integration of Biodiversity in Environmental Assessment	2001	Completed. Output in form of a report 'National EIA Framework for Integration of Biodiversity Concerns in EIA' produced.
IUCN-Asia	Preparation of Guidelines for National System Planning for Protected Areas	2001	Completed. Inputs provided in Asia Region Workshop as a Resource Person
IUCN	Project on 'Linking Conservation with Nature' in the Indian Himalayas	2001-2002	Completed. Report on 'Evolving Sustainable Livestock Grazing Practices' and 'Biodiversity Conservation through Ecotourism and Community Participation in the Himalayan Landscape' submitted to IUCN
United Nations Foundation (UNF) and UNESCO	Development of World Heritage Biodiversity Programme for India (WHBPI)	2002-2005 (Phase I)	Completed. Funding for the implementation of WHBPI approved by UNF
UNEP-Global Environmental Facility (GEF)	Independent Evaluation of GEF-UNEP Project 'Barriers and Best Practices in Integrated Management of Mountain Ecosystems'	2003	Completed. Report accepted and acclaimed by Chief, Evaluation & Oversight Unit, UNEP, Nairobi
United Nations Institute for Training and Research (UNITAR)	Conservation and Management of World Heritage Sites	2004, 2007 & 2008	Completed. Inputs provided in International Workshop on Natural World Heritage Conservation in Hiroshima, Japan
UNEP, Nairobi	Independent Evaluation of UNEP Project 'Asia and the Pacific: Networks for Data-Information Generation, Analysis, Observation and Assessment'	2005-2006	Completed. Report accepted and acclaimed by Chief Evaluation & Oversight Unit, UNEP, Nairobi.

Agency/Organization	Thematic Area	Duration	Status
UNESCO	Technical backstopping of UNESCO Project 'Enhancing Our Heritage: Managing and Monitoring for Success in World Natural Heritage Sites	2001-2008	Completed. Project under implementation in 3 South Asian Sites viz. Keoladev National Park, Kaziranga National Park and Chitwan National Park, Nepal
Asian Development Bank (ADB)	Natural Resource Management Expert for the expert panel for preparing the ' <i>Inclusive Tourism Development Project</i> '	2008-2009	Completed. Project under formulation in 4 States in India
UNESCO	Building partnerships to support UNESCO's World Heritage Programme: India	2008-2012	Ongoing. Project under implementation in 4 natural world heritage sites in India
Global Biodiversity Information Facility (GBIF)	Bioinformatics	2009-2012	Ongoing.
Intergovernmental Platform for Biodiversity and Ecosystem Services (IPBES)	Bioinformatics	2011-2013	Ongoing.
Global Environment Facility (GEF)	GEF Portfolio Evaluation in India	2012-13	Ongoing.

Supervision of Doctorate Thesis: I have supervised the following doctorate studies leading to award of D.Phil. degrees to ten candidates between 1998 to 2012.

S. No.	Name of the Researcher	Thesis Title	University	Year
1.	H.S. Pabla	Development of a user-friendly wildlife monitoring methodology for protected areas in India	Forest Research Institute	1998
2.	Yogesh Dubey	Application of Geographic Information System (GIS) in Assessing Habitat, Resource Availability and its Management in Tadoba Andhari Tiger Reserve, Maharashtra	--do--	1999
3.	Suneet Naithani	Habitat Characterization in Great Himalayan National Park (GHNP) using Remote Sensing and Geographical Information System Technologies with Special Emphasis on Geobotanical Aspects	--do--	2000

S. No.	Name of the Researcher	Thesis Title	University	Year
4.	Sanjay Srivastava	Development of community based participatory approaches for resource conservation in Dalma Wildlife Sanctuary in Jharkand	--do--	2004
5.	Rashid Raza	Diversity and rarity in avifaunal assemblages in the Western Himalaya: A study of patterns and mechanisms	--do--	2006
6.	Panna Lal	Developmental of Spatial Database in Geographical Information System Domain for Bandhavgarh Tiger Reserve and Assessment of Landuse/ Landcover Changes	--do--	2007
7.	Ambica Paliwal	Geospatial Modelling of Ungulate Habitat Relationships in Tadoba-Andhari Tiger Reserve, Maharashtra	Saurashtra	2008
8.	Tej B. Thapa	Habitat Suitability Evaluation for Leopard (<i>Panthera pardus</i>) using Remote Sensing and GIS in and around Chitwan National Park, Nepal	Saurashtra	2011
9.	Bitapi Sinha	Evaluating Effectiveness of Interpretive facilities in Enhancing Conservation Awareness in select Tiger Reserves in India	Bhartiya Vidhyapeth	2012
10.	Pradeep Vyas	Biodiversity Conservation in Indian Sundarban in the context of Anthropogenic Pressures and Strategies for Impact Mitigation	Saurashtra	2012
11.	Shivani Chandola	An Assessment of Human-Wildlife Interaction in the Indus Valley, Ladakh, Trans-Himalaya	Saurashtra	2012
12.	Samir Sinha	An Evaluation of Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) Implementation in South Asia with Special Reference to India	Saurashtra	2012 (ongoing)
13.	Brij Raj Sharma	Evaluating the Efficacy and Conservation Impact of <i>Ex-situ</i> Breeding on Wildlife Conservation in India	TERI	2012 (ongoing)
14.	Sahas Barve	Determinants of altitudinal range limits in West Himalayan Birds	Cornell, USA	2012 (ongoing)

**Peer Reviewed Publications/
Technical Reports/ Books etc. :** 70 (*list may be provided on request*)

Language Competence

Mother tongue : *Hindi* : (Read, Write, Speak, Understand:
Excellent)
English: (Read, Write, Speak, Understand:
Excellent)
French: Understanding: Very modest (Have done a
Certificate Course in French Language;
can pick up fast).



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Brief Biodata of Prof. L.M.S. Palni, FNASc, FNAAS, FNA

Director

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- Name/Age/D&POB :** Lok Man S Palni /59+ years (male)/22.5.1953, Almora (India).
- Marital Status :** Married to Prof. Uma T. Palni ; with one daughter named Himala.
- Permanent Address :** Flat 1-A/B, Riturain, Woldorf Compound, Nainital-263 001, Uttarakhand, India
- Education :** H.Sc. (1966) and I.Sc. (1968): U.P. Board; B. Sc. (1970) & M. Sc. (Botany, 1972): Univ. of Gorakhpur; 1st Division throughout; Ph.D. (1980): University of Wales, U.K.; Other trainings include Diploma in Photography (1970), Course on Electron Microscopy (1986) and Recombinant DNA Techniques (1995). Also completed short courses on RS/GIS for Planners, Pottery & Bonsai.
- Employment :**
- Lecturer in Botany, Kumaun University (earlier D.S.B. Govt. P.G. College), Nainital, India (7/1972 - 12/1976).
 - Res. Scholar, University of Wales, Aberystwyth, U.K. (1/1977 - 6/1980).
 - Research Faculty, Australian National University, Canberra, Australia (8/1980-2/1989).
 - Founder Head, Biotechnology Divn., C.S.I.R. Complex (now I.H.B.T.), Palampur, H.P., India (3/1989- 11/1992).
 - Founder Head, Environmental Physiology and Biotechnology Divn., G.B. Pant Institute of Himalayan Environment & Development, Kosi - Katarmal, Almora, India (11/1992- 6/1995); Director Incharge (6/1995- 12/1996), and Director (w.e.f. 12/1996 for full 5 Yr term) of the same Institute. Rejoined the Institute on 18.2.08 after availing 5 Yr period of deputation (02/2003- 02/2008; please see below for details). Director Incharge of GBPIHED w.e.f. 30.4.2008 and assumed charge as Director on 11.12.08.
 - Senior Scientific Advisor and Project Director, State Biotechnology Programme (SBP), Govt. of Uttarakhand, Biotech Bhavan, P.O. Haldi, U.S. Nagar as the Founder of SBP (on deputation for 5 Yrs from G.B. Pant Institute of Himalayan Env. & Dev. w.e.f. Feb. 2003 to Feb. 2008).

	Also initiated Uttarakhand Science Education and Research Centre (USERC), Govt. of Uttarakhand as Founder Director (Oct. 2005 – Feb. 2008).
Total Experience :	Research, Teaching, Coordination and Administration. (i) After M.Sc. – approx. 40 years; (ii) After Ph.D. – approx. 32 years.
Broad areas of Research/ Substances	Conservation of Biological Diversity, Plant Growth
Interests	and plant responses to environmental changes, Plant Tissue Culture, Microbial Interactions, Biodiversity & Biotechnology including the Environment issues, Rural Development, and Science & Society related programmes in the context of Indian Himalayan Region.
Scholarships/Awards: & Honours	Govt. of India Merit Scholarship during M.Sc. (1970-72) and Ph.D.(1977-80); First Position with Gold Medal in M. Sc.; ALIS Award by the British Council (1984); C. Venkata Ram Memorial Award (1992); Elected Fellow of the National Academy of Sciences, India (NASI), Allahabad (1997), the National Academy of Agricultural Sciences (2011), and the Indian National Science Academy (effective 1.1.2013); Honoured with Courtesy Professorship in Botany, Kumaun University, Nainital (1999); ICFRE Award for Forest Conservation (2000); Jewel of India Award (2001); UGC Adjunct Professor, Jamia Hamdard University, Delhi (2002); Prof. Shri Ranjan Memorial Lecture Award of NASI (2004); Council Member of NASI (2005, 06); Received Uttaranchal Ratna (2006); Biodiversity Award of NASI (National Academy of Sciences, India) in 2007, Rambha Khetwal Nyaas Vishisth Sammaan, Bageshwar, Uttarakhand (2007); National Achievements Awards for Education Excellence by IEDRA, New Delhi (2009); S.S. Jina Smriti Samaan, Almora (2009).
Research Projects/ Supervision	Team Leader/member/coordinator of several projects sanctioned by various National & International Agencies, e.g., Department of Science and Technology, Department of Biotechnology (Min. of Science & Technology), Ministry of Environment & Forests, Department of Space, Tea Board (Min. of Commerce), C.S.I.R., UNDP/UNESCO/GEF/UNEP/FAO/ICIMOD/IDRC/APN/Earthwatch Intl., etc. Has successfully guided/co-supervised 20 Ph.D/D.Phil students (Australian National University, Canberra; HNB Garhwal University, Srinagar and Kumaun University, Nainital), and has had several Post Doctoral Fellows and Research Associates directly involved in research work.

**Other Responsibilities:
(Past and Present)**

Member – Advisory Group Thematic Area Environmental Technology (Technology Vision: 2035). TIFAC, Department of Science and Technology (Technology Vision : 2035), Govt. of India.

Member – Scientific Advisory Committee, Botanical Survey of India.

Member – Task Force : Planning Commission, Govt. of India. To look into problems of hill states and hill areas and to suggest ways to ensure that these states and areas do not suffer in any way because of their peculiarities. Report Published 2010, p112 Jointly by Planning Commission of India and GBPIHED.

Member – (i) Expert Group-A on Conservation and Sustainable Utilization of Natural Resources, (ii) National Committee on Biosphere Reserves in India. Ministry of Environment and Forests, Govt. of India.

Member – Steering Committee of Centre of Excellence on Medicinal Plants and Traditional Knowledge, FRLHT, Bangalore.

Member – SACON Society constituted by Ministry of Environment and Forests, Govt. of India.

Member – Programme Advisory Committee (i) Children Centric Programmes, and (ii) Himalayan Glaciology of Department of Science and Technology, Govt. of India.

Member – High powered Scientific Advisory Committee, and Task Force (two three year terms) on Biodiversity Conservation and Environment, Department of Biotechnology, Govt. of India.

Member – Indian Delegation to the Conference of Parties to the Convention of Biological Diversity (CoP-10: Nagoya, Japan; preparatory meeting at Kenya prior to Nagoya meet; and CoP-11 : Hyderabad, India)

**Membership of :
Professional Societies
(Past & Present)**

American Soc. Plant Physiologists; Australian Soc. Plant Physiologists; Soc. Experimental Biol. (UK); Australia-New Zealand Soc. Cell Biol.; Soc. Biol. Chemists (India); Bamboo Soc. India; Soc. Plant Physiol. & Biochem (India); Indian Soc. Tree Scientists; Soc. Plant Biochem & Biotech (India); New York Academy of Sciences; International Asso. Plant Tissue Culture & Biotech (USA- India Chapter); UP Association of Sci. & Tech. Advancement; Central Himalayan Env. Asso.; DUBS; International Soc. Env. Botanists (India);

Biotechnology Soc. India; Indian Asso. Soil & Water Conservationists; Indian Science Congress Assoc., International Soc. Plant Morphologists, Indian Orchid Society, and International Soc. Plant Molecular Biologists, Society for Science of Climate Change and Sustainable Environment (India).

Countries visited : U.K., Australia, Brazil, New Zealand, Ireland, U.S.A., Kenya, Ghana, Czechoslovakia, Germany (East & West), France, Hungary, Austria, Switzerland, Canada, Nepal, Bangladesh, Bhutan, The Netherlands, Japan, China, Singapore, Hong Kong, Thailand, Malaysia, Myanmar and Indonesia, etc.

Editorial Responsibilities: Chief Editor; Member, Editorial Board, Expert Reviewer of International and National Peer Reviewed Journals.

Publications : Published around 300 articles (original papers in peer reviewed International & National Journals, review articles, book chapters, articles/ chapters in seminar & workshop proceedings, popular articles as well as edited/authored books).

Papers Published/in Press by Dr. L.M.S. Palni:

(a). Research papers in journals	:	175
(b). Short research papers	:	07
(c). Scientific reviews	:	10
(d). Articles published in seminar & symposia volumes etc	:	30
(e). Chapters contributed to books	:	46
(f). Books (authored or edited)	:	12
(g). Other publication (including popular articles)	:	20
(h). Other documents /reports	:	About a dozen
(i). Conference presentations	:	Over one hundred seventy five

Twenty Important Publications:

Palni, L.M.S., Horgan, R., Darrall, N.M., Stuchbury, T. and Wareing, P.F. 1983. Cytokinin biosynthesis in crown-gall tissue of *Vinca rosea*: the significance of nucleotides. **Planta** 159: 50-59.

Palni, L.M.S., Summons, R.E. and Letham, D.S. 1983. Mass spectrometric analysis of cytokinins in plant tissues. V. Identification of the cytokinin complex of *Datura innoxia* crown-gall tissue. **Plant Physiol.** 72: 858-863.

Letham, D.S. and **Palni, L.M.S.** 1983. The biosynthesis and metabolism of cytokinins. **Annu. Rev. Plant Physiology** 34: 163-197.

Palni, L.M.S., Tay, S.A.B. and MacLeod, J.K. 1987. Determination by gas chromatography-mass spectrometry of $^{15}\text{N}_5$ -adenine incorporation into endogenous cytokinins and the effect of tissue age on cytokinin biosynthesis in *Datura innoxia* crown-gall tissue. **Plant Physiol.** 84: 1158-1165.

- Palni, L.M.S., Burch, L. and Horgan, R.** 1988. The effect of auxin concentration on cytokinin stability and metabolism. **Planta** 174: 231-234.
- Nandi, S.K., **Palni, L.M.S.** and Letham, D.S. 1989. Axial control of cotyledon expansion and chlorophyll formation in germinating lupin seed. **Plant Science** 60: 181-188.
- Nandi, S.K. and **Palni, L.M.S.** 1989. Transport and metabolism of dihydrozeatin riboside in germinating lupin seeds. **J. Exp. Bot.** 40: 615-621.
- Singh, S., **Palni, L.M.S.** and Letham, D.S. 1992. Cytokinin biochemistry in relation to leaf senescence. V. Endogenous cytokinin levels and metabolism of zeatin riboside in leaf discs from green and senescent tobacco (*Nicotiana rustica*) leaves. **J. Plant Physiol.** 139: 279-283.
- Pandey, A. and **Palni, L.M.S.** 1996. The rhizosphere effect of tea on soil microbes in a Himalayan monsoonal location. **Biology and Fertility of Soils** 21(3): 131-137.
- Rikhari, H.C., **Palni, L.M.S.**, Sharma, S., and Nandi, S.K. 1998. Himalayan yew: stand structure, canopy damage, regeneration and conservation strategy. **Environmental Conservation** 25(4): 334-341.
- Joshi, S.C. and **Palni, L.M.S.** 1998. Clonal variation in temperature response of photosynthesis in tea. **Plant Science** 137: 225-232.
- Palni, L.M.S.**, Hao Zo, C. and Nakamura, Y. 1999. Advances in Tea Biotechnology. In: **Global Advances in Tea Science** (Jain, N.K., ed.), Aravali Books International (P) Ltd., New Delhi, pp. 449-462.
- Nadeem, M., **Palni, L.M.S.**, Purohit, A.N., Pandey, H. and Nandi, S.K. 2000. Propagation and conservation of *Podophyllum hexandrum* Royle: an important medicinal herb. **Biological Conservation** 92: 121-129.
- Agnihotri, R.K., **Palni, L.M.S.**, Singh, B. And Pangtey, Y.P.S. 2003. Evaluation of fodder quality of straw of different landraces of rice (*Oryza sativa* L.) under cultivation in Kumaun region of Indian Central Himalaya. **Intl. J. Sustain. Develop. World Ecol.** 10: 391-400.
- Chandra, B., **Palni, L.M.S.** and Nandi, S.K. 2004. Microporation of *Picrorhiza kurrooa* Royle ex Benth., an endangered alpine herb, using cotyledonary node and shoot tip explants. **Phytomorphology** 54(3&4): 303-316.
- Joshi, S.C. and **Palni, L.M.S.** 2005. Greater Sensitivity of *Hordeum himalayens* Schult. to increasing temperature causes reduction in its cultivated area. **Curr. Sci.** 89(5):879-882.
- Pandey, D.K. and **Palni, L.M.S.** 2005. Germination of *Parthenium hysterophorus* L. seeds under the influence of light and germination promoting chemicals. **Seed Sci. & Technol.** 33: 485-491.

- Chandra, B., **Palni, L.M.S.** and Nandi, S.K. 2006. Propagation and conservation of *Picrorhiza kurroa* Royle ex Benth: An endangered alpine herb of high commercial value. **J. Biodiversity and Conservation**. 15 (7): 2325-2338.
- Pandey, H., Nandi, S.K., Kumar, A., Palni, U.T. and **Palni, L.M.S.** 2007. Podophyllotoxin content in *Podophyllum hexandrum* Royle plants of known age of seed origin and grown at a lower altitude. **Acta Physiologiae Plantarum** 29:121-126.
- Tamta, S., **Palni, L.M.S.**, Purohit, V.K. and Nandi, S.K. 2007. *In vitro* propagation of brown oak (*Quercus semecarpifolia* Sm.) using a part of the cotyledonary tube with a primary shoot as explant, obtained from *in vitro* germinated seedlings. **In Vitro Cell. Dev. Biol. -Plant** 44:136-141.

List of some Recent Publications:

- Purohit, V.K., **Palni, L.M.S.** and Nandi, S.K. 2006. Conventional and Biotechnological Methods of Propagation in Oaks: A Review. In : **Plant Biotechnology: Perspectives and Prospects** (P.C. Trivedi, ed). Pointer Publishers, Jaipur (India). pp. 68-109.
- Trivedi, P., Pandey, A. and **Palni, L.M.S.** 2006. In vitro evaluation of antagonistic properties of *Pseudomonas corrugata*. **Microbiol. Res.** (doi:10.1016/j.micres.2006.06.007:1-8 pages)
- Agnihotri, R.K. and **Palni, L.M.S.** 2007. On farm conservation of landraces of rice (*Oryza sativa* L.) through cultivation in the Kumaun region of Indian Central Himalaya. **Journal of Mountain Science** 4:354-360.
- Nadeem, M., **Palni, L.M.S.**, Kumar, A. and Nandi, S.K. 2007. Podophyllotoxin content, above and below ground biomass in relation to altitude in *Podophyllum hexandrum* Royle populations from Kumaun region of Indian Central Himalaya. **Planta Medica** 73:388-391.
- Singh, S., Pandey, A., Chaurasia, B. and **Palni, L.M.S.** 2008. Diversity of arbuscular mycorrhizal fungi associated with the rhizosphere of tea growing in 'natural' and 'cultivated' ecosites. **Biology and Fertility of Soils** 44, 491-500.
- Joshi, M., Sharma, S., Rawat, D.S. and **Palni, L.M.S.** 2011. Structure and functioning of agroforestry in Central Himalaya: A case study from Haigad Watershed, India. **Forests, Trees and Livelihoods** 20: 231-248.
- Palni, L.M.S.**, Rawat, D.S. and Sharma, S. 2011. Resource base and livelihood opportunities with particular reference to perceived climate change in the Western Himalayan region of India. In: **Prospective weather change and its ecological implications for the western Himalayan region of India**. V.L. Chopra and P.S. Ahuja (eds.) (In press).
- Palni, L.M.S.**, Dhyani, P.P., Kothiyari, B.P. and Samal, P.K. 2011. 'Pleasant be Thy Hills, O Earth – They snow clad mountains and Thy woods' : Greening the mountains in the

Indian Himalayan Region. In: **Forests for People**. Published by Tudor Rose on behalf of the United Nations. Pages 228-230.

Singh, S., Kumar, A., Pandey, A. and **Palni, L.M.S.** 2012. *Dendrocalamus strictus* Roxb. Nees: A suitable host for the maintenance and propagation of AM fungi under temperate conditions. **ISRN Soil Sci.** (ID 607213, 6 pages; doi: : 5402/2012/607213).

Bag, N., **Palni, L.M.S.**, Chandra, S. and Nandi, S.K. 2012. Somatic embryogenesis in 'Maggar' Bamboo (*Dendrocalamus hamiltonii*) and field performance of regenerated plants. *Curr. Sci.* 102(9) 1-9 pages (in press).

Citation Analysis:

(link to citation indices <http://scholar.google.co.in/citations?user=lilly18AAAAJ>)

Research Publications	All	Since 2007
Citations	2475	1015
h – index	27	17
i10 – index	64	33

No. of citations of other publications (excluding those used in calculating h – index)

No. of citations	No. of Research Publications
26 – 20	08
19 – 15	11
14 – 10	18
09 – 05	31
04 – 01	54

Curriculum Vitae

Name of the member of expert **Dr. N.H. Ravindranath**

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Centre for Sustainable Technologies
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Bangalore-560012, India
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Research and Consultation Projects on Biodiversity and Climate Change

I have completed nearly 50 research and consultancy projects related to climate change at national and international level. A few recent examples are as follows:

1. **TEEB-India for Forest Sector** - Ministry of Environment and Forests, Government of India and GiZ
2. **National Communications Project** (UNDP-GEF) on GHG inventory from Forest and land sectors, Impact and vulnerability studies for forest sector for India.
3. **kFW (Germany) project** on "Climate change impact, vulnerability and adaptation studies for North East India"
4. **GiZ study** on "NREGA: Environmental services and climate change vulnerability reduction"
5. **GiZ project** on "State Climate Change Action Plans for Uttar Pradesh and Arunachal Pradesh"
6. **World Bank Projects** on "State Climate Change Action Plans for Karnataka state"
7. **World Bank Projects** on: "Climate change mitigation estimation of community forestry project in AP"
8. **World Bank Bio Carbon Project** in Himachal Pradesh Mid Himalayan Watershed project
9. **World Bank project** on "Guidelines for enhancing carbon benefits from agriculture and natural resource management projects"
10. **World Bank Project** on "Climate resilient forestry for Bangladesh"
11. **CICERO, Oslo supported study** on "Climate change and forest ecosystems; impacts, vulnerability and adaptation"
12. **Earthwatch project** on "Long term vegetation monitoring in the context of climate change in the Western Ghats"

MEMBERSHIP IN INTERNATIONAL INSTITUTIONS

1. Author for IPCC Assessments on Climate Change

I have been a member and author for the Intergovernmental Panel on Climate Change (UNEP and WMO) for the following Assessments during the period 2000 to 2007:

- I. **Lead Author (LA)** IPCC Assessment Report 5: WG III, Chapter Mitigation; Forests and Agriculture
- II. **Lead Author (LA)** IPCC Synthesis Report for Assessment Report 5
- III. **Convening Lead Author (CLA)** IPCC Supplementary Methods and Good Practice Guidance Arising from Kyoto Protocol
- IV. **Convening Lead Author - IPCC - Good Practice Guidance for Land Use, Land-use Change and Forestry, 2003**
- V. **Convening Lead Author - IPCC - Greenhouse Gas Inventory Guideline for 2006 for the Volume-4: Agriculture, Forests and other Land uses – GHG Inventory**
- VI. **LA - IPCC – Assessment Report -4: Working Group III Chapter on Forestry Chapter-9, 2007.**
- VII. **LA - IPCC – Synthesis Report for Assessment Report Four, 2007**
- VIII. **LA - IPCC – Biodiversity and Climate change, 2002**
- IX. **LA - IPCC – Assessment Report – 3 Working Group III, Chapter on Forestry, 2001**
- X. **LA – IPCC – Technology Transfer Special report – Forestry Chapter**
- XI. **CLA – IPCC – Special Report on Land Use, Land-Use Change, and Forestry, 2000**

2. Member of Panel of Experts for UNFCCC

Selected as a member of UNFCCC (*United Nations Framework Convention on Climate Change*) panel of experts for Reviewing the Greenhouse Gas Inventory of Annex-I countries (Industrialized Countries) as well as for Reviewing the Kyoto Protocol System.

3. Scientific & Technical Advisory Panel (STAP) of GEF: Member of STAP - GEF (Global Environment Facility) of UNDP, UNEP and World Bank**4. Member of several committees of Ministry of Environment and Forests such as, International Forestry Matters, CAMPA Advisory Council, DST Committees on climate change missions, etc.****5. Journal - Editorial Board Member**

- Member of Editorial Board of Journal *"Biomass and Bioenergy"* Elsevier.
- Member Editorial Board *"International Journal of Agricultural Sustainability"* Earthscan.
- Member Editorial Board of International Journal *"Carbon Management"*
- *Member of Editorial Board of "Env. Research Letters".*

6. Guest Editor (Special Issue / Section) for following Journals

- "Climate Change and India ", Special Section, *Current Science*, Vol. 90, No. 3, 2006, Indian Academy of Sciences.
- "Ecological Aspects of Community Forestry in Asia (South and Southeast Asia)", Special Section, *Int. J. Environment and Sustainable Development*, Vol.5, No.1, 2006
- "Science and Technology for Rural India", *Current Science*, Vol. 87, No. 7, 2004, Indian Academy of Sciences.
- "Sustainable Biomass Production in Asia", *Int. Journal of Biomass & Bioenergy*, Vol. 25, No. 5, 2003, Elsevier.
- "Climate change – Forests; India", *Mitigation and Adaptation to Global Change*, Special Issue, Springer Publications

List of Books

1.	N.H. Ravindranath and M Ostwald. "Carbon Inventory Methods", (Advances in Global Change Research – Series), <i>Springer Publishers, Berlin</i> , 2007.
2.	N. H. Ravindranath and J. A. Sathaye. "Climate Change and Developing Countries" (Advances in Global Change Research - Series), <i>Kluwer Academic Publishers, Dordrecht</i> , 2002
3.	P. R. Shukla , Subodh K. Sharma, N. H. Ravindranath , A. Garg and S. Bhattacharya, "Climate change: Vulnerability Assessment and Adaptation", <i>Universities Press</i> , Hyderabad, 2003 – Edited Book.
4.	Watson, R. T., Noble I. R., Bert Bolin, Ravindranath, N. H. David J. Verardo & David J. Dokken. Land Use, Land-Use Change, and Forestry, <i>Cambridge University Press, Cambridge</i> , 2000.
5.	Ravindranath, N. H. and Hall, D. O. Biomass energy and environment: A developing country perspective from India. <i>Oxford University Press, Oxford</i> , 1995
6.	N H Ravindranath and P Sudha. Joint Forest Management in India: Spread, Performance and Impact, 2004. Universities Press.
7.	N H Ravindranath, K S Murali and K C Malhotra. 2000. Joint Forest Management and Community Forestry in India. Oxford and IBH Publishing Co. Pvt. Ltd

IPCC Publications on Climate Change

1	K. Paustian, N.H. Ravindranath and AV Amstel "Agriculture, Forests and Other Land Uses, IPCC, 2006 Guidelines for National Greenhouse Gas Inventories": <i>IPCC-WMO-UNEP, Geneva</i> , 2004. http://www.ipcc-nggip.iges.or.jp , 2007, Convening Lead Author (2004-2007).
2	G.J. Nabuurs, N. H. Ravindranath and K. Paustian, A. Freibauer, W. Hohenstein, W. Makundi, "Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories; IPCC Good Practice Guidance for LULUCF Sector, Chapter 3: LULUCF Sector Good Practice Guidance": <i>IPCC-WMO-UNEP, Geneva</i> , 2003, http://www.ipcc-nggip.iges.or.jp , <i>IPCC-WMO-UNEP, Geneva</i> , 2003 - Convening Lead Author (2000-2003).
3	Watson..... N.H. Ravindranath ..."Biodiversity and climate Change" <i>IPCC-WMO-UNEP, Geneva</i> , 2002, <i>IPCC-WMO-UNEP, Geneva</i> , 2003, Lead Author.
4	G.J. Nabuurs, N.H. Ravindranath , ..Forestry, Working Group III Mitigation, Metz, <i>et al</i> (Ed), <i>Geneva</i> , 2007, <i>IPCC-WMO-UNEP, Geneva</i> , 2007, Lead Author (2002-2007)., Published by Cambridge Uni. Press
5	Bernstein,...Pachauri, Ravindranath ..."Climate Change: 2007 Synthesis Report of IPCC Assessment Report 4", <i>IPCC-WMO-UNEP, Geneva</i> , 2007, Lead Author
6	N.H. Ravindranath , Lead Author, IPCC-2001, WGIII, Chapter-9, <i>IPCC Third Assessment Report</i> , 2001
7	N.H. Ravindranath , Convening Lead Author and Report Coordinator, <i>IPCC -Special Report on Land-use Change and Forestry, Special Report on Land-use Change and Forestry</i> , 2000
8	N.H. Ravindranath , Convening Lead Author, <i>Forestry Chapter, Technology Transfer, IPCC-WG-III</i> , 2000
9	N.H. Ravindranath , Lead Author, <i>Chapter-15, Wood Production under Changing Climate Change & Land-use, IPCC-Assessment Report, WG-II</i> , 1996

VI. Selected Publications

“Special Issue on Climate Change and Forests in India” - 2011 **Mitigation and Adaptation Strategies for Global Change**

1. **Impact of climate change on Indian forests: a dynamic vegetation modeling approach**
Authors: Rajiv K. Chaturvedi, Ranjith Gopalakrishnan, Mathangi Jayaraman, Govindasamy Bala, N. V. Joshi, Raman Sukumar and N. H. Ravindranath
2. **Impact of climate change at species level: a case study of teak in India**
Authors: Ranjith Gopalakrishnan, Mathangi Jayaraman, Shilpa Swarnim, Rajiv K. Chaturvedi, Govindasamy Bala and N. H. Ravindranath
3. **CO₂-fertilization and potential future terrestrial carbon uptake in India**
Authors: Govindasamy Bala, Ranjith Gopalakrishnan, Mathangi Jayaraman, Ramakrishna Nemani and N. H. Ravindranath
4. **Climate change and forests in India: adaptation opportunities and challenges**
Authors: Murthy I K, Rakesh Tiwari and N. H. Ravindranath
5. **Implications of climate change on mitigation potential estimates for forest sector in India**
Authors: N. H. Ravindranath, Rajiv K. Chaturvedi, N. V. Joshi, R. Sukumar and Jayant Sathaye
6. **Integrated modelling approaches to analysis of climate change impacts on forests and forest management**
Authors: Asbjørn Aaheim, Rajiv Kumar Chaturvedi and Anitha A. Sagadevan
7. **A macroeconomic analysis of adaptation to climate change impacts on forests in India**
Authors: Asbjørn Aaheim, Ranjith Gopalakrishnan, Rajiv Kumar Chaturvedi, N. H. Ravindranath, Anitha D. Sagadevan, Nitasha Sharma and Taoyuan Wei
8. **Forest policies and programs affecting vulnerability and adaptation to climate change**
Authors: Shamama Afreen, Nitasha Sharma, Rajiv K. Chaturvedi, Ranjith Gopalakrishnan and N. H. Ravindranath

Other Selected Publications

1. N. H. Ravindranath, Nalin Srivastava, Indu K. Murthy, Sumedha Malaviya, Madhushree Muni and Nitasha Sharma, 2012. Deforestation and forest degradation in India –implications for REDD+. Current Science, Vol. 102, No. 8, 25 April 2012.
2. Chubanaro Jamir., Nitasha Sharma., Asmita Sengupta., and N.H. Ravindranath, 2012. Farmers’ vulnerability to climate variability in Dimapur district of Nagaland, India, Reg Environ Change, DOI 10.1007/s10113-012-0324-3.

3. Swati Chaliha., Asmita Sengupta., Nitasha Sharma and N.H. Ravindranath, 2012. Climate variability and farmer's vulnerability in a flood-prone district of Assam, *International Journal of Climate Change Strategies and Management*, Vol. 4: 2, pp.179 – 200, 2012.
4. N.H Ravindranath et.al., Climate Change vulnerability profiles for North East India, *Current Science*, 101 (3), 384-394, 2011.
5. R. Gopalkrishnan, M. Jayaraman, G. Bala and N. H. Ravindranath, Climate change and Indian forests, *Current Science*, 101 (3), 348-355, 2011.
6. I.K. Murthy, Arvind Kumar alipuria and N.H. Ravindranath, Potential for oinreasing carbon sink in Himachal Pradesh, *Tropical Ecology*, 53(3) 357-369, 2012.
7. Bhat D.M. and Ravindranath N.H. (2011) Above – Ground Standing Biomass and Carbon Stock Dynamics under a Varied Degree of Anthropogenic Pressure in Tropical Rain Forests of Uttara Kannada District, Western Ghats, India. *Taiwania* 56 (2) pp : 85-96
8. J.M. Rootzén, G. Berndes, N.H. Ravindranath, H.I. Somashekar, I.K. Murthy, P. Sudha, M. Ostwald. Carbon sequestration versus bioenergy: A case study from South India exploring the relative land-use efficiency of two options for climate change mitigation. *Biomass and Bio Energy* Vol. 34, Page 116-123 , 2010
9. Palm M., Ostwald M., Berndes G. and Ravindranath N.H. (2009) Application of clean Development Mechanism to forest plantation projects and rural development in India. *Applied Geography* 2:2-11.
10. N.H. Ravindranath, Rajiv Kumar Chaturvedi and Indu K Murthy. Forest conservation, Afforestation and reforestation in India: Implications for forest carbon stocks. *Current Science*, Vol. 95, No. 2, 25th July 2008
11. R.K. Chaturvedi, R Tiwari and N.H. Ravindranath, Climate change and forests in India, *International forestry review* Vol 10(2), 2008
12. P. Sudha, V. Ramprasad, M. D. V. Nagendra, H. D. Kulkarni and N. H. Ravindranath, Development of an Agroforestry Carbon Sequestration Project in Khammam District, India, *Mitigation and Adaptation Strategies for Global Change*, 2007.
13. Ravindranath, N H, *Mitigation and Adaptation Synergy in Forest Sector, Mitigation and Adaptation Strategies for Global Change- In Press*, 2007.
14. N. H. Ravindranath, K.S. Murali and P. Sudha, Community forestry initiatives in Southeast Asia: a review of ecological impacts, *Int. J. Environment and Sustainable Development*, Vol. 5, No. 1, 2006.
15. Sudha, P., Shubhashree, D., Khan, H., Hedge, G.T., Murthy, I.K., Shreedhara, Ravindranath N.H, *Estimating Land Suitability and Development of Regional Baseline for a Dominant Agro-ecological Zone of Karnataka, India, Mitigation and Adaptation Strategies for Global Change*, 2006.
16. Ravindranath, N H., Murthy, I.K., Chaturvedi, R.K., Andrasko, K. & Sathaye, J.A, *Carbon Forestry Economic Mitigation Potential In India By Land Classification, Mitigation and Adaptation Strategies for Global Change*, 2006.
17. Ravindranath N H., Murthy I. K ., Sudha, P., Ramprasad V., Nagendra, M.D.V., Sahana, C.A., Khan, H. & Srivathsa, K.G, *Methodological Issues In Forestry Mitigation Projects: A Case Study Of Kolar District, Mitigation and Adaptation Strategies for Global Change*, 2006
18. Jayanth Sathaye, P. R. Shukla and N.H. Ravindranath, Climate change, sustainable development and India: Global and national concerns, *Current Science*, Vol. 90 No. 3, 10th February 2006.

19. N. H. Ravindranath, N.V. Joshi, R. Sukumar and A. Saxena, Impact of climate change on forest in India, *Current Science*, Vol. 90 No. 3, 10th February 2006.
20. Murthy I. K., Bhat D. M., Hegde G. T., Nagaraj B. C., Murali K. S., Sangeetha G., Bhat P. R., Shastri, C. M., Jagannatha Rao R. and Ravindranath N. H. Tree diversity and carbon sinks – role of village agro-ecosystems in the western ghats, India, *International Journal of Agricultural Sustainability*, Vol.3, No.2, 2005.
21. N H Ravindranath and Indu K. Murthy, Climate Change and Forests in India. IIFM Communique, Volume 7, No.3, July 2005.
22. K. Murthy, P. R. Bhat, N. H. Ravindranath and R. Sukumar, Financial valuation of non-timber forest product flows in Uttara Kannada district, Western Ghats, Karnataka, *Current Science*, Vol.88, No. 10, 25 May 2005
23. K. S. Murali, D. M. Bhat and N. H. Ravindranath, Biomass estimation equations for tropical deciduous and evergreen forests, *Int. J. Agricultural Resources, Governance and Ecology*, Vol. 4, No.1, 2005.
24. R. J. Rao, P. Sudha and N. H. Ravindranath, Strategies and Issues to evolve Monitoring and Evaluation to sustain Joint Forest Management in India, *Community Forestry*, Vol. 3, issue 4, pp 17-20, 2004
25. N. H. Ravindranath, I. K. Murthy, P. Sudha, K. N. Geetha, G. Sangeetha, Assessment of Afforestation and Agroforestry as Potential CDM Activities in Semi-arid Tumkur District, India, *Journal of Environmental Studies and Policy*, Vol. 6, No. 1, June 2003.
26. K. S. Murali, R. Jagannatha Rao, P. Sudha, G. Sangeetha, I. K Murthy and N. H. Ravindranath, Evaluation studies of Joint Forest Management in India: Social and institutional implications, *International Journal of Environment and Sustainable Development*, Vol. 2, No.1, pp 19-35, 2003
27. D. M. Bhat, K. S. Murali and N. H. Ravindranath, Carbon stock dynamics in the tropical rain forests of the Uttara Kannada district, Western Ghats, India, *International Journal of Environment and Pollution*, Vol. 19, No. 2, pp 139-149, 2003.
28. N. H. Ravindranath, I. K. Murthy, Clean Development Mechanism and Forestry Projects: Strategy for operationalization in India, *The Indian Forester*, Vol. 129, No. 6, pp 691-706, June 2003
29. K. Murthy, K. S. Murali, G. T. Hegde, P. R. Bhat and N. H. Ravindranath, A comparative Analysis of regeneration in natural forests and joint forest management plantations in Uttara Kannada district, Western Ghats, *Current Science*,. 83, No. 11, pp 1358-1364, 2002
30. C. M. Shastri, D. M. Bhat, B. C. Nagaraja, K. S. Murali, N. H. Ravindranath, Tree species diversity in a village ecosystem in Uttara Kannada District in Western Ghats, Karnataka, *Current Science*, Vol. 82, No. 9, pp 101-105, May 2002.
31. K. S. Murali, R. Jagannatha Rao, N. H. Ravindranath, Evaluation Studies of Joint Forest Management in India: A Review of analytical Process *International Journal and Environment & Sustainable development*, Vol. 1, No. 2, pp 184-198, 2002.
32. Clark, S. Binkley, D. Brand, Z. Harkin, G. Ball, N. H. Ravindranath, M. Obersteiner, S. Nilsson, Y. Yamaganta, M. Krott, Carbon sink by Forest Sector- Options and needs for implementation, *Forest Policy & Economics*, 4, pp 65-77, 2002
33. K. S. Murali, I. K. Murthy, N. H. Ravindranath, Joint Forest management in India and its ecological impacts, *Environmental Management and Health*, Vol. 13, No. 5, 2002.

34. Pretty, J. N., Ball, A. S, Li Xiaoyan & N. H. Ravindranath, The role of sustainable agriculture and renewable resource management in reducing green house gas emissions and increasing sinks in China and India, *Phil. Trans. R. Soc. Lond. A.*, 360, pp 1741-1761, 2002.
35. J. A. Sathaye, W. R. Makundi, K. Andrasko, R. Boer, N. H. Ravindranath, P. Sudha, S. Rao, R. Lasco, F. Pulhin, O. Masera, A. Ceron, J. Ordonez, X. Deying, X. Zhnag, and S. Zaumin, Carbon Mitigation Potential and Costs of forestry options in Brazil, China, India, Indonesia, Mexico, the Philippines and Tanzania, *Mitigation and Adaptation Strategies for Global Change*, Vol. 6, No. 3-4, pp 185-211, 2001.
36. N. H. Ravindranath, R. Lasco and P. Sudha, Assessment of GHG Inventories from the LUCF sector of Annex-I countries, *Mitigation and Adaptation Strategies for Global Change*, Vol. 11, pp 233-250, 2001.
37. N. H. Ravindranath, P. Sudha, and R. Sandhya, Forestry for sustainable Biomass production and carbon Sequestration in India, *Mitigation and Adaptation Strategies for Global Change*, Vol. 6, pp 233-256, 2001
38. K Narendran, I. K. Murthy, H. S. Suresh, H. S. Dattaraja, N. H. Ravindranath and R. Sukumar, Non timber Forest Product Extraction, Utilization and Valuation: A Case Study from the Nilgiri Biosphere Reserve, Southern India, *Economic Botany*, Vol. 55, No. 4, pp 528-538, 2001.

BRIEF RESUME



SINGH, PARAMJIT

Born in Ahmedgarh, Punjab, India, on **15 September 1958**. Educated at Mahatma Gandhi Memorial National Higher Secondary School, Ahmed Garh, 1970-74; Government College, Malerkotla, 1974-77; Department of Botany, Punjabi University, Patiala 1977-79; Botanical Survey of India and Jodhpur University, 1980-85; **B.Sc., 1977; M.Sc., 1979; Ph.D., 1986.**

Address: DIRECTOR, BOTANICAL SURVEY OF INDIA, CGO COMPLEX, SALT LAKE CITY, DF BLOCK, 5th & 6TH FLOOR, KOLKATA-700064. Residence: A-22, C G Quarters, 14-Ironside Road, Kolkata – 700019. Email: paramjitsingh@bsi.gov.in; pchanna@gmail.com

Collaborator, All India Coordinated Project on Capacity Building in Taxonomy- Grasses and Bamboos- 2002 to date. Scientific Authority of India on plants for CITES.

Scientist- G and Director, Botanical Survey of India, Kolkata, 2011 to date; Head, Publications, Botanical Survey of India, 2002-2011.

Awards/Honours: G Panigrahi memorial Lecture, Calcutta University, 2012

Fellow: Association of Plant Taxonomy (FAPT), Indian Association of Angiosperm Taxonomy (FIAAT), The Orchid Society of India(TOSI), Soil and Water Conservationists Association, East Himalayan Society for Spermatophyte Taxonomy (EHSST), Sikkim Science Society.

Research Areas: Flowering Plants of India, temperate and alpine Himalayan Flora, Grasses and Bamboos.

Zygophyllaceae and Vitaceae revised for National Flora. Identity and nomenclature problems in several taxa solved and new combination proposed. Field surveys in various parts of Rajasthan, Gujarat, Uttar Pradesh, Maharashtra, Tamilnadu, Kerala, Sikkim, Meghalaya and West Bengal and other NE states were undertaken.

Participated in Hooker's Trail Expedition (1993) to Sikkim and Gondwanaland Expedition (2006) to 16 countries of South Asia and Africa by road. Visited Herbaria in 18 countries.

Contributed to Volume I on Monocots Flora of Sikkim. For Dicots Flora of Sikkim more than 500 species of Rosaceae to Caprifoliaceae, Rubiaceae, Campanulaceae and Ericaceae have been completed.

Discovered 11 species new to science, including a new genus and more than fifty new geographical records from India. Published 9 Books and Booklets and more than 80 scientific research papers on various aspects of plant taxonomy and biodiversity. Recognized as Independent Research Guide in Two Indian Universities. Trained five research students in Plant Taxonomy.

BIODATA

NAME Prof./Dr./Mr./Ms.	DR. PARAMJIT SINGH		
DESIGNATION:	SCIENTIST-G (DIRECTOR)		
ORGANISATION	BOTANICAL SURVEY OF INDIA		
DATE OF ENTRY IN GOVT. SERVICE (As GROUP A)	18-06-1990		
CATEGORY (GENERAL/SC/ST/OBC)	GENERAL		
DATE OF BIRTH	15-09-1958	SEX (M/F)	M
PRESENT PAY	Scale: Band 4: 37000-64000	GRADE PAY	10000
COMPLETE ADDRESS (OFFICE)	BOTANICAL SURVEY OF INDIA, CGO COMPLEX, SALT LAKE CITY, DF CLOCK, 5 th & 6 TH FLOOR, KOLKATA-700064		
COMPLETE ADDRESS (RESIDENCE)	A-22, CENTAL GOVT. QUARTERS, 14 - IRONSIDE ROAD, KOLKATA - 700 019		

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EDUCATIONAL/PROFESSIONAL QUALIFICATIONS (GRADUATION ONWARDS)				
SL. No.	UNIVERSITY/INSTITUTE	YEAR	SUBJECT	DIVISION/ PERCENTAGE OF MARKS
1.	PUNJABI UNIVERSITY, PATIALA	1977	CHEMISTRY, ZOOLOGY, BOTANY	57%
2.	PUNJABI UNIVERSITY, PATIALA	1979	BOTANY	60%
3.	UNIVERSITY OF JODHPUR JODHPUR	1986	TAXONOMIC REVISION OF THE FAMILY ZYGOPHYLLACEAE AND VITACEAE OF INDIA	By Thesis

EXPERIENCE/POSTING FROM LEVEL SCIENTIST-'B' ONWARDS (IN GROUP 'A')					
SL. No.	NAME OF THE ORGANISATION	DESIGNATION	FROM	TO	DUTY PERFORMED
1.	Botanical Survey of India, Gangtok, Sikkim	Scientist-B	1990	1995	Floristic Studies, Flora of Sikkim
2.	Botanical Survey of India, Gangtok, Sikkim	Scientist-C	1995	2001	- do -

3.	Botanical Survey of India, Gangtok & Kolkata	Scientist-D	2001	2008	Taxonomic studies in Bamboos of Eastern India, Editorial Work
4.	Botanical Survey of India, Gangtok & Kolkata	Scientist-E	2008	17.08.2011	- do -
5.	Botanical Survey of India, Kolkata	Scientist -G (DIRECTOR)	18.08.2011	TILL DATE	Being head of the organisation, overall research planning & management of botanical survey of india

TRAINING ATTENDED

SL. No.	Year	NAME OF THE TRAINING PROGRAMME	NAME OF THE INSTITUTE	DURATION
1.	1988	Soil & water conservation & Management	CS & WCRI, Dehradun	Five & half months
2.	1998	Natural Resource Management	IIPA, New Delhi	7 days
3.	2009	Advanced Course in Book Editing	IBP, New Delhi	7 days
4.	2010	Multidisciplinary perspective on Science & Technology	NIAS, Bangalore	14 days

RESEARCH EXPERIENCE

SL. No.	YEAR	TOPIC OF RESEARCH	SPONSORING AGENCY	GIST OF RESEARCH
1.	1980-85	Taxonomic Revision of Family Zygophyllaceae & Vitaceae	BSI	Taxonomically revised these families for Flora of India
2.	1985-90	Conservation of Natural Resource on watershed Bins	ICAR	Developed two model watershed for natural resource conservation projects in Gujarat
3.	1990-present	Taxonomic Studies, Biodiversity Conservation	BSI	Flora of Sikkim, Temperate vegetation, Grasses & Bamboos
		Bamboos of Eastern India	MOEF	Morpho taxonomic studies on Bamboos of Eastern India and use of modern tools in inferring the phylogenetic relationship.
		Revision of Caprifoliaceae of India	BSI	Morpho taxonomic studies on Caprifoliaceae of India and use of modern tools in inferring the phylogenetic relationship.

SIGNIFICANT CONTRIBUTION
<p>Discovered 11 species new to science, including a new genus and more than fifty new geographical records from India.</p> <p>Published 9 Books and Booklets and more than 80 scientific research papers on various aspects of plant taxonomy and biodiversity.</p> <p>Collaborator in All India Coordinated Research Project on Capacity Building in Taxonomy in Grasses & Bamboos, financed by Ministry of Environment & Forests, Govt. of India.</p> <p>Recognized as Independent Research Guide in Two Indian Universities.</p> <p>As research Guide, Trained five research students</p>

NEW TAXA DESCRIBED

NEW GENUS

1. STAPLETONIA

NEW SPECIES

2. *Ampelocissus birii*
3. *Ampelocissus wightiana*
4. *Bambusa majumdariana*
5. *Bambusa mohanramii*
6. *Bambusa nairiana*
7. *Cissus arnottiana*
8. *Cissus subramanianum*
9. *Tetrastigma gamblei*
10. *Tribulus subramanyamii*

NEW SUBSPECIES

- | | | |
|-----|-------------------------------|-------------------|
| 11. | <i>Cissus elongata</i> subsp. | <i>littoralis</i> |
|-----|-------------------------------|-------------------|

BOOKS

- SINGH, N.P. & M.SANJAPPA (Eds.) with assistance from G.V.S. MURTHY & P. SINGH 2006. *Fascicles of Flora of India: Fascicle 23: Alliaceae, Liliaceae, Uvulariaceae, Trilliaceae*. Botanical Survey of India, Calcutta.
- M.SANJAPPA, D.K. SINGH, P. SINGH & R. GOPAL (Eds.) 2009. *Floristic Diversity in Tiger Reserves of India*. Botanical Survey of India, Calcutta.
- SANJAPPA, M. & P. SINGH (Eds.) 2008. *Plant Discoveries 2007*. Botanical Survey of India, Calcutta.
- SANJAPPA, M. & P. SINGH (Eds.) 2009. *Plant Discoveries 2008*. Botanical Survey of India, Calcutta.
- SANJAPPA, M. & P. SINGH (Eds.) 2010. *Plant Discoveries 2009*. Botanical Survey of India, Calcutta.
- Bhatt, J.R., G.V. Subramanyam, M. Sanjappa, D.K. Singh, K.P. Singh, V.J. Nair, Paramjit Singh & Ramakrishna. 2010. *Taxonomy Capacity Building: Indian Initiative*. MoEF, New Delhi.
- N.P.BALAKRISHNAN, M.SANJAPPA, T. CHAKRABORTY (Eds.) with assistance from P. LAKSHMINARASIMHAN & P. SINGH (in press) *Flora of India: Vol. 23*, Botanical Survey of India, Calcutta.

BOOKLET

- PUSHPA KUMARI & PARAMJIT SINGH, 2007. *Common Commercial Bamboos of Eastern India – an identification manual with illustrated key* (booklet published by AICOPTAX, Collaborating Unit, Botanical Survey of India, Kolkata).
- PUSHPA KUMARI & PARAMJIT SINGH, in press. *Bamboos in A.J.C. Bose Indian Botanic Garden, Howrah*. Botanical Survey of India, Calcutta.

COMPLETE LIST OF PUBLICATIONS

1980-85

1. Singh, V. & P. Singh (1981) Edible wild plants of eastern Rajasthan. *J. Econ. Tax. Bot.* 2: 197 - 207.
2. Singh V. & P. Singh (1982) Fibre yielding plants of Rajasthan. *J. Econ. Tax. Bot.* 3: 385-390.
3. Singh, V. & P. Singh (1983) *Lotus arabicus* L. new to Indian Flora. *Bull. Bot. Surv. India* 24: 209 - 211.
4. Singh, Paramjit (1983) Extended distribution of an endemic species *Tribulus rajasthanensis* Bhandari & Sharma. *Bull. Bot. Surv. India* 24: 237 - 238.
5. Singh, V. & P. Singh (1983) Useful aquatic weeds of Rajasthan. *J. Econ. Tax. Bot.* 4: 633 - 638.
6. Singh, Paramjit (1984) IOPB Chromosome report LXXXV. *Taxon* 33(4): 759.
7. Singh, Paramjit (1984) Natural tetraploidy in the genus *Fagonia* L. *Curr. Sci.* 53 (15): 819 - 820.
8. Singh, P. & V. Singh (1984) Some new combinations in *Pycnus* P. Beauv. (Cyperaceae) *J. Econ. Tax. Bot.* 5 (7): 467 - 468.
9. Monga, V. & P. Singh (1984) Observations on the weed flora of Bajra fields of Jodhpur District, Rajasthan. *J. Econ. Tax. Bot.* 5(4): 851 - 854.
10. Singh, P. & B.V. Shetty (1985) Nomenclatural notes on Vitaceae of Indian sub-continent *Taxon* 35: 596 - 597.
11. Pandey, R.P., V. Singh & P. Singh (1985) A reassessment of the Biological spectrum of the flora of Rajasthan. *Trans. Indst. Ucds.* 10 (1): 121 - 128.
12. Chandra, S., K.T.N. Nambiar, P. Singh, R.M. Samarth & A. Kumar (1985) Integrated watershed Management programme - A systematic approach for overall economic upliftment of the rural poor in National Seminar on Soil Conservation & Watershed Management p. 13.
13. Singh, P., G. S. Giri & V. Singh (1985) A new species of *Tribulus* L. from south India *Bull. Bot. Surv. India* 25: 197 - 198.
14. Singh, P. & V. Singh (1985) Critical notes on Indian Zygophyllaceae. *J. Econ. Tax. Bot.* 6: 149 -160.

1986-90

15. Shetty, B.V. & P. Singh (1987) A new species of Vitaceae from peninsular India *Kew Bull.* 42(4): 933 - 936.

16. Shetty, B.V. & P. Singh (1988) The Vitaceae in Rheede's Hortus Malabaricus *Taxon* 37: 169 -174.
17. Shetty, B.V. & P. Singh (1989) Notes on Vitaceae in India and some neighbouring regions. *Kew Bull.* 44(3): 469 - 478.
18. Shetty, B.V. & P. Singh (1990) *Ampelocissus helferi* (Lawson) Planchon (Vitaceae) in Red Data Book of Indian Plants 3: 261 - 262.
19. Shetty, B.V. & P. Singh (1990) *Cissus spectabilis* (Kurz.) Planchon in Red Data Book of Indian Plants. 3: 263 - 265.

991-95

20. Kumar, S. & P. Singh (1991) Nomenclatural notes on Poaceae sub. fam. Bambusoideae of Sikkim. *J. Ind. Bot. Soc.* 70 : 423.
21. Singh, V. & P. Singh (1991) Some New Combinations in the Flora of Sikkim. *J. Econ. Tax. Bot.* 15(3): 705 - 706.
22. Kumar, S. & P. Singh (1993) A synoptic account of Grasses Flora of Sikkim I. Panicoideae in Higher plants of Indian Subcontinent 4: 313 - 339.
23. Mandal, N.R. & P. Singh (1993) Four new plant records for Sikkim. *J. Econ. Tax. Bot.* 17 (3):555 - 556.
24. Singh, P. (1994) Recollection of an endemic monotypic genus *Cyathopus* Stapf (Graminae). *J. Bombay Nat. Hist. Soc.* 91: 352 - 354.
25. Singh, P., & V. Singh (1994) *Cyphostemma* Alston (Vitaceae) - A new generic record for Rajasthan. *J. Bombay Nat. Hist. Soc.* 91 : 339 - 340.
26. Kumar, S., P. Singh & V. Singh (1994) Arboreal and arborescent taxa of horticultural importance in Sikkim in Higher Plants of Indian subcontinent. 2: 210 - 210.
27. Kumar, S., P. Singh & V. Singh (1994) Ethnomedico aspects of some arboreal and arborescent taxa of Sikkim in Higher Plants of Indian subcontinent 3: 161 - 166.
28. Singh, P., P. Tamang & P.K. Gosh, (1994) Weed management in Rice - In Manual on integrated pest management concepts in Rice: 14 - 15. IPM, Gangtok.
29. Singh, V., S. Kumar & P. Singh (1995) Naked seeded plants of Sikkim in Higher Plants of Indian subcontinent 5: 135 - 157.
30. Singh, V. & P. Singh (1995) Nomenclatural notes on an Indian plant. *J. Bombay Nat. Hist Soc.* 92: 290.
31. Chauhan, A. S. , P. Singh, & G.P. Sinha (1995) Preliminary report on joint expedition in Sikkim for development of ecotourism. *Sikkim Sci. Soc. Newsletter* 7 (4): 6 - 10.
32. Awasthe, R.K., R.C. Sundaryal, P. Singh, & S.K. Pradhan, (1995) Ecorestoration efforts of Army in North Sikkim. *Sikkim Sci. Soc. Newsletter* 7(4) 21 - 23.

1996-2000

33. Dash, S. S. & P. Singh (1996) Distribution and Diversity of Polygonaceae in Sikkim Himalaya. *J. Hill. Res.* 9(2): 380 - 394.
34. Singh, P. & V. Singh (1997) Zygophyllaceae in Flora of India Vol. IV. Botanical Survey of India, Howrah.
35. Singh, P., Mudgal, V. & S. Kumar (1997) Medicinal Plants diversity of Himalaya and its conservation in Intern. Symp. on Sust. Utiliz. of Biodiversity 103.
36. Singh, P. & S. Kumar (1997) A synoptic account of Grass Flora of Sikkim - II. in Higher Plants of Indian subcontinent 6: 57 - 86.
37. Shukla, B.K., Singh, P. & A. S. Chauhan. (1997) Orchid Diversity in Sikkim and its conservation and its Conservation *Nat. Seminar Orchid.* (Abstract).TOSI, Chandigarh.
38. Singh, P. & A. S. Chauhan (1997) Sikkim in Plant Diversity Hot Spots in India. BSI, Calcutta.
39. Singh, P., S. S. Dash, & A. S. Chauhan, 1998. Six New Plant records for Sikkim. *J. Hill Res.* 11: 123 - 125.
40. Dash, S. S., & P. Singh, 1998. The Genus *Desmodium* Desv. (Leguminosae) in Sikkim. *J. Hill Res.* 11(2): 212 - 223.
41. Singh, P. & S.S. Dash, 1998. Two new generic records for Sikkim. *J. Econ. Tax. Bot.* 22 (3):741 - 744.
42. Singh, S. & P. Singh, 1998. *Lonicera latangensis* Batal (Caprifoliaceae) New to India from Sikkim. *J. Econ. Tax. Bot.* 22 (3): 694 - 696.
43. Dash, S. S. & P. Singh, 1998. Three new records for Sikkim *J. Econ. Tax. Bot.* 22(3): 747 - 748.
44. Dash, S. S. & P. Singh, 1998. Distributional Notes on two plants from Sikkim. *J. Econ. Tax. Bot.* 22 (3): 745 - 746.
45. Singh, P. & A. S. Chauhan, 1998. An overview of Plant Diversity of Sikkim. in Sikkim, Perspective, Planning and Development 219 - 231.SSC, Gangtok.
46. Dash, S. S. & P. Singh, 1999. The genus *Ribes* L. (Grossulariaceae) in Sikkim. *Rheedea* 9(1) : 93 - 104.
47. Shukla, B.K., P. Singh, & A. S. Chauhan, 1999. Orchid diversity in Sikkim and its conservation *J. Orchid. Soc. India* 12 (1 - 2) : 53 - 76.
48. Singh, P. & A. S. Chauhan, 1999. Sikkim in Floristic Diversity & Conservation strategies in India. Vol.3. BSI, Kolkata.
49. Singh, P. 1999. Punjab in Floristic Diversity & Conservation strategies in India.vol.3. BSI, Kolkata.
50. Singh, P. 1999. Additions to Flora of Sikkim - Monocotyledons. *J. Econ. Tax. Bot.* 24(2): 485-489.
51. Shetty, B.V. & P. Singh, 2000. Vitaceae in Flora of India Vol. V. Director, Botanical Survey of India, Kolkata.

2001-05

52. Dash, S. S. & P. Singh, 2001. Notes on Polygonaceae of Sikkim. *J. Bombay Nat. Hist. Soc.* 98(3):360-363.
53. Singh, P. & S. S. Dash, 2001. Two New records for India from Sikkim. *J. Bombay. Nat. Hist. Soc.* 98(1):144-147
54. Singh, P. & S.S. Dash .2002. Database on trees of Sikkim Himalaya. *J. Econ. Tax. Bot.* 26(2): 285-310
55. Singh, P. 2002. Some overlooked plants of the flora of Sikkim- Monocotyledons. *J. Econ. Tax. Bot.* 24(2): 485-489.
56. Singh, P. & Dash, S.S. 2002. *Spodiopogon* Trin. (Gramineae)- a new generic record for Sikkim Himalaya. *J. Econ. Tax. Bot.* 24(3): 708-710.
57. Singh, P. & M.Sanjappa .2003. Flowers of Sahyadri- Field Guide to 500 flowers of North Western Ghats- book review. *Bull. Bot. Surv. India* 44: 160. 2002
58. Sanjappa, M. & P. Singh. 2004. William Griffith . *Vanaspati Vani* 14:3-4.2005.(Hindi Article)
59. Kumari, P. & P. Singh. 2004. Bamboo diversity in Meghalaya- an appraisal. *In* Abstracts. National Seminar on New Frontiers in Plant Taxonomy and Biodiversity Conservation: 29-31 Dec. 2004(14th Annual Conference of IAAT): p35.
60. Sharma, T.P. & P. Singh .2004. Distribution and Utilisation of Bamboos in Arunachal Pradesh. *In* Abstracts. National Seminar on New Frontiers in Plant Taxonomy and Biodiversity Conservation: 29-31 Dec. 2004(14th Annual Conference of IAAT): p36.
61. Sanjappa, M. & P. Singh. 2004. In memoriam- Dr. G. Panigrahi(1924-2004). *Bull. Bot. Surv. India* 46: 480-508.
62. Singh, P. 2005. *Cyathopus* in Red Data Book of Indian Plants Vol. IV (in press).
63. Singh, P. Kumari, P. & T.P. Sharma 2005. Scandent and Straggling bamboos of Eastern India. *In* Abstracts. 15th Annual Conference of IAAT: p 35.
64. T. Bhuiyan & P. Singh. 2005. Distribution and Diversity of *Litsea* Lam. in Peninsular India. *In* Abstracts.15th Annual Conference of IAAT: p 36.
65. Singh, P. & E. Vajravelu.2005. Sapindaceae *In* Flora of Kerala. Vol. 1. pp 769-787. BSI, Kolkata
66. Singh, P. & B. V. Shetty. 2005. Vitaceae *In* Flora of Kerala vol 1. pp 736-763. BSI. Kolkata
67. Pushpa Kumari 2005. Baans: Ek Sarva Gun Sampann Sampada. *Vanaspati Vaani* 15: 60-61.

2006-2010

68. T. Bhuiyan & P. Singh. 2007. Silk Udyog mein Litsea ki Bhumika (Hindi) *Vanaspati Vani* 16:
69. Sanjappa, M. & P. Singh. 2007. Carl Linnaeus *In* *Vanaspati Vani* 16:1-5
70. Pushpa Kumari & Paramjit Singh 2007. Poorvottar Bharat mein Venu. *Vanaspati Vaani* 17: 77-85.

71. Kumari, P. & Singh, P. 2007. *Chimonobambusa quadrangularis* – an addition to Indian flora. *Bull. Bot. Surv. India* 49: 235-237.
72. Kumari, P. & Singh, P. 2008. *Bambusa nairiana* (Poaceae) — A New Species of Bamboo from India. *Bull. Bot. Surv. India* 50: 152-155.
73. Kumari, P. & Singh, P. 2009. On the identity of *Arundinaria clarkei* Gamble – its recollection and present taxonomic status. *Nelumbo* 51: 234-240.
74. Kumari, P. & Singh, P. 2009. Two new species of *Bambusa* (Poaceae) from India. *Kew Bulletin* Vol. 64: 1 – 7 (2009).
75. Dash, S.S., P. Kumari & P. Singh 2009. Notes on flowering in *Schizostachyum arunachalensis* H.B. Naithani (Poaceae: Bambusoideae). *Nelumbo* 51: 241-244.
76. Bhuinya T. & P. Singh 2009. Contribution to *Litsea* Lam. (Lauraceae) in Northeast India. *Nelumbo* 51: 250-253.
77. Mitra, R.L., V.S. Raju & P. Singh 2009. The use of Alternative names for a few well known angiosperm families vis-a-vis Fabaceae versus Papilionaceae: Historical perspective. *Nelumbo* 51: 199-210.
78. Bhuyan, T. & Paramjit Singh 2010. Notes on *Litsea beeii* N. Mohanan & E.S.S. Kumar (Lauraceae). *Nelumbo* 52: 148-149.
79. Kumari, P. & Paramjit Singh 2010. Notes on Bamboos of Eastern India *Nelumbo* 52: 142-148.
80. T. Bhuinya, Paramjit Singh and Sobhan K. Mukherjee 2010. *Litsea cubeba* (Lour.) Pers. – Medicinal Values – Brief Summary. *Trop. Med. Plants* 11(2): 179-183.
81. T. Bhuinya, Paramjit Singh and Sobhan K. Mukherjee 2010. An Account of the species of *Litsea* Lam. (Lauraceae) Endemic to India. *Bangladesh J. Plant Taxon.* 17(2): 183-191.
82. Singh, Paramjit 2010. Bamboos in TBGRIA book review. *Nelumbo* 52: 158.
83. Singh, Paramjit & M. Sanjappa 2011. *Flowering Plants of Sikkim- An Analysis* . In Biodiversity of Sikkim – Exploring and Conserving a global Hotspot. pp.69-94. Govt of Sikkim, Gangtok.
84. Dash, S.S. & Paramjit Singh 2011. Trees of Sikkim. In Biodiversity of Sikkim –Exploring and Conserving a global Hotspot. pp.95-138. Govt of Sikkim, Gangtok.

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- Education** : Bachelor of Science 1977, University of Madras
 Master of Science 1979, University of Madras
 Doctor of Philosophy 1985, Indian Institute of Science
- Positions held** : Professor, Centre for Ecological Sciences, Indian Institute of Science (IISc.) (2003- present). Faculty since 1986 at the same Institute.
 Associate Faculty, Divecha Centre for Climate Change, IISc. (2009-)
 Adjunct Faculty, Columbia University (2001-present)
 Fulbright Fellow, Princeton University (1991-92)
- Specialization** : ECOLOGY AND CONSERVATION BIOLOGY
- *Wildlife Ecology* (Asian elephant ecology and management; Population dynamics; Wildlife-human conflicts)
 - *Tropical forest ecology* (Diversity, structure and dynamics of tropical forests; Conservation of tropical forests)
 - *Climate change* (Reconstructing Quaternary climate change; Assessing impacts of future climate change on forests and biodiversity)
- Institutional affiliations** : Managing Trustee, Asian Nature Conservation Foundation, Bangalore
 Trustee, Wildlife Trust of India, New Delhi

Research and Conservation Experience

- 1975 – 1979 : *Research on the flora and fauna of Guindy National Park, Madras*
- I began my natural history pursuits in the city of Madras by studying the ecology of this remnant jungle and contributed in a small way to its eventual recognition as a national park.
- 1980 – 1985 : *Study of the ecology of Asian elephants and elephant-human conflicts in southern India*
- This research was part of the Ph.D programme and focused on elephant-human conflicts in relation to the natural ecology of elephants in the Biligirirangan hills in southern India. It is recognized as not only a pioneering scientific study of wild Asian elephants but also as the first to address in depth the ecological basis of conflict between a large mammal and humans.
- 1985 – 1988 : *Survey and design of the Nilgiri Biosphere Reserve, southern India*
- Carried out field surveys and helped design the Nilgiri Biosphere Reserve, a 5500 sq. km reserve that is the country's first biosphere reserve. As part of this conservation programme I also formulated research programmes and set up an information system pertaining to the Nilgiri Biosphere Reserve for the Department of Environment, Government of India. Several long-term research projects that interface with conservation and management were also set up, some of which are described below.
- 1988 – present: *Monitoring the large mammal populations of Mudumalai*
- Set up a long-term monitoring system using line transects of the population dynamics of large mammals in Mudumalai Sanctuary, a part of the Nilgiri Biosphere Reserve. This includes a study of predation patterns of the dhole (Asiatic wild dog), assessing the population structure and numbers of herbivores (elephants, gaur, spotted deer and sambar) and modelling the dynamics of their interactions.
- 1988 – present: *Dynamics and management of tropical forests*
- Beginning in 1988 a number of permanent plots have been set up in the Nilgiri Biosphere Reserve for long-term monitoring of the dynamics of forest communities in relation to climate, fire, impact of elephants and human disturbances. These plots monitor the fate of about 50,000 individual trees from about 300 species and is the largest and longest running programme of its kind in India. The Centre for Tropical Forest Science of the Smithsonian Institution is a collaborator in this work.
- 1988 – present: *Monitoring ivory poaching and the dynamics of Asian elephant populations*
- Long-term monitoring of the population dynamics of Asian elephant populations is being carried out at three sites (Mudumalai, Nagarahole, Periyar) in southern

	India including two within the Nilgiri Biosphere Reserve, and the impact of ivory poaching is being assessed.
1999 – 2005 :	<p><i>Reconstructing past climate change in southern India</i></p> <p>The past climate and vegetation of the Nilgiri Hills, going back to the late Quaternary (about 40,000 years before present), has been studied through stable carbon and oxygen isotope analyses of peat bogs on the plateau.</p>
1995 – present:	<p><i>Impact of future climate change on forests and biodiversity in India</i></p> <p>The potential impact of future climate change on forests in the India is being assessed through models integrating global and regional climate change projections with vegetation change models. The implications of such change during the 21st century for protected areas and wildlife conservation is also being assessed.</p>
1993 – 1996 :	<p><i>Survey and conservation of elephants in Myanmar</i></p> <p>Over a three year period several surveys were carried out of the extensive elephant habitats in the Pegu Yoma and Arakan Yoma range in Myanmar. These surveys provided some of the first objective estimates of the elephant population of the country. As a result of this work the country set up its first elephant sanctuary, the Gwa Elephant Sanctuary, in 1997.</p>
2000 – 2001 :	<p><i>Survey and conservation of elephants in Cat Tien NP, Vietnam</i></p> <p>During 2000 training in field training methods was provided to staff of the Cat Tien National Park, and a detailed survey of the remnant elephant population of the park carried out during 2001 with a view to providing an action plan for its conservation.</p>
1999 – 2005 :	<p><i>Molecular genetics and phylogeography of Asian elephant populations</i></p> <p>A comprehensive study of population genetic structure, variation and phylogeography of Asian elephant populations through extracting DNA from dung was carried out for Indian and Myanmar elephants. This study provided the much needed data for the two major populations of this species in order to derive the evolutionary relationships among Asian elephant populations across the continent.</p>
2001 – present:	<p><i>Radio-telemetry and GPS monitoring of elephants in West Bengal, India</i></p> <p>A detailed study of elephant ecology is being carried out in the state of West Bengal that experiences one of the highest levels of elephant-human conflict in Asia. Under this study eleven elephants have been fitted with radio-collars to study their movement, use of corridors and patterns of conflict with human settlements across a fragmented landscape. The novelty of this study has been the first "satellite-collaring" of an elephant in the country; three elephants in conflict with villagers now serve as prototypes for an internet-based "early warning" system for field managers of the movement of troublesome elephants.</p>

2008 – present: *Ecology and mitigation of wildlife-human conflicts*

I have been coordinating a multi-institutional and comprehensive research programme on wildlife-human conflicts under a joint Indo-Norwegian initiative. Aspects covered include the ecological and social dimensions of conflict of humans with several species of herbivores (elephant, blackbuck, nilgai, wild pig) and carnivores (leopard, wolf) across the country. The study will also make cross-cultural comparisons of wildlife-human conflicts in India and Norway.

Teaching, Training and Lectures

I have taught courses on Ecology and Conservation Biology for graduate students since 1986.

Have also undertaken training programmes for forest/wildlife department personnel from Asian countries including India, Bangladesh, Myanmar, Vietnam, Malaysia, Indonesia and China.

I have also spoken extensively on conservation issues relating to Asian elephants at venues around the world including:

Zoos & Zoological Societies:

San Diego Zoo, Los Angeles Zoo, Oakland Zoo, Minnesota Zoo, Brookfield Zoo, Lincoln Park Zoo, Syracuse Zoo, Bronx Zoo, National Zoo (DC), Philadelphia Zoo, Jacksonville Zoo, Riddle's Elephant Sanctuary, Rotterdam Zoo, Emmen Zoo, Munster Zoo, Chester Zoo, Zoological Society of London, Melbourne Zoo.

Universities:

University of California at San Diego, Davis and Berkeley, Stanford University, Pasadena Institute of Technology, University of Minnesota, University of Wisconsin, Princeton University, Columbia University, Cornell University, Boston University, University of Massachusetts, University of Florida, University of Oxford, University College-London, University of Zurich, University of Kiel,

Congresses & Symposia:

Major international meetings/symposia in which I have made presentations include the Society for Conservation Biology, Association for Tropical Biology, International Congress of Ecology, International Congress of Mammalogy, Elephant Keeper's Association of North America, and International Elephant Foundation.

Awards and Honours

- National Science Talent Award, National Council for Educational Research and Training, 1973.
- Presidential Award of the Chicago Zoological Society, 1991.

- Order of the Golden Ark, The Netherlands, 1997.
- Fellow of the Indian Academy of Sciences, (elected in 2000).
- Whitley Gold Award for International Nature Conservation, U.K., 2003.
- TN Khoshoo Memorial Award for Conservation, India, 2004 (first recipient of this award).
- Fellow of the Indian National Science Academy (elected in 2005).
- UGC National Swami Pranavananda Saraswati Award in Environmental Science and Ecology, 2006.
- International Cosmos Prize, Japan, 2006.
- Fellow, Geological Society of India (elected in 2006).
- B.P. Pal National Environment Fellowship Award for Biodiversity, India, 2007.
- Commendation by the Prime Minister for contributions to the Intergovernmental Panel on Climate Change (IPCC) that shared the Noble Peace Prize, 2007.
- J.C. Bose National Fellow, Department of Science & Technology, India (2010-15).
- Karuna Award for Contributions to National Development, Karuna Trust, Bangalore, 2010.
- Taru Lalvani Award for Protection of the Environment, Rotary Club of Bombay (2011).
- Doctor of Science (*Honoris causa*), Vidyasagar University, West Bengal, 2012.

Membership of Key Professional and Advisory Bodies and Committees

- Deputy Chair, IUCN/SSC Asian Elephant Specialist Group (1988 -1996), and
Chair, IUCN/SSC Asian Elephant Specialist Group (1997 - 2004)

As Deputy Chair, I provided key support to the Chair of the group in providing the scientific framework for field methods and organizing training programmes for estimating elephant populations in forests, and setting up of a field survey project in Myanmar. This was also a period when I lectured extensively worldwide on the plight of the Asian elephant and the urgent need to launch projects for their conservation.

During my chairmanship of the group, some of the key achievements were providing technical inputs to setting up CITES/MIKE (Monitoring the Illegal Killing of Elephants) as mandated by the Conference of Parties to CITES (at Harare in 1997), revising the Asian Elephant Action Plan (along with Deputy Chair, Charles Santiapillai and several members of the group), and organizing a major meeting in Cambodia that brought international focus on the plight of Asian elephants in Indo-China.

- Member, IUCN/SSC Conservation Breeding Specialist Group (1990 - 2003);

As a member of this group I helped carry out several of the early PHVAs (Population and Habitat Viability Analysis) for species such as the Lion-tailed macaque, Sumatran rhino, Asiatic One-horned rhino and Asian elephant (in Sumatra).

- Member, Technical Advisory Group, Monitoring the Illegal Killing of Elephants, CITES (2001-present)

As a member of this group I have provided technical inputs to setting up the monitoring programme, particularly in Asia.

- Contributor, Intergovernmental Panel on Climate Change (1996 - 2007)

I have been part of various exercises of the IPCC including the 2nd Assessment Report (1996), the Special Report on Land-use, Land-use change and Forestry (2000), and the ongoing 4th Assessment (to be completed in 2008).

- Member, Indian Board for Wildlife, Government of India (1996 - 2003)

The board is the apex policy making body for wildlife conservation in the country and is chaired by the Prime Minister of India. As a member of this board for two terms I have contributed to decision-making on several conservation issues.

- Member, Project Elephant Steering Committee, Government of India (1992-2007, 2012-present)

I was a member of the task force set up in 1989 by the Indian government to prepare the blueprint for the country's Project Elephant, a conservation project that aims to protect elephants and its habitat in eleven landscapes across the country. Since its launch in 1992 I have been a member of the steering committee that sets policies and oversees their implementation. In this capacity I have been the coordinator for the southern Indian region and have worked closely with the forest/wildlife departments of the southern states of Karnataka, Tamilnadu and Kerala in the conservation and management of elephant populations.

- Member, National Tiger Conservation Authority, Government of India (2006-2009)
- Chairman, Training, Research and Academic Council, Wildlife Institute of India (2011-present)
- Member, Western Ghats Ecology Expert Panel, Government of India (2011)
- Chairman, Karnataka Elephant Task Force (appointed by Karnataka High Court), 2012

Served as a member of various other advisory and selection committees including:

- a) Ecosystem Research Committee (Ministry of Environment and Forests, Government of India 2000-present),
- b) Project Advisory Committee for Animal Sciences (Department of Science and Technology, Government of India 1995-1998, 2012-present).
- c) Governing Body of the Wildlife Institute of India, Dehra Dun (2001-2011).

- d) Expert Group for Coordinated Research in Eastern & Western Ghats Regions, Ministry of Environment and Forests, Government of India (2003-).
- e) Governing Council of the Salim Ali Centre for Ornithology and Natural History, Coimbatore (2004-2012).
- f) Research Advisory Council of Kerala Forest Research Institute, Peechi (2003-present).
- g) Scientific Advisory Committee of Vivekananda Institute of Tropical Mycology (VINSTROM) (2005- present).
- h) Selection Committee for Director, Salim Ali Centre for Ornithology and Natural History.
- i) Contribution to India's National Communication on the UN Framework Convention on Climate Change (2002-2005).
- j) Assistance to Project Elephant Directorate, Ministry of Environment and Forests, in implementing CITES MIKE (Monitoring the Illegal Killing of Elephants) programme.
- k) National Board for Wildlife sub-committee for rationalization for National Parks and Wildlife Sanctuaries (2006-present).
- l) Committee for examining the suggestions made in the Tiger Task Force and the Special Investigation Team of the CBI relating to the Wildlife (Protection) Act (2006-present)
- m) Expert non-official member for suggesting infrastructure enhancement in priority protected areas including tiger reserves for considering in the XIth Plan.
- n) Reconstitution of Career Assessment Panel (CAP), Salim Ali Centre for Ornithology and Natural History, Coimbatore (2006-present).
- o) Committee for Management Effectiveness Evaluation (MEE) of the Protected Area Network in India (2006-present).
- p) Working Group on Wildlife, biodiversity, traditional knowledge, and animal welfare for the Environment & Forests Sector for the 11th 5-year Plan (2006-present).
- q) Committee for selection of Dr. Salim Ali National Wildlife Fellowship, 2005.
- r) Shri Kailash Sankhla National Wildlife Fellowship, 2006.
- s) Expert member in the National Tiger Conservation Authority (2006-2009).
- t) Member, Technical Support Group for framing Rules under the Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 (2007-).
- u) Member, Expert Committee on Climate Change to study the impact of climate change in India, MoEF, New Delhi (2007-).
- v) Member, Administrative Committee of the National Tiger Conservation Authority (2006-2009).
- w) Member, Expert committee on preparing guidelines on ameliorative measures for biodiversity rich areas threatened by overuse, abuse or neglect, National Biodiversity Authority, Gol, Chennai. (May 2009-September 2010).
- x) Member, Standing Advisory Committee for Atmospheric Research and Climate Change (SAC-ARCC), MOEF, New Delhi. (2009-2012).
- y) Member, Expert Committee for finalizing the proposal to converting existing Environmental Protection Training and Research Institute (EPTRI), Hyderabad into National Environmental Protection Training and Research Institute (NEPTRI), MoEF, New Delhi.
- z) Member, Indian National Man and Biosphere (MAB) Committee, MoEF, New Delhi. (2010-2013).
- aa) Member, Task Force on Project Elephant, MoEF, New Delhi. (2010).
- bb) Member, Expert Group-B on Conservation and Sustainable Utilization of Natural Resources, MoEF, New Delhi. (2010-2013).
- cc) Member, Research Council of National Botanical Research Institute, Lucknow. (2010-2013).
- dd) Research Advisory and Monitoring Committee, Zoological Survey of India (2011-present)
- ee) Member, National Committee for India-IIASA Programme (2011- present).
- ff) Search-cum-selection committee for Vice Chancellor of TERI University, New Delhi (2102).

Publications

Books

Sukumar, R. (1989). *The Asian Elephant: Ecology and Management*. Cambridge Studies in Applied Ecology and Resource Management. Cambridge University Press, Cambridge, U. K.

Sukumar, R. (1994). *Elephant Days and Nights: Ten Years with the Indian Elephant*. Oxford University Press, New Delhi.

Sukumar, R. (2003). *The Living Elephants: Evolutionary Ecology, Behavior and Conservation*. Oxford University Press, New York.

Sukumar, R. (2011). *The Story of Asia's Elephants*. The Marg Foundation, Mumbai.

PAPERS IN PEER-REVIEWED JOURNALS & BOOK CHAPTERS

Wildlife Ecology

Sukumar, R. (1986). Elephant-man conflict in Karnataka. In: C.J. Saldanha (ed.) *Karnataka – State of Environment 1984-85 Report*. Centre for Taxonomic Studies, Bangalore.

Sukumar, R. (1986). The elephant populations of India: strategies for conservation. *Proceedings of the Indian Academy of Sciences (Animal Sciences/Plant Sciences)* Suppl. November 1986, pp. 59-71.

Sukumar, R., Bhattacharya, S.K. and Krishnamurthy, R.V. (1987). Carbon isotopic evidence for different feeding patterns in an Asian elephant population. *Current Science* 56: 11-14.

Sukumar, R. and Gadgil, M. (1988). Male-female differences in foraging on crops by Asian elephants. *Animal Behaviour* 36: 1233-1235.

Sukumar, R., Joshi, N.V. and Krishnamurthy, V. (1988). Growth in the Asian elephant. *Proceedings of the Indian Academy of Sciences (Animal Sciences)* 97: 561-571.

Sukumar, R. (1989). Ecology of the Asian elephant in southern India. I. Movement and habitat utilization patterns. *Journal of Tropical Ecology* 5: 1-18.

Sukumar, R. (1990). Ecology of the Asian elephant in southern India. II. Feeding habits and crop raiding patterns. *Journal of Tropical Ecology* 6: 33-53.

Sukumar, R. (1990). The Nagarhole tiger controversy. *Current Science* 59: 1213-1216.

Sukumar, R. (1991). The management of large mammals in relation to male strategies and conflict with people. *Biological Conservation* 55: 93-102.

Sukumar, R. (1991). Ecology. In: Eltringham, S.K. (ed.) *The Illustrated Encyclopedia of Elephants*, Salamander Books, U.K. Pp.78-101.

- Sukumar, R.** (1991). Conservation. In: Eltringham, S.K. (ed.) *The Illustrated Encyclopedia of Elephants*, Salamander Books, U.K. Pp. 158-179.
- Sukumar, R.** and Ramesh, R. (1992). Stable carbon isotope ratios in Asian elephant collagen: Implications for dietary studies. *Oecologia* **91**: 536-539.
- Varman, K.S. and **Sukumar, R.** (1993). Ecology of sambar in Mudumalai Sanctuary. In: Ohtaishi, N. and Shenoy, H.I. (eds.) *Deer of China: Biology and Management*. Elsevier Science Publications, Amsterdam. Pp. 273-284.
- Sukumar, R.** (1994). Wildlife-human conflict in India : an ecological and social perspective. In: Guha, R. (ed.) *Social Ecology*, Oxford University Press, New Delhi. Pp. 303-317.
- Raman, T.R.S., Menon, R.K.G. and **Sukumar, R.** (1995). Decline of blackbuck (*Antelope cervicapra*) in an insular nature reserve: The Guindy National Park, Madras. *Current Science* **68**: 578-580.
- Varman, K.S. and **Sukumar, R.** (1995). The line transect method for estimating densities of large mammals in a tropical deciduous forest : An evaluation of models and field experiments. *Journal of Biosciences* **20**: 273-287.
- Watve, M.G. and **Sukumar, R.** (1995). Parasite abundance and diversity in mammals: correlates with host ecology. *Proceedings of the National Academy of Sciences (USA)* **92**: 8945-8949.
- Sukumar, R.** (1995). Elephant raiders and rogues. *Natural History*, **104**: 52-60.
- Venkataraman, A.B., Arumugam, R. and **Sukumar, R.** (1995). The foraging ecology of dhole (*Cuon alpinus*) in Mudumalai Sanctuary, southern India. *Journal of Zoology (London)* **237**: 543-561.
- Sukumar, R.** (1995). Minimum viable populations for Asian elephant conservation. In: *A week with elephants*. Eds. J.C. Daniel and H. Datye, Bombay Natural History Society, Bombay and Oxford University Press, New Delhi. Pp. 279-288.
- Varman, K.S., Ramakrishnan, U. and **Sukumar, R.** (1995). Direct and indirect methods of censusing elephants in forests: a comparison from Mudumalai Sanctuary. In: *A week with elephants*. Eds. J.C. Daniel and H. Datye, Bombay Natural History Society, Bombay and Oxford University Press, New Delhi. Pp. 331-339.
- Sukumar, R.** and Ramesh, R. (1995). Elephant foraging: Is browse or grass more important? In: *A week with elephants*. Eds. J.C. Daniel and H. Datye, Bombay Natural History Society, Bombay and Oxford University Press, New Delhi. Pp. 368-374.
- Santosh, J.A. and **Sukumar, R.** (1995). Some solutions to problems in estimation of elephant densities. In: *A week with elephants*. Eds. J.C. Daniel and H. Datye, Bombay Natural History Society, Bombay and Oxford University Press, New Delhi. Pp.394-404.
- Sukumar, R.** and Santiapillai, C. (1996). *Elephas maximus*: status and distribution. Pp.327-331. In: Shoshani, J. & Tassy, P. (eds.) *The Proboscidea : Evolution and Palaeoecology of Elephants and Their Relatives*, Oxford University Press, Oxford. Part VI, Chapter 33.
- Raman, T.R.S., Menon, R.K.G. and **Sukumar, R.** (1996). Ecology and management of chital and blackbuck in Guindy National Park, Madras. *Journal of the Bombay Natural History Society* **93**: 178-192.

- Sukumar, R., Krishnamurthy, V., Wemmer, C. and Rodden, M. (1997).** Demography of captive Asian elephants (*Elephas maximus*) in southern India. *Zoo Biology* **16**: 263-272.
- Watve, M.G. and **Sukumar, R. (1997).** Asian elephants with longer tusks have lower parasite loads. *Current Science* **72**: 885-889.
- Ramakrishnan, U., Santosh, J.A., Ramakrishnan, U. and **Sukumar, R. (1998).** The population and conservation status of Asian elephants in the Periyar Tiger Reserve, southern India. *Current Science* **74**: 110-113.
- Shanker, K. and **Sukumar, R. (1998).** Community structure and demography of small mammal populations in insular montane forests in southern India. *Oecologia* **116**: 243-251.
- Sukumar, R., Ramakrishnan, U. and Santosh, J.A. (1998).** Impact of poaching on an Asian elephant population in Periyar, southern India: a model of demography and tusk harvest. *Animal Conservation* **1**: 281-291.
- Shanker, K. and **Sukumar, R. (1999).** Synchrony in small mammal populations of montane forest patches in southern India. *Journal of Animal Ecology* **68**: 50-59.
- Sukumar, R. (2000).** Asian Elephant (*Elephas maximus*). In: Reading, R.P. and Miller, B. (eds.). *Endangered Animals: a reference guide to conflicting issues*. Greenwood Press, Westport, Connecticut, London, pp.34-39.
- Venkataraman, A.B., Venkatesa Kumar, N., Varma, S and **Sukumar, R. (2002).** Conservation of a flagship species: prioritizing Asian Elephant (*Elephas maximus*) conservation units in southern India. *Current Science*, **82**: 1022-1032.
- Vidya, T.N.C. and **Sukumar, R. (2002).** The effect of some ecological factors on the intestinal parasite loads of the Asian elephant (*Elephas maximus*) in southern India. *Journal of Biosciences*, **27**: 521-528.
- Raman, T.R.S. and **Sukumar, R. (2002).** Responses of tropical rainforest birds to abandoned plantations, edges, and logged forest in the Western Ghats, India. *Animal Conservation*, **5**: 201-216.
- Robin, V.V. and **Sukumar, R. (2002).** Status and habitat preference of White-Bellied Shortwing *Brachypteryx Major* in the Western Ghats (Kerala and Tamilnadu), India. *Bird Conservation International*, **12**: 335-351.
- Sukumar, R. (2003).** Asian elephants in zoos – A response to Rees. *Oryx*, **37**: 23-24.
- Vidya, T.N.C., Roshan Kumar, V., Arivazhagan, C. and **Sukumar, R. (2003).** Application of molecular sexing to free-ranging Asian elephant (*Elephas maximus*) populations in southern India. *Current Science* **85**: 1074-1077.
- Vidya, T.N.C., Fernando, P., Melnick, D.J. and **Sukumar, R. (2005)** Population differentiation within and among Asian elephant (*Elephas maximus*) populations in southern India. *Heredity*, **94**:71-80.
- Vidya, T.N.C. and **Sukumar, R. (2005).** Social organization of the Asian elephant (*Elephas maximus*) in southern India inferred from microsatellite DNA. *Journal of Ethology*, **23**: 205-210.

- Murthy, I.K., Bhat, P.R., Ravindranath, N.H. and **Sukumar, R.** (2005). Financial valuation of non-timber forest product flows in Uttara Kannada district, Western Ghats, Karnataka. *Current Science* **88**: 1573-1579.
- Venkataraman, A.B., Saandeep, R., Baskaran, N., Roy, M., Madhivanan, A. and **Sukumar, R.** (2005). Using satellite telemetry to mitigate elephant-human conflict: an experiment in northern West Bengal, India. *Current Science*, **88**: 1827-1831.
- Rasmussen, L.E.L., Krishnamurthy, V. and **Sukumar, R.** (2005). Behavioural and chemical confirmation of the preovulatory pheromone, (Z)-7-dodecenyl acetate, in wild Asian elephants: its relationship to musth. *Behaviour*, **142**: 351-396.
- Vidya, T.N.C. and **Sukumar, R.** (2005). Amplification success and feasibility of using microsatellite loci amplified from dung to population genetic studies of the Asian elephant (*Elephas maximus*). *Current Science*, **88**: 489-492.
- Vidya, T.N.C., Fernando, P., Melnick, D.J. and **Sukumar, R.** (2005). Population genetic structure and conservation of Asian elephant (*Elephas maximus*) across India. *Animal Conservation*, **8**: 377-388.
- Vidya, T.N.C. and **Sukumar, R.** (2005). Social and reproductive behaviour in elephants. *Current Science*, **89**: 1200-1207.
- Venkataraman, M., Shanker, K. and **Sukumar, R.** (2005). Small mammal communities of tropical forest habitats in Mudumalai Wildlife Sanctuary, southern India. *Mammalia*, **69**: 349-358.
- Shankar Raman, T.R., Joshi, N.V. and **Sukumar, R.** (2005). Tropical rainforest bird community structure in relation to altitude, tree species composition and null models in the Western Ghats, India. *Journal of Bombay Natural History of Society*, **102**: 145-157.
- Sukumar, R.** (2006): A brief review of the status, distribution and biology of wild Asian elephants *Elephas maximus*. *International Zoo Yearbook*, **40**: 1-8.
- Robin, V.V., **Sukumar, R.** and Thiollay, J.-M. (2006). Status and distribution of the White-bellied Shortwing *Brachypteryx major* in the Western Ghats of Karnataka and Goa, India. *Bird Conservation International*, **16**: 345-351.
- Singh, R.R. Goyal, S.P., Khanna, P.P. Mukherjee, P.K. and **Sukumar, R.** (2006). Using morphometric and analytical techniques to characterize elephant ivory. *Forensic Science International*, **162**: 144-151.
- Sillero-Zubiri, C., **Sukumar, R.** and Treves, A. (2007). Living with wildlife: the roots of conflict and the solutions. In: D.W. MacDonald and K. Service (eds.). *Key topics in conservation biology*. Blackwell Publishing Ltd. USA. Pp.253-270. (Chapter 17).
- Vidya, T.N.C., Varma, S., Dang, N.X., Thanh, T.V. and **Sukumar, R.** (2007). Minimum population size, genetic diversity, and social structure of the Asian elephant in Cat Tien National Park and its adjoining areas, Vietnam, based on molecular genetic analyses. *Conservation Genetics*, **8**: 1471-1478.
- Varma, S., Dang, N.X., Thanh, T.V. and **Sukumar, R.** (2008). The elephants (*Elephas maximus*) of Cat Tien National Park, Vietnam: status and conservation of a vanishing population. *Oryx*, **42**: 92-99.

Sukumar, R. (2008). Elephants in time and space: evolution and ecology. In: Wemmer, C. and Christen, C.A. (eds.). *Elephants and ethics: toward a morality of coexistence*. The John Hopkins University Press, Baltimore, USA. Pp.17-39 (Chapter 2).

Vidya, T.N.C., **Sukumar, R.** and Melnick, D.J. (2009). Range-wide mtDNA phylogeography yields insights into the origins of Asian elephants. *Proceedings of the Royal Society B*, **276**: 893–902.

Nair, S., Balakrishnan, R., Seelamantula, C.S. and **Sukumar, R.** (2009). Vocalizations of wild Asian elephants (*Elephas maximus*): Structural classification and social context. *The Journal of the Acoustical Society of America*, **126**: 2768–2778.

Baskaran, N., Das, S. and **Sukumar, R.** (2009). Population and management of captive Asian elephants (*Elephas maximus*) in Jaldapara Wildlife Sanctuary, West Bengal, India. *The Indian Forester* **135**: 1545-1555.

Chelliah, K., Kannan, G., Kundu, S., Abilash, N., Madhusudan, A., Baskaran, N. and **Sukumar, R.** (2010). Testing the efficacy of a chili-tobacco rope fence as a deterrent against crop-raiding elephants. *Current Science* **99**: 1239-1243.

Ghosal, R., **Sukumar, R.** and Seshagiri, P.B. (2010). Prediction of estrus cyclicity in Asian elephants (*Elephas maximus*) through estimation of fecal progesterone metabolite: development of an enzyme-linked immuno-sorbent assay. *Theriogenology* **73**: 1051-1060.

Ghosal, R., Kalaivanan, N., **Sukumar, R.** and Seshagiri, P.B. (2012). Assessment of estrus cyclicity in the Asian elephant (*Elephas maximus*) by measurement of fecal progesterone metabolite 5 α -P-3OH, using a non-invasive assay. *General and Comparative Endocrinology* **175**: 100-108.

Ghosal, R., Seshagiri, P.B., **Sukumar, R.** (2012). Dung as a potential medium for inter-sexual chemical signaling in Asian elephants (*Elephas maximus*). *Behavioral Processes* **91**: 15-21.

Climate Change

Sukumar, R., Ramesh, R., Pant, R.K. and Rajagopalan, G. (1993). A $\delta^{13}\text{C}$ record of late Quaternary climate change from tropical peats in southern India. *Nature*, **364**: 703-706.

Sukumar, R., Suresh, H.S. and Ramesh, R. (1995). Climate change and its impact on tropical montane ecosystems in southern India. *Journal of Biogeography*, **22**: 533-536.

Ravindranath, N.H. and **Sukumar, R.** (1996). Impacts of climate change on forest cover in India. *Commonwealth Forestry Review*, **75**: 76-79.

Solomon, A.M. and others including **Sukumar, R.** (1996). Wood production under changing climate and land use. In: R.T. Watson, M.C. Zinyowera and R.H. Moss (eds.) *Climate Change 1995. Impacts, Adaptations and Mitigation of Climate Change: Scientific-Technical Analyses*. Cambridge University Press, New York, USA. Pp. 487-510. (Chapter 15).

Rajagopalan, G., **Sukumar, R.**, Ramesh, R., Pant, R.K. and Rajagopalan, G. (1997). Late Quaternary vegetational and climatic changes from tropical peats in southern India - an extended record up to 40,000 years BP. *Current Science*, **73**: 60-63.

Ravindranath, N.H. and **Sukumar, R.** (1998). Climate change and tropical forests in India. *Climatic Change*, **39**: 563-581.

Rajagopalan, G., Ramesh, R. and **Sukumar, R.** (1999). Climatic implications of $\delta^{13}\text{C}$ and $\delta^{18}\text{O}$ ratios from C_3 and C_4 plants growing in tropical montane habitat in southern India. *Journal of Biosciences*, **24**: 491-498.

Bolin, B. and **Sukumar, R.** (2000). Global Perspective. In: Watson, R.T., Noble, I.R., Bolin, B., Ravindranath, N.H., Verardo, D.J. and Dokken, D.J. (eds.). *Land Use, Land-Use Change, and Forestry. A special report of the Intergovernmental Panel on Climate Change*. Cambridge University Press, UK. pp.25-51.

Watson, R. and others including **Sukumar, R.** (2000). Summary for Policymakers: Land Use, Land-Use Change, and Forestry – A Special Report of the Intergovernmental Panel on Climate Change. Cambridge University Press, UK.

Sukumar, R. (2000). Climate and ecosystem change: what does it mean for biodiversity conservation in India? *Journal of the Indian Institute of Science*, **80**: 609-618.

Ravindranath, N.H., Joshi, N.V., **Sukumar, R.**, Indu K. Murthy and Suresh, H.S. (2003). Vulnerability and adaptation to climate change in the forest sector. In: P.R. Shukla, Subodh K. Sharma, N.H. Ravindranath, Amit Garg and Sumana Bhattacharya. *Climate Change and India: Vulnerability assessment and adaptation*. Universities Press (India) Private Limited, Hyderabad. Pp. 227-265.

Sukumar, R., Saxena, K.G. and Arvind Untawale. (2003). Climate change impacts on natural ecosystems. In: P.R. Shukla, Subodh K. Sharma, N.H. Ravindranath, Amit Garg and Sumana Bhattacharya. *Climate Change and India: Vulnerability assessment and adaptation*. Universities Press (India) Private Limited, Hyderabad. Pp. 266-290.

Kondandapani, N., Cochrane, M.A. and **Sukumar, R.** (2004). Conservation threat of increasing fire frequencies in the Western Ghats, India. *Conservation Biology*, **18**: 1553-1561.

Ravindranath, N.H., Joshi, N.V., **Sukumar, R.** and Saxena, A. (2006). Impact of climate change on forests in India. *Current Science*, **90**: 354-361.

Sundareshwar, P.V. et al including **Sukumar, R.** (2007). Environmental Monitoring Network for India. *Science*, **316**: 204-206.

Sano, M., Sheshshayee, M.S., Managave, S., Ramesh, R., **Sukumar, R.** and Sweda, T. (2010). Climatic potential of $\delta^{18}\text{O}$ of *Abies spectabilis* from the Nepal Himalaya. *Dendrochronologia*, **28**: 93-98.

Chaturvedi, R.K., Gopalakrishnan, R., **Sukumar, R.** and Ravindranath, N.H. (2010). Carbon management in Indian forests: a policy analysis to assess mitigation potential. *Carbon Management*, **1**: 109-117.

Ravindranath, N.H., Chaturvedi, R.K., Joshi, N.V., **Sukumar, R.** and Sathaye, J. (2011). Implications of Climate Change on Mitigation Potential Estimates for Forest Sector in India. *Mitigation and Adaptation Strategies for Global Change* **16**: 211-227.

Chaturvedi, R.K., Gopalakrishnan, R., Jayaraman, M., Bala, G., Joshi, N.V., **Sukumar, R.** and Ravindranath, N.H. (2011). Impact of Climate Change on Indian Forests: A dynamic vegetation modeling approach. *Mitigation and Adaptation Strategies for Global Change* **16**: 119-142.

Sano, M., Ramesh, R., Sheshshayee, M.S. and **Sukumar, R.** (2012). Increasing aridity over the past 223 years in the Nepal Himalaya inferred from a tree-ring $\delta^{18}\text{O}$ chronology. *The Holocene* **22**: 809–817.

Tropical Forest Ecology

Sukumar, R., Dattaraja, H.S., Suresh, H.S., Radhakrishnan, J., Vasudeva, R., Nirmala, S. and Joshi, N.V. (1992). Long term monitoring of vegetation in a tropical deciduous forest in Mudumalai, southern India. *Current Science*, **62**: 608-616.

Murali, K.S. and **Sukumar, R.** (1993). Leaf flushing and herbivory in a tropical deciduous forest, southern India. *Oecologia*, **94**: 114-119.

Murali, K.S. and **Sukumar, R.** (1994). Reproductive phenology of a tropical dry forest in Mudumalai, southern India. *Journal of Ecology*, **82**: 759-767.

Suresh, H.S., Dattaraja, H.S. and **Sukumar, R.** (1996). Tree Flora of Mudumalai Sanctuary, southern India. *The Indian Forester*, **122**: 507-519.

Condit, R., de Loo, S., LaFrankie, J.V., **Sukumar, R.**, Manokaran, N., Leigh, E.G., Foster, R.P., Ashton, P.S. and Hubbell, S.P. (1996). Species-area and species-individual relationships for tropical trees - a comparison of three 50ha plots. *Journal of Ecology*, **84**: 549-562.

Sukumar, R., Suresh, H.S., Dattaraja, H.S. and Joshi, N.V. (1998). Dynamics of a tropical deciduous forest : Population changes (1988 through 1993) in a 50-hectare plot at Mudumalai, southern India. In: F. Dallmeier and J.A. Comiskey (eds.) *Forest Biodiversity Research, Monitoring and Modeling : Conceptual Background and Old World Case Studies*. Parthenon Publishing Group, Volume I. Pp.529-540.

Joshi, N.V., Suresh, H.S., Dattaraja, H.S. and **Sukumar, R.** (1997). The spatial organization of plant communities in a deciduous forest: A computational-geometry-based analysis. *Journal of the Indian Institute of Science*, **77**: 365-374.

Condit, R., **Sukumar, R.**, Hubbell, S.P., Foster, R.B. (1998). Predicting population trends from size distributions: a direct test in a tropical tree community. *The American Naturalist*, **152**: 495-509.

Suresh, H.S. and **Sukumar, R.** (1999). Phytogeographical affinities of flora of Nilgiri Biosphere Reserve. *Rheedea*, **9**: 1-21.

Condit, R., Ashton, P.S., Baker, P., Bunyavejchewin, S., Gunatilleke, S., Gunatilleke, N., Hubbell, S.P., Foster, R.B., Itoh, A., LaFrankie, J.V., Lee, H.S., Losos, E., Manokaran, N., **Sukumar, R.** and Yamakura, T. (2000). Spatial patterns in the distribution of tropical tree species. *Science*, **288**: 1414-1418.

Plotkin, J.B., Potts, M.D., Yu, D.W., Bunyavejchewin, S., Condit, R., Foster, R., Hubbell, S., LaFrankie, J., Manokaran, N., Seng, L.H., **Sukumar, R.**, Nowak, M.A. and Ashton, P.S. (2000). Predicting species diversity in tropical forests. *Proceedings of the National Academy of Sciences (USA)*, **97**: 10850-10854.

Narendran, K., Murthy, I.K., Suresh, H.S., Dattaraja, H.S., Ravindranath, N.H. and **Sukumar, R.** (2001). Non-timber forest product extraction, utilization and valuation: a case study in the Nilgiri Biosphere Reserve, southern India. *Economic Botany*, **55**: 528-538.

Robert, J., Dattaraja, H.S., Suresh, H.S. and **Sukumar, R.** (2002). Density-dependence in common tree species in a tropical dry forest in Mudumalai, southern India. *Journal of Vegetation Science*, **13**: 45-56.

Murthy, I.K., Bhat, P.R., Ravindranath, N.H. and **Sukumar, R.** (2002). Non-timber forest product gathering in Uttara Kannada district, Western Ghats: social and gender differences. *MyForest*, **38**: 237-246.

John, R. and **Sukumar, R.** (2004). Distance- and density-related effects in a tropical dry deciduous forest tree community at Mudumalai, southern India. In: E.C. Losos and E.G. Leigh, Jr. (eds). *Tropical Forest Diversity and Dynamism: Findings from a Large-scale Plot Network*. The University of Chicago Press, Chicago, USA. Pp. 363-383.

Sukumar, R., Suresh, H. S., Dattaraja, H.S., John, R. and Joshi, N.V. (2004). Mudumalai Forest Dynamics Plot, India. In: Losos, E. (ed.). In: E.C. Losos and E.G. Leigh, Jr. (eds). *Tropical Forest Diversity and Dynamism: Findings from a Large-scale Plot Network*. The University of Chicago Press, Chicago, USA. Pp. 551-563.

Murthy, I.K., Bhat, P.R., Ravindranath, N.H. and **Sukumar, R.** (2005). Financial valuation of non-timber forest product flows in Uttara Kannada district, Western Ghats, Karnataka. *Current Science*, **88**: 1573-1579.

Sukumar, R., Suresh, H.S., Dattaraja, H.S., Srinidhi, S. and Nath, C. (2005). The dynamics of a tropical dry forest in India: Climate, fire, elephants and the evolution of life-history strategies. In: D. Burslem, P. Michelle and S. Hartley (eds.). *Biotic interactions in the tropics: their role in the maintenance of species diversity*. Cambridge University Press, Cambridge, U.K. Pp. 510-529.

Suresh, H.S., Bhat, H.R., Dattaraja, H.S. and **Sukumar, R.** (2006). Revised Flora of Mudumalai Wildlife Sanctuary, Tamilnadu, India. *Journal of Economic and Taxonomic Botany*, **30**: 97-156.

Wills, C. et al. including **Sukumar, R.** (2006). Nonrandom Processes Maintain Diversity in Tropical Forests. *Science*, **311**: 527-531.

Muller-Landau, H.C. et al. including **Sukumar, R.** (2006). Testing metabolic ecology theory for allometric scaling of tree size, growth and mortality in tropical forests. *Ecology Letters*, **9**: 575-588.

Muller-Landau, H.C. et al. including **Sukumar, R.** (2006). Comparing tropical forest tree size distributions with the predictions of metabolic ecology and equilibrium models. *Ecology Letters*, **9**: 589-602.

Condit, R. et al including **Sukumar, R.** (2006). The importance of demographic niches to tree diversity. *Science*, **313**: 98-101.

Nath, C., Dattaraja, H S., Suresh, H.S., Joshi, N.V. and **Sukumar, R.** (2006). Patterns of tree growth in relation to environmental variability tropical dry deciduous forest at Mudumalai, southern India. *Journal of Biosciences*, **31**: 651-669.

Kondandapani, N., Cochrane, M.A. and **Sukumar, R.** (2008). A comparative analysis of spatial, temporal, and ecological characteristics of forest fires in seasonally dry tropical ecosystems in the Western Ghats, India. *Forest Ecology and Management*, **256**: 607-617.

Chave, J. et al. including **Sukumar, R.** (2008). Assessing evidence for a pervasive alteration in tropical tree communities. *PLoS Biol* 6(3): e45. doi:10.1371/journal.pbio.0060045.

Sukumar, R. (2008). Forest Research for the 21st Century. *Science*, **320**:1395 (Guest Editorial).

Suresh, H.S. and **Sukumar, R.** (2009). Influence of climatic variability on tree phenology in the tropical dry forests of Mudumalai, southern India. In: S. Diloksumpun and L. Puangchit (eds.). Tropical forest change in a changing world. Volume 5: dry forest ecology and conservation. Proceedings of the FORTROP II: Tropical Forestry Change in a Changing World, Kasetsart University, Bangkok, Thailand, 17-20 November 2008. Pp.39-61.

Suresh, H.S., Dattaraja, H.S. and **Sukumar, R.** (2010). Relationship between annual rainfall and tree mortality in a tropical dry forest: Results of a 19-year study at Mudumalai, southern India. *Forest Ecology and Management* **259**: 762-769.

Prasad, S., Pittet, A. and **Sukumar, R.** (2010). Who really ate the fruit? A novel approach to camera trapping for quantifying frugivory by ruminants. *Ecological Research*, **25**: 225–231.

Prasad, S. and **Sukumar, R.** (2010). Context-dependency of a complex fruit-frugivore mutualism: temporal variation in crop size and neighborhood effects. *Oikos*, **119**: 514-523.

Suryanarayanan, T.S., Murali, T.S., Thirunavukkarasu, N., Govinda Rajulu, M.B., Venkatesan, G. and **Sukumar, R.** (2011). Endophytic fungal communities in woody perennials of three tropical forest types of the Western Ghats, southern India. *Biodiversity and Conservation* **20**: 913-928.

Suresh, H.S. Dattaraja, H.S., Mondal, N. and **Sukumar, R.** (2011). Seasonally dry tropical forests in southern India: an analysis of floristic composition, structure and dynamics in Mudumalai Wildlife Sanctuary. In: eds. W. J. McShea, S.J. Davies and N.Bhumpakphan. The Ecology and Conservation of Seasonally Dry Forests in Asia. Chapter 2. Pp.37-58. Smithsonian Institution Scholarly Press, USA.

Ramaswami, G. and **Sukumar, R.** (2011). Woody plant seedling distribution under invasive *Lantana camara* thickets in a dry-forest plot in Mudumalai, southern India. *Journal of Tropical Ecology* **27**: 365-373.

Suresh, H.S. and **Sukumar, R.** (2011). Vegetation phenology of tropical montane forests in the Nilgiris, South India. *Journal of the National Science Foundation of Sri Lanka* **39**: 337-347.

Xiangcheng M. et al. including **Sukumar, R.** (2012). The contribution of rare species to community phylogenetic diversity across a global network of forest plots. *The American Naturalist* **180**: E17-E30.

Laurance, W.F. et al. including **Sukumar, R.** (2012). Averting biodiversity collapse in tropical forest protected areas. *Nature* **489**: 290-294.

TECHNICAL REPORTS

Menon, V., **Sukumar, R.** and Kumar, A. (1997). A God in Distress: threats of poaching and the ivory trade to the Asian elephant in India. Asian Elephant Conservation Centre and Wildlife Protection Society of India, Pp.91.

Ravindranath, N.H., **Sukumar, R.** and Deshingkar, P (1997). Climate change and forests: impacts and adaptations, a regional assessment for Western Ghats, India. Atmospheric Environment Issues in Developing Countries Series – No.4. Stockholm Environment Institute, Stockholm, Sweden, Pp.93.

Nath, C.D. and **Sukumar, R.** (1998). Elephant-Human Conflict in Kodagu, southern India: Distribution Patterns, People's Perceptions and Mitigation Methods. Asian Elephant Conservation Centre, Bangalore. Pp.62.

Watson, R., and others including **Sukumar, R.** (2000). Summary for Policymakers: Land Use, Land-Use Change, and Forestry – A Special Report of the Intergovernmental Panel on Climate Change. Cambridge University Press, UK.

Sukumar R., Varma S., Dang N.X. and Van Thanh T. (2002). The Status and Conservation of Asian Elephants in Cat Tien National Park, Vietnam. Technical Report, WWF – Cat Tien National Park Conservation Project, Vietnam.

Sukumar, R., Venkataraman, A.B., Cheeran, J.V. and Mujumdar, P.P. (2003) Study of Elephants in Buxa Tiger Reserve and adjoining areas in northern West Bengal and preparation of Conservation Action Plan. Report submitted to West Bengal Forest Department under India Ecodevelopment Project. Centre for Ecological Sciences, Indian Institute of Science, Bangalore 560 012, December 2003, Pp.128.

Arivazhagan, C. and **Sukumar, R.** (2005). Comparative demography of Asian elephant populations (*Elephas maximus*) in southern India. CES Technical Report No. 106, September 2005, Pp.116.

Sukumar, R., Baskaran, N., Roy, M. and Madhivanan, A. (2005). Resolving elephant-human conflicts in northern Bengal: an early warning system through tracking elephants using Global Positioning System collars. Report submitted to Ministry of Environment & Forests, Government of India. Centre for Ecological Sciences, Indian Institute of Science, Bangalore 560 012, August 2005.

Santiapillai, C. and **Sukumar, R.** (eds.). (2006). *The Asian elephant: status and conservation action plan*. Final report to USFWS. IUCN/SSC Asian Elephant Specialist Group. Accessed at URL <http://www.asiannature.org>.

Nath, C.D., Suresh, H.S. Dattaraja, H.S., **Sukumar, R.** (2007). Matrix model projections of selected canopy species' population dynamics, under different environmental regimes in the Mudumalai dry deciduous forest. CES Technical Report No. 117, June 2007, Pp.38.

Baskaran, N., Kannan, G., Anbarasan U. and **Sukumar, R.** (2007). *Conservation of the elephant population in the Anamalais – Nelliampathis and Palani hills (Project Elephant Range 9), southern India*. Final report submitted to USFWS. Asian Nature Conservation Foundation, Bangalore.

Sar, C.K., Varma, S. and **Sukumar, R.** (2008). The Asian elephants in Orissa, India. Asian Nature Conservation Foundation, Bangalore.

Rangarajan, M. et. al. including **Sukumar, R.** (2010). *Gajah: securing the future for elephants in India*. The report of the Elephant Task Force submitted to the Ministry of Environment and Forests, Government of India.

Lenin, J. and **Sukumar, R.** (2011). Action Plan for the Mitigation of Elephant-Human Conflict in India. Final Report to the U.S. Fish and Wildlife Service. Asian Nature Conservation Foundation, Bangalore.

Gadgil, M. et. al. including **Sukumar, R.** (2011). *Report of the Western Ghats Ecology Expert Panel*. Report submitted to the Ministry of Environment and Forests, Government of India.

Sukumar, R. et. al. (2012). *Report of the Karnataka Elephant Task Force*. Report submitted to Honourable High Court of Karnataka.

BIODATA

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Qualifications : **M.Sc., Ph.D,**

EDUCATION

Degree	Subject	Class	Year	University/College
Ph.D.	Zoology	AWARD	1983	Madurai Kamaraj University, School of Biological Science, Madurai, India
M.Sc.	Zoology (Project: Limnology)	I	1978	Madurai Kamaraj University, Thiagarajar College, Madurai.
B.Sc.	Zoology	I (Gold Medallist)	1976	Madurai Kamaraj University, Madura College, Madurai.

EXPERIENCES

(In chronological order)

Name of the Office	Designation	From	To	Basic Pay	Types of Duties and Functions
School of biological Sciences, Maduuri Kamaraj university, Madurai.	JRF (CSIR)	1979	1981	400/800	To conduct research On the taxonomy and ecology of Clodocera (crustacea)
School of biological sciences, Maduuri Kamaraj University, Madurai.	srf (csir)	1981	1984	1000/1300	To conduct research On the taxonomy and ecology of Clodocera (Crustacea) guiding m.sc. & M.phil. students, assessment of laboratory work of students.
BOMBAY NATURAL HISTORY SOCIETY ECOLOGICAL RESEARCH CENTRE, BHARATPUR.	LIMNOLOGIST/ RESEARCH BIOLOGIST	1984	1985	1000/1200	LIMNOLOGY/MANAGEMENT OF KEOLADEO NATIONAL PARK, BHARATPUR, RAJASTHAN.
SCHOOL OF ENERGY ENVIRONMENT AND NATURAL RESOURCES, MADURAI KAMARAJ UNIVERSITY, MADURAI	RESEARCH ASSOCIATE (CSIR)	1985	1988	2200/2700	WETLAND ECOLOGY/ENVIRONMENTAL BIOLOGY/ EVALUATION OF EXAMINATION PAPERS AND M.Phil. THESES.
-DO-	LECTURER	1988	1989	2200/3500	WETLAND ECOLOGY/AIR WATER TERRESTRIAL POLLUTION STUDIES, TEACHING AND GUIDING
ZOOLOGICAL SURVEY OF INDIA, ANDAMAN AND NICOBAR REGIONAL STATION, PORT BLAIR	SCIENTIST-SD	1989	1991	3000-4500	CONDUCTING RESEARCH AND SURVEY OF FRESH WATER AND MARINE FAUNAL RESOURCES. DISCHARGED ADMINISTRATIVE DUTIES AND MUSEUM-IN-CHARGE.
ZOOLOGICAL SURVEY OF INDIA, HEAD QUARTERS, CALCUTTA	SCIENTIST-SD	1991	1995	3000-4500	CONDUCTING SURVEY AND RESEARCH ON WETLANDS OF WEST BENGAL AND NORTH EASTERN REGION, CONDUCTING STUDIES ON SYSTEMATICS USING SCANNING ELECTRON MICROSCOPE. AND ADMINISTRATIVE ASSISTANCE.
ZOOLOGICAL SURVEY OF INDIA, MBS, CHENNAI, INDIA.	SCIENTIST-E	2001-2007		14300-18300	CONDUCTING SURVEY & RESEARCH ON COASTAL & MARINE ECOSYSTEMS OF INDIA.
ZOOLOGICAL SURVEY OF INDIA, MBS, CHENNAI, INDIA.	SCIENTIST-F	2007- Till DATE		37400-67000+8900	CONDUCTING SURVEY & RESEARCH ON COASTAL & MARINE ECOSYSTEMS OF INDIA.
ZOOLOGICAL SURVEY OF INDIA, MBS, CHENNAI.	SCIENTIST-G	2010- Till DATE		37400-67000+10000	
NATIONAL BIODIVERSITY AUTHORITY, CHENNAI	SECRETARY	2003 to 2009		Additional Charge.	IMPLEMENTATION OF BIODIVERSITY ACT, 2002
	Sr. Consultant	2009		Loan basis from ZSI	Up to Nov 2009.
LOSS OF ECOLOGY (Prevention and Payment of Compensation) AUTHORITY	MEMBER SECRETARY	2007-Till DATE		Additional Charge	IMPLEMENTATION OF SUPREME COURT ORDER AND SECTION 3 (3) OF ENVIRONMENT (PROTECTION) ACT 1986

FELLOWSHIPS

Title	Agency	Tenure	Field
Junior Research Fellow	Council of Scientific and Industrial Research, New Delhi	1979-1981	Wetland Ecology/Limnology
Senior Research Fellow	-do-	1981-1984	-do-
Limnologist/ Research Biologist	Bombay Natural History Society, Bombay.	1984-1985	Wetland Ecology/Limnology/ Primary Productivity/ Zooplankton production
Research Associate	U.G.C. Spl. Asstt., Madurai Kamaraj University, Madurai.	1985-1986	Wetland Ecology/ Environmental Biology
Research Associate	C.S.I.R., New Delhi	1986-1988	Wetland Ecology/ Environmental Biology

ACADEMIC EXPERIENCE

Assignment	Institution	Subject	Year	Class Taught
Teaching Assistance	School of Biological Science, Madurai Kamaraj University.	Cell Biology	1982	M.Sc.(Biology)
-do-	-do-	Genetics	1983	-do-
Project work	-do-	Environment	1981	M.Phil (2 nos.)
Assistance	-do-	Biology	-do-	-do- (2nos.)
-do-	-do-	-do-	1982	-do- (2nos.)
-do-	-do-	-do-	1983	-do- (5 nos.)
-do-	-do-	-do-	1983	M.Sc. (2 nos.)
Lecturer	School of Energy Environment and Natural Resources, Madurai Kamaraj University	Water Pollution	1987	M.Phil.
Lecturer	-do-	Environmental	1987	M.Phil. (Summer course) Pollution
Lecturer	-do-	-do- and Environmental Management	1988	M.Phil.
PhD Guide	University of Madras	Coral reefs	1998 to 2010	PhD thesis on coral Reefs, Coral Crabs and Meiofauna of GoMBR

RESEARCH

Position	Institution	Tenure	Subject/Field
Junior Research Fellow	School of Biological Science, Madurai Kamaraj University.	1978-1981	Wetland Ecology/Limnology
Senior Research Fellow	School of Biological Science, Madurai Kamaraj University.	1981-1984	Wetland Ecology/Limnology
Limnologist/Research Biologist Bharatpur, Rajasthan	Bombay National History Society Ecological Research Centre,	1984-1985	Wetland Ecology/Limnology/Management of Keoladeo National Park, Bharatpur.
Research Associate	School of Energy, Environment And Natural Resources, Madurai Kamaraj University.	1985-1988	Wetland Ecology/Limnology/Environmental Biology
Lecturer	-do-	1988-1989	Wetland Ecology/Water Pollution
Scientist-SD	Zoological Survey of India, Andaman Regional Station, Port Blair.	1989-1991	Wetland Ecology/Marine Survey/Coral Studies
Scientist-SD	Zoological Survey of India, Calcutta.	1991-1995	Wetland Ecology/Scanning Electron Microscopy
Scientist-SE	Zoological Survey of India, Marine Biological Station, 130, Santhome High Road Chennai.	1996-1999	Conducting Survey and Research on Diversity of Coastal and Marine waters & Coral reefs.
Scientist-SE	Zoological Survey of India, Marine Biological Station, 130, Santhome High Road Chennai.	1999- 2004	Conducting Survey and Research on Diversity of Coastal and Marine waters & Coral reefs.
Scientist-E	Zoological Survey of India, Marine Biological Station, 130, Santhome High Road Chennai.	2004- 2009	Conducting Survey and Research on Diversity of Coastal and Marine waters & Coral reefs.
Scientist-F	Zoological Survey of India, Marine Biological Station, 130, Santhome High Road Chennai.	2009- 2010	Conducting Survey and Research on Diversity of Coastal and Marine waters & Coral reefs.
Secretary	National Biodiversity Authority #475, 9 th South Cross Street Kapaleeswarar Nagar Neelankarai Chennai 600041	2003- 2009	Implementation of Biodiversity Act, Regulation of bioresources of India.
Sr Consultant	- do-	2009	- do-
Member Secretary	Loss of Ecology Authority	2007-till date	Implementation of Supreme Court order On Sec 3 of EPA, 1986. Administration of ZSI Kolkata and other 16 station of ZSI
Director	Zoological Survey of India	2010-till date	

2. Fellowships, Awards And Admirations

1. **Gold Medalist:** Dr M. N. Venkataraman, Zoology Gold Medal Awarded to Thiru K Venkataraman of Final B.Sc., Class for proficiency in Zoology, Principal and Rector of Madura College Madurai 14.3.1977.
2. **Fellow:** Dr. K. Venkataraman was awarded F.Z.S (Fellow of Zoological Society) by the Zoological Society, Calcutta, year 2000 for his excellent work in the field of Wetland Ecology, Marine and Coastal Wetlands/waters of India.
3. **Diving Dreams:** Mark Gilmour, PADI NO 466478, Australia: Night Dive admiration 26.01.2001.
4. **Fellow:** Dr. K. Venkataraman was awarded F.M.S.F (Fellow of Madras Science Foundation) by the Madras Science Foundation, Chennai for the year 2003 for his excellent work in the field of Natural aquatic ecosystems of India.
5. **International Society for Reef Studies “LIBRARY AWARDS” 2003:** The International Society for Reef Studies (ISRS) has announced Marine Biological Station of Zoological Survey of India the winners of its Library Awards for 2003. The ISRS received 27 applications, and a sub-committee of the ISRS Council made their choice of 10 successful applicants and Marine Biological Station, Zoological Survey of India, Chennai is one among the ten winners, based on criteria of relevance of the applicants' missions of coral reef studies, the number of people who would be likely to make use of the materials, the quality of arrangements for access and the track record of contributions made by the institution so far.
6. **International Attorneys, Chennai:** “Aquanaut in love with the deep”-The Hindu dated 5th January 2003.
7. **International Attorneys, Chennai:** “Save them to save yourself” – The Hindu dated 17th December 2002.
8. **National Expert, South Asia Coral Reef Task Force (SACRTF)** established by SACEP, Srilanka.

Studies On Ecosystems

1. Survey, Inventorisation and Monitoring

- a. **SURVEYS:** Conducted Freshwater and marine Ecosystems surveys in Tamil Nadu (1979-1984), Rajasthan (1984-1985), Andaman and Nicobar Islands (1989-1991), West Bengal (1991-1997) and Tripura (1994-1995).

ACHIEVEMENTS: Publications on the marine and freshwater fauna of Tamil Nadu, West Bengal, Tripura, Rajasthan, Andaman and Nicobar Islands.

- b. INVENTORISATION:** Inventoried Freshwater and marine fauna through surveys in Tamil Nadu, Rajasthan, Andaman and Nicobar Islands, West Bengal, Tripura.

ACHIEVEMENTS: Publications on Wetland and marine fauna of Tamil Nadu, West Bengal, Tripura, Rajasthan, Andaman and Nicobar Islands.

- c. BIOMONITORING:** Monitoring of Damodhar River (Bihar and West Bengal States) and Vaigai River (Tamil Nadu) using freshwater organisms.

ACHIEVEMENTS: Publications on Biomonitoring of Damodhar River and report to Central Pollution Control Board, New Delhi.

2. Research Publications

Papers Published on Wetlands of India: 71 papers

Papers Published on Marine Ecosystems of India: 117 papers

Papers Published on Terrestrial Ecosystems of India: 5 papers

Papers Published on Biodiversity of India: 16 papers

Papers Published on Antarctica: 2 papers

Papers Published on Scanning Electron Microscope: 5 papers

Papers Published in other languages: 5 papers

Popular articles: 9 papers

Books published: 18 papers

Deputations abroad: 13 countries

Members of committees: 18 committees

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Curriculum Vitae Dr. Dedy Darnaedi

a. Personal Data :

Name: Dr. Dedy Darnaedi
 Place & date of birth: Kuningan, June 15, 1952
 Home Address: Komplek LIPI Baranang Siang B 118, Bogor
 Phone 62 (251) 8348963
 Position: Research Professor in Botany
 Former Director of Research Center for Biology,
 Indonesian Institute of Sciences, LIPI
 Official Address : Research Center for Biology-LIPI
 Jl. Raya Jakarta-Bogor Km. 46, Cibinong 16911, Indonesia.
 Phone 62 (21) 87907572, 62 (251) 8322859
 Fax 62 (21) 87907612, 62 (251) 8370934
 e-mail: dedydarnaedi@rocketmail.com

b. Professional Preparation :

The University of Tokyo, Japan	Botany	DSc, 1989
The University of Tokyo, Japan	Botany	MSc, 1986
Universitas Nasional, Jakarta	Biology	Drs, 1982

c. Appointments:

1. Director of Research Centre for Biology, Indonesian Institute of Sciences (LIPI), 2005 -2008.
2. Head of Planning and Finance Bureau, LIPI 2004 to 2005.
3. Director of Bogor Botanic Gardens, LIPI, 1997 to 2004.
4. Board Member on Man and The Biosphere Reserve , MAB-UNESCO, 2006 to present.
5. Lecturer on Systematic Botany, Bogor Agriculture University (IPB). M.Sc. & Ph.D. Program, 1995 to present.
6. Lecturer on Biodiversity, Indonesian University, M.Sc. & Ph.D. Program, 2000 to present.

d. Other position and Professional Services

1. Member of the Steering Committee to the Asia Pacific Biodiversity Observation Network (AP-BON), 2010 - present.
2. Chairman of *Flora Malesiana Foundation*, 2002 - present
3. Vice Chairman of *International Association of Botanic Gardens*, 1997-2004
4. National Focal Point, *Global Taxonomy Initiative (GTI/CBD)*, 2000 - 2008.
5. Plant Science Committee, SSC-IUCN. Scientific Authority to the CITES-IUCN
6. Founder of *Botanical Gardens Foundation* (together with former Indonesian President Megawati Soekarnoputri in 2000).

7. Founder of *Indonesian Biological Sciences Foundation* (YABSHI).
8. Chairman of *Indonesian Biological Society* (Perhimpunan Biologi Indonesia), 2005 to present.
8. Director of *PROSEA Foundation*, 2009 to present.
9. Source Person on “*Indonesian Environmental Status in 2004*”. Ministry of Environment Indonesia.
10. Editorial Board of *Tropical Biodiversity*. International Journal.
11. Editorial Board of *Reindwartia*. International Journal.
12. Reviewer of *Floribunda* (Indonesian-English Journal).

e. Selected Publications

1. Darnaedi, D., and K. Iwatsuki. 1998. “Species Diversity in Southeast Asia”. The Tokyo International Forum on Conservation and Sustainable Use of Tropical Bioresources. Result of the Bilateral Research Cooperation Project between Japan and Each Thailand, Indonesia, and Malaysia from 1993-1999. NEDO and JBA. 3-9 pp.
2. Darnaedi, D. and B. Powell. 2000. “Traditional Plant Usage in Four Vilages of Baliaga: Tenganan, Sepang, Tigawasa and Sembiran, Bali Indonesia”. The John Mc Arthur Foundation and Indonesian Institute of Sciences, 87 pp.
3. Darnaedi, D. and A.S. Adhikerana. 2006. “Botanic Gardens in The New Millenium: Are we ready for the Challenges?” Pros. ASEAN-CHINA Workshop on Botanical Gardens Management and Plant Conservation in Conjunction with the 189th Ann. Bog. Bot. Gardens, hlm. 21-36.
4. Darnaedi, D., Y. Purwanto. 2008. “Living in Harmony with Nature: Learning from the Traditional Wisdom of the Indonesian Society. In “Satoyama from Asia”-Towards the Harmonious Coexistence of Human and Nature”. G-8 Environment Ministers Meeting Commemorative Symposium, Hyogo-Japan. 2008:124-128 and 218-221.
5. Darnaedi, D., E. Sukara, R. Abdulhadi, Y. Purwanto. 2009. “Landscape-level Approach Model to Manage Tropical Peat Swamp Forest in GSK-BB, Riau, Sumatra”. Joint Meeting of Society for Tropical Ecology & ATBC, Impact to Global Change in Tropical Ecosystem, 27-30 July 2009. Philips University Marburg, Germany.
6. Darnaedi, D. 2010. “Biodiversity Conservation in Indonesia: Local Needs and Global Concern”. International Symposium & Workshop on Biodiversity Conservation ESHA Women’s University, Seoul-Korea. 5 pp.
7. Hatta, H., and D. Darnaedi. 2005. “Phenology and Growth Habits of Tropical Trees”. National Science Museum Monographs No. 30. National Science Museum, Tokyo. 436 pp. ISSN 1342-9574.
8. Darnaedi, D. 2002. Botanical Reference Collection in The Botanical Gardens of Indonesia. LIPI. Proc. Of the 3th Symposia on Collection Building and Natural History Studies in Asia and The Pacific Rim, Tsukuba, Japan T.Kubodera (Ed) National Science Museum Monographs (22):7-9. 2002.

f. Collaboration and other Affiliation

1. Conservation International Indonesia (CI- Indonesia).
2. BirdLife International, Indonesia Programme
3. World Conservation Society, (WCS-Indonesia).

g. Research Collaboration

1. Plant Diversity Observation a long Altitudinal Gradients of Some Indonesian Mountains. (AP-BON implementation in Indonesian, 2011-2016).
2. Evolutionary Biology of Tropical Fern Species. Collaborative work with The University of Tokyo, Japan (2008- present).
3. Rapid Assessment Program. Biological Exploration of the Mamberamo-Foja Mountains, Papua. Collaborative work with Forestry Department, CI Indonesia, Papua University (2007-2008).
4. *Biodiversity Conservation Priority Setting of Sumatra Island*. Collaborative work between RC for Biology-LIPI and CI Indonesia with Local Government, Local Universities, Local NGOs (2006-2008).
5. *Biological Exploration to Muller Mountain Range, Central Kalimantan*. Base line study for proposed World Heritage (2001-2004).

h . Thesis Supervisor (last 5 years)

1. *M.Sc.Students:*
 1. Titien Ng. Praptosuwiryo (MSc, August 2000, Dr. April 2008), Bogor Agriculture University (IPB).
 2. Endang Dayat (MSc, Juli 2000), Bogor Agriculture University (IPB).
 3. Bambang Hariyadi (MSc, Juli 2000), Bogor Agriculture University (IPB).
 4. Maria Teresia Longa Ruma (MSc, Februari 2002), Bogor Agriculture University (IPB).
 5. Arief Hidayat (MSc, Juli 2011), Bogor Agriculture University (IPB).
- b. Ph.D. Student:
 1. Rugayah (PhD. 2003), Bogor Agriculture University (IPB).
 2. Sri S. Sukiman (PhD. 2004, Bogor Agriculture University (IPB).
 3. Titien Ng. Praptosuwiryo (PhD. 2008), Bogor Agriculture University (IPB).

i. International Experiences

1. Chairman to the ATBC (Association for Tropical Biology and Conservation) Annual meeting 2010 in Bali, Indonesia. Attended by 900 active participants from 60 countries.
2. Attending Conference of the Party (COP-10/CBD) in Nagoya – Japan, 2010.
3. Indonesian Delegation (DELRI) in Conference of the Party (COP-9/CBD) in Bonn-Germany, 2008.
4. Indonesian Delegation (DELRI) in Conference of the Party (COP-8/CBD) in Curitiba-Brazil, 2006.
5. Indonesian Delegation (DELRI) in Conference of the Party (COP-6/CBD) in Hoge, Netherlands, 2002.
6. Attending Workshop, Seminar and guest lecture in Japan, Philippines, South Korea, Australia, China, Malaysia, Spain.

Mehrasa Mehrdadi

A: Personal Information:

First Name: **Mehrasa**

Surname: **Mehrdadi**

Nationality: **Iranian**

Date and Place of Birth: **1975- Sari/Iran**

Address: **Research Center of Department of the Environment, Pardisan Eco-Park, Hakim Highway, Tehran, Iran, P.O. Box: 14155-7383**

Tel: **(+9821) 42781830**

Fax: **(+9821) 88233097**

E-mail: mehrasa.mehrdadi@gmail.com

mehr_1975@yahoo.com

B: Education/Qualifications

1999-2002:

- Tarbiat Modarres University, Natural Resources Engineering/ Range Management, (MSc.) , Tehran-Iran

1994-1998:

- Mazandaran University, Natural Resources Engineering/Range and Watershed Management, (BSc.) , Sari- Iran

2010

- Technische Universität Dresden, Center for International Postgraduate Studies of Environmental, six-month course on "Integrated Environmental Management", Germany
- Computer literate (Excel, PowerPoint, Access, Word)

C: Occupational Status:

2002- Now:

- Technical Expert for Natural Environment and Biodiversity Division, Department of Environment (DoE) – Tehran

2003 – Now:

- Iranian Biosphere Reserves National coordinator & MaB National focal point at Department of the Environment

2004 – Now:

- IUCN National Focal Point

2011-2012:

- Lecturer at College of Environment,

2005- 2007:

- Member of National committee for "Recording the Natural Monuments of Iran"

D: Study/Research Experience and Publications:

- National Assistant of Mid-term Evaluation of Zagros Conservation GEF project, 2011
- Lecturer at the Post Graduate Certificate on Environmental Management(PCEM) course, organized by ECO-TEST,2011
- Book publication: World Network of Biosphere Reserves and Biosphere Reserves of Iran, 2011
- Translation and publication of: Madrid Action Plan in Persian,2011
- Study of "Effective Management in Biosphere Reserves of Iran" 2010
- Cooperation with FNR_Rio Project, UNEP World Conservation Monitoring Centre, 2010
- Member of the IUCN Regional Committee for West Asia (RCWA), 2007–Now
- Paper on "Development of Management Plans for Protected Areas of Iran (Best Practice: Arasbaran PA/BR)",2009
- Member of the CBD 4th Country Report national committee (Responsible for Annex of Protected Areas),2010
- DoE delegate in the International Coordinating Council of the Man and the Biosphere (MAB-ICC) Programme- UNESCO, 2008-2009
- Technical expert for preparing a guideline of recording the Natural Monuments of Iran, 2008
- Paper on "Comprehensive Management Plan in the Protected Areas of Iran, Benefits and challenges"; 2008

- Governmental member of the regional Caucasus Biodiversity Council (CBC), 2006- 2007
- Technical expert for development of the Project proposal of "IUCN Support for Biodiversity Conservation in Iran" 2005
- Paper on "Miankaleh Biosphere Reserve"; 2005

Translation of:

- Biosphere Reserve Concepts.
- Categories of Protected Areas in Vietnam
- GEF Activity
- Fire Protection in Landscape
- IUCN categories system
- Toxic oil covering the sea- Lebanon
- Investigation on effect of physical and chemical characteristics of soil on dominated range plants in Kahak region, 1998
- Study of process on forest destroyed in Narges kiti forest-Sari, 1997
- Research on forage quality; 1997

E: Organizing and Co-organizing National, Regional, Sub-Regional and International Seminars, Conferences, Workshops, Forums etc. Including National and International Co-ordinations (From Correspondences through to drawing up announcements, recommendations etc)

- Asia- Pacific regional capacity building workshop and consultative meeting on IPBES, March 2012, Tehran- Islamic Republic of IRAN;
- 4th Regional Meeting of South and Central Asia MAB Network, Nov 2011, Qeshm- Islamic Republic of Iran;
- Workshop on Management of Wetland Centers and Hamoon Wetlands, February 2006, Zabol-IRAN;
- National Congress on Future of Iran's Forests, April 2006, Karaj-IRAN;
- Second South and central Asian MAB (SACAM) network meeting of experts: sustainable ecotourism in biosphere reserves, September 2004, Zibakenar-IRAN;

- Sub-regional workshop on the “Impacts of urban water consumption on natural ecosystems and biodiversity, February 2004, Shiraz-IRAN;
- Seminar on Education, Ecotourism and Sustainable Development, March 2005 - Tehran, IRAN;
- Training workshop of biosphere reserve and sustainable development, December 2003, Tehran-IRAN.

F: Conferences, Meetings, Seminars & Workshops:

- 5th IUCN World Conservation Congress, Jeju- Republic of Korea, September 2012
- Bi-lateral Environmental Cooperation meeting in Dizmar-Arovic trans-boundary Protected Area, Yerevan- Armenia, 2012
- Plenary meeting to determine modalities and institutional arrangements for an Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES), Panama, April 2012
- 4th EABRN-UNESCO Training Workshop on “Remote Sensing and GIS for Biosphere Reserve Management”, Beijing-China, April 2011
- Expert workshop “Enhancing IUCN technical processes and strengthening the network of natural World Heritage” Isle of Vilm-Germany, November 2010
- UNESCO 21st session of “International Coordinating Council of the Man and the Biosphere (MAB) Programme” Jeju- Republic of Korea, May 2009
- 2nd Meeting of Regional Committee for West Asia, Amman- Jordan, March 2009
- Ad hoc intergovernmental and multi-stakeholder meeting on an Intergovernmental science-policy platform on biodiversity and ecosystem services, Malaysia, November 2008
- 4th IUCN World Conservation Congress, Barcelona- Spain, October 2008
- III World Congress of Biosphere Reserves, Madrid-Spain, February 2008
- 6th Meeting of Caucasus Biodiversity Council, Batumi- Georgia, June 2007
- Conference on Forging Partnerships for People & Nature in the Caucasus, Batumi-Georgia, June 2007

- IUCN Protected Areas Management Categories Summit, Almeria-Spain, May 2007
- 5th Meeting of Caucasus Biodiversity Council, Trabuzan-Turkey, June 2007
- 3rd IUCN world conservation, Bangkok- Thailand, November 2004
- Regional training workshop for western Asian countries on the global environment facility's (GEF) sustainable land management approach, Qeshm- IRAN, October 2004



A: Personal Information:

First Name: Naser

Surname: Moghaddasi

Gender: Male

Father's name: Mohammad Hossein

Nationality: Iranian

Date of Birth: 1957

Address: Habitats and Protected Areas Bureau, Research Center of Department of Environment, Pardisan Eco-Park, Hakim Highway, Tehran, Iran

P.O. Box: 14155-7383

Tel: (+9821) 42781875

Fax: (+9821) 88233097

E-mail: nasermoghaddasi@yahoo.com

B: Education/Qualifications

- 2010-Now: Ph.D. student in Land Management, Armenian State University
- 2006-2008: M.S. Degree in Dry land Ecosystem Management Engineering, Tehran University, Tehran-Iran
- 1975-1979: B.S. Degree in Forest and Range engineering Mazandaran University, Sari- Iran
- Computer literate (Excel, PowerPoint, Internet, Access, Word)

C: The Area of Study:

- Sustainable Range land Ecosystem Management

- Action Plan to Combat Land Degradation
- Pastoralist Ecosystem Management and Sustainable Livelihood
- The Low Forest Cover Countries (LFFCs)
- Sustainable Wetland Management
- Natural Reserve Sector in Long Term Socio Economic Plan of the Country
- Methodology for Land Monitoring and Assessment
- The Role of Natural Herb in Sustainable Agro-forestry
- Dry Forest Ecosystem Management
- Watershed Management
- Traditional Knowledge on Water Harvesting

D: Working Experience:

- National Focal Point of IRAN to United Nation Convert to Combat Desertification (UNFCCD)
- General Director of Habitats and Protected Areas Bureau- Department of Environment
- Director of Arid and Semi-Arid Ecosystem of Forest Organization
- NGO Chairperson for Sustainable Agriculture in West Africa
- Chair of Asia-Pacific Region of UNCCD
- Vice chair and Bureau member of COP10-UNCCD
- Panel member for synergies among UN conventions (CBD/ UNFCCD/ UNCCD)
- Member of adaptation committee (AC) of UNCCD
- Chair of steering committee of GEF/UNEP, Iran joint project of dry land forest, biodiversity
- Chair of the secretariat of low forest cover country (LFCC), Tehran
- Focal point for Ramsar Convention
- Tehran IPBES

E: Conferences, Meetings, Seminars & Workshops:

- World forest congress
- Committee of forestry of FAO
- First adaptation committee of UNFCCC
- Regional meeting on Capacity Building for Protected Area Focal Points
- Committee science and technology of UNCCD
- United Nations forum on Forest (UNFF)
- UNCCD, COP 8,9,10
- Standing committee of Ramsar Convention

Mostafa PANAHI

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 5th Golestan St., ShamsAbad, Heravi Sq. Pasdaran.Tehran, Iran

Personal Information

- Sex: male
- Nationality: Iranian
- Date of birth: 06/08/1967
- Place of birth: Tehran/Iran
- Marital status: Married (2 kids)

Education

2000-05	University of Tehran Natural Resources Engineering/Forest and Environmental Economics (PhD) Thesis title: Economic Valuation of Caspian Forests (Iran)	Tehran, Iran
1999 - 2000	IUED/University of Geneva Development Studies (Ex-matriculated of DEA Studies)	Geneva, Switzerland
1997 -1999	University of Fribourg Political Economics/ International and Regional Economics (Licence ès Sciences Economiques et Sociales) Thesis title: Organization of Tropical Wood Markets (Switzerland)	Fribourg, Switzerland
1990 -1993	University of Tarbiat Modarres Natural Resources Engineering/Forestry and Forest Economics (MSc.) Thesis title: Economic Analysis of domestic products and foreign trades of Iranian Wood and Papers for a period of three decades (Iran)	Tehran, Iran
1986-1990	University of Tehran Natural Resources Engineering/Forestry (BSc.) Thesis title: Preparation of the "Forest Management Plan for a forestry district of Caspian Forests Zone: Khayrood Kenar (Iran)	Tehran, Iran

Fields of Specialization

Natural Resources /Environmental and Biodiversity Economics
 Natural Resources and Environmental Management
 Access and Benefit Sharing /Traditional Knowledge in Biodiversity Conservation Policies

Teaching Experience

2010

- Visiting Fellow to undertake the research on “*Socio-economic Impacts of Climate Change on Protected Areas*”, Graduate Institute of International and Development Studies, Geneva, Switzerland

Since 2005

Iranian Universities and Research centers

Iran

- Environmental Economics; Economic Valuation of Environmental Resources, Ecosystem Goods and Services Assessment/Department of the Environmental Economics; Graduate School of the Environment and Energy; IAU/Science and Research Branch
- Environmental Economics/Management and Planning Organization;
- Economic Valuation of Environmental Goods and Services/University of Tehran; Islamic Azad University ;
- Evaluation of Forestry Plans /University of Mazandaran;
- Rural Development and Land Use Planning; Natural Resources Economics /University of the Environment.

Work Experiences

Since 2011

- Senior Advisor to the Deputy Head of Natural Environment/Iran's Department of Environment.

Since 2007

- Assistant Professor, Department of the Environmental Economics; Graduate School of the Environment and Energy; IAU/Science and Research Branch

20011

- Senior Advisor for preparation of "Fourth National Report to the Convention on Biological Diversity".

2006 - 08

- National Coordinator for: "National Capacity Self-assessment for Global Environmental Management in IR. of Iran (NCSA)", UNDP/GEF Project;

Since 2006

- Technical Advisor for the Integrated Water Resources Management (IWRM) Projects, Mahab Ghods Consulting Engineering Company (MGCEC) (the highest-level consultation body of the country in national power and energy development projects).

2005 - 09

- Technical Manager for "Environmental Economics National Programme", Department of the Environment (DoE);

2006

- Senior Advisor for Socio-Economic Impact Assessment studies of South Pars Especial Zone - Phases 9 & 10; A joint project between ERM Company and Yekom Consultancy Company.

2005 - 06

- **Siberian Crane Wetlands GEF Project:** Working as one of the national consultants' team to draft Training Strategy and undertake training needs assessment. This is a UNEP/GEF Full Regional Project is being implemented in Iran, Russia, China and Kazakhstan.

2004 - 05

- National Coordinator for preparation of "Third National Report to the Convention on Biological Diversity".
- **Restoration and Sustainable Use of the Shared Sistan Basin: Baseline Situation Analysis (UNDP C/O Iran):** To prepare a baseline situation analysis study, I, in collaboration with two other senior experts have conducted a survey (inc. desk study and field visit). The team reviewed ecological and socio-economic consequences of drought in Sistan Basin. The report is be used as the main source of information in reactivating a UNDP/GEF regional project on restoration of the Sistan Bain.
- **Reviewing National Protected Area Network in Iran:** The review was conducted to provide Iranian Department of the Environment (DoE) with a systematic approach to assign protected areas and assess effectiveness of National Protected Area Network for conserving biodiversity.

2003 - 06

- Technical Manager for "Economic Valuation of Caspian Forests" Project – a joint research work of the DoE and University of Tehran.

2003 - 04

- National Consultant to undertake a survey on "Participatory In-depth Appraisal for Conservation of Zagros Mountains Biological Diversity" (UNDP/ GEF/DoE project).

2002 - 03

- **Formulation of National Biodiversity Strategy and Action Plan (NBSAP):** Contribution in drafting NBSAP for Iran and its associated reports to the Convention on Biological Diversity.
- Technical Manager in Developing the National Biodiversity Action Plan; A national project sponsored by Department of the Environment (DoE) and Management and Planning Organization (MPO).
- DoE's senior consultant in "Economic Valuation of Anzali Wetland" Project.

2001 - 02

- Head of a specialized working group to assess and prepare a national report on: "National Capacity Assessment for Protection of Biodiversity Related Traditional Knowledge"; UNDP/GEF/DoE NBSAP Project.

1999 - 2001

- Secretary of UNDP/GEF/National Biodiversity Strategy and Action Plan (NBSAP) Project;
- Technical Expert for Social Impact Assessment of Shafaroud Basin Reservoir-an under construction dam in the north of Iran; Mahab Ghods Consulting Engineering Company (MGCEC).
- Technical Expert for "Preparation of Natural Hazards and Disaster Plan of the EIA project for Shafaroud Dam, Mahab Ghods Consulting Engineering Company (MGCEC).
- System analyzer and technical advisor to "Determination of Technical Standards for Watershed Management Terms of References Projects" (this study introduced a Regional Planning Model as a framework for all watershed management studies in Iran).

1994-96

- Academic member of the Faculty of Natural Resources/University of Tehran
- University of Tehran's representative in National Committee for Forestry Extension
- Consultant (P.T.) at the Mahab Ghods Consulting Engineering Company (MGCEC) for environmental issues.
- Technical Expert for socio-economic studies of "ELA projects for Great Dams Construction".
- Technical Expert to prepare a Resettlement Policy Framework for the villages located in the Pashakola dam basin (1995).

1991-93

- Expert of Natural Resources Management /Ministry of Agricultural Jihad (former ministry of Reconstruction and Rural Development)

Research Experiences

Academic Researches and Dissertations

- Supervised more than 30 MSc. Thesis and Dissertations on Environmental Economics related issues.
- Managed and/or supervised 16 Economic Valuation research projects on Natural Environment Sites

Conferences, Meetings, Seminars & Workshops

International:

- "The 13th Meeting of the Subsidiary Body on Technical, Scientific and Technological Advices (SBSTTA-14) of the Convention on Biological Diversity", Montreal - Canada, 1-8 November 2009.
- "The 12th Meeting of the Subsidiary Body on Technical, Scientific and Technological Advices (SBSTTA-12) of the Convention on Biological Diversity", Paris - France, 2-6 July 2007.
- "1st Teaching Workshop on Environmental Economics for the Middle East and North Africa", December 5-16, 2005, The Abdus Salam ICTP - Trieste, Italy
- "The 10th Meeting of the Subsidiary Body on Technical, Scientific and Technological Advice (SBSTTA-10) of the Convention on Biological Diversity"; as Asia-Pacific Bureau Member. Bangkok-Thailand, 5 -11 February, 2005. Chair of the Asia-Pacific Regional Meetings
- "The 7th Meeting of the Conference of the Parties (COP-7) to the Convention on Biological Diversity", Iran's delegation member, KL, Malaysia, 2004.
- "Regional Preparatory Meeting for Asia & Pacific in Preparation for the Seventh Meeting of the Conference of the Parties to the Convention on Biological Diversity" Iranian delegate, Kuala Lumpur, Malaysia, 2004.
- "The 9th Meeting of the Subsidiary Body on Technical, Scientific and Technological Advice (SBSTTA-9) of the Convention on Biological Diversity", Iranian delegate, Montreal-Canada, 10-14 November, 2003.
- "Second Meeting of the Ad hoc Open-ended Working Group on Access and Benefit-Sharing", Iranian representative, Montreal-Canada, 1-5 December, 2003.
- "Third Meeting of the Ad hoc Open-ended Inter-Sessional Working Group on Article 8(j) and related Provisions of the Convention on Biological Diversity", Iranian representative, Montreal-Canada, 8-12 Dec, 2003.

- “Open-Ended Inter-Sessional Meeting on the Multi-Year Programme of Work for the Conference of the Parties up to 2010”, Iranian representative, Montreal-Canada, 17-20 March, 2003.
- “The 8th Meeting of the Subsidiary Body on Technical, Scientific and Technological Advice (SBSTTA-8) of the Convention on Biological Diversity”, Iranian representative, Montreal-Canada, 10-14 March, 2003.
- “The 6th Meeting of the Conference of the Parties (COP-6) to the Convention on Biological Diversity” Iran’s delegation member, The Hague, The Netherlands, 9-20 Feb, 2002.
- “Regional Preparatory Meeting for Asia & Pacific in Preparation for the Sixth Meeting of the Conference of the Parties to the Convention on Biological Diversity”, Iranian delegate, Bangkok, Thailand, 2002.
- “Second Meeting of the Ad hoc Open-Ended Inter-Sessional working group on article 8(j) and related provisions of the Convention on Biological Diversity”, Iranian representative, Montreal-Canada, 2002.
- May 2001, GEF Country Dialogue Workshop, Tehran, Iran,
February 2002, Ramsar Convention on Wetlands, The West and Central Asian Subregional Meeting, Tehran, Iran;
- February 2004, Seventh Conference of the Parties to the Convention on Biological Diversity (COP 7), Kuala Lumpur, Malaysia;
- January 2004, International Workshop for Conservation of Asiatic Cheetah: Lessons from National and International Experiences, Semnan, Iran;
- February 2004, First Meeting of the Parties to the Cartagena Protocol on Biosafety (MOP 1), Kuala Lumpur, Malaysia;
- February 2004, Community Approaches to Riverine Biodiversity Conservation and Restoration, Kuala Lumpur, Malaysia,

Key note speaker,

- “5th World Congress on Protected Arseas”, 8-17 September 2003, Durban, South Africa.
- August 2004, The 2nd Meeting of ECO Working Group on Environment for the Implementation of the Plan of Action for Cooperation among the Member States on Environment, Tehran, Iran;
- December 2004, 3rd Steering Committee Meeting of UNEP/GEF/Siberian Cranes Wetlands Project, Ramsar, Iran;

Main National:

- October 1999, The First Conference on Green Cities, Tehran, Iran;
- July 2000, National Biodiversity Strategies and Action Plan Review, Tehran, Iran;
- October 2000, Wetlands Stakeholders, Tehran, Iran;
- February 2001, Sustainable Use of Biodiversity Resources, Shiraz, Iran;
- February 2001, Application of RS Techniques and GIS in Arid Land Studies, Tehran, Iran;
- June 2001, National Taxonomy Workshop, Karadj, Iran;
- February 2002, Traditional Knowledge and Agrobiodiversity Conservation, Kerman, Iran,

Key note speaker:

- March 2008, Regional Capacity Development Workshop for Central Asia on National Biodiversity Strategies and Action Plans and Biodiversity Mainstreaming, Ramsar, Iran, 9-13 March 2009.
- March 2004, Biodiversity Conservation in Mountain Ecosystems _ III. Biodiversity Conservation Planning, Isfahan, Iran,

- January 2004, Financing of International Projects, Tehran, Iran;
- January 2004, Biodiversity Conservation in Mountain Ecosystems _ II. Socio-Economic Aspects of Biodiversity Conservation, Shahrekord, Iran,
- July 2004, 4th National Development Plan and Sustainable Development in Iran, Tehran, Iran;
- October 2003, Environmental NGO National Networks and National Biodiversity Conservation Action Plan, Kerman, Iran,
- May 2003, Biodiversity Conservation in Mountain Ecosystems _ I. Threats to the Biodiversity, Yasouj, Iran,
- December 2002, Management of International Projects in Iran, Gheshm Island, Iran,
- October 2002, Traditional Knowledge and Biodiversity Conservation, Tehran, Iran;
- June 2002, World Day to Combat Desertification, Tehran Iran;

Other Experiences and Memberships

Since 2000

National Committees and Scientific Boards

- National Committee for Environmental Economics
- National Committee for Sustainable Development
- Technical and Advisory Committee for environment and water related projects/Ministry of Energy
- NCSA Steering and Coordination Committee
- Scientific Board University of Applied Sciences and Technology to ??
- Editorial Board of "Iranian Journal of Natural Resources", Faculty of Natural Resources, University of Tehran (1995-96);

Since 2000

- advised biodiversity and natural habitat related projects;
- coordinated national seminars and workshops;
- supervised professional and administrative staff;
- directed Budget and Planning activities;
- coordinated international affairs;
- developed national plans and international joint initiatives;
- improved financial and human resources;
- coordinated auditing process;
- coordinated national and international meetings and workshops;
- contributed in formulation of biodiversity and environmental projects;
- integrated GEF and SGP initiatives;
- organized participatory consultative sessions and workshops;
- supervised and coordinated national and international missions;
- monitored projects' activities and outputs;
- prepared financial and progress reports;
- participated actively in many field surveys and studies,
- conducted In-depth appraisals;
- compiled Project Log-frame;
- compiled Full Project Brief;

Memberships

- Convention on Biological Diversity Roaster of Experts on Agricultural Biodiversity Dry and Sub-Humid Lands, Ecosystem Approach and Inland Water;
- Farda Institute (National NGO), Head of Board of Managers;
- Green Message (National NGO), Member of Board of Trustees;
- Iranian Crop Breeding Society; Active Member;
- Iranian Red Crescent Society; Honorary Member;
- Iranian Watershed Management Society, Active Member;
- Ramsar Convention Sub Committee under National Committee on Sustainable Development;
- Siberian Crane Wetlands UNEP/GEF Project Advisory Team;
- Zagros UNDP/GEF Project Technical Advisory Team, Secretary;

Papers**Published**

- “Economic Valuation of Water Storage Function of Forest Ecosystems (Case Study: Zagros Forests, Iran)”; Journal of Forestry Research; (2010) 21(3): 293-300.
- “Effect of Forest Covers on Water Protection and Surface Run-off Reduction in Bazoft River Basin”; Iranian Journal of Forest Researches, Vol. 2; 2010.
- “Economic Valuation of Soil Nutrient Protection Function of Sabzkouh Forests”; Journal of Iranian Forestry Society, Vol. 1; 2009.
- “How much is the monetary value of soil protection function of Caspian forests?: A survey on three forest areas in the north of Iran”; Journal of Research and Reconstruction, Vol. 76; March 2008.
- “Economic Valuation; from Theory to Practice: How the Ecosystem Products and Services Caspian Forest Resources can be valued?”, Journal of Environmental Studies; Science Report Series of the Environment, Vol. 33; September 2007.
- Economic Value of Iranian Biodiversity, Iran Newspaper, Special Edition for the World Day on Biodiversity, April 2004.
- **Book:** “Protection of Biodiversity and Traditional Knowledge: A glance on practical means of protection of traditional knowledge to conserve biodiversity”, DoE/UNDP, Tehran, Iran; July 2002.
- Analysis: Iranian Environmental Policies regarding Housing and Human Habitats, Proceeding of the 2nd Seminar for Human Habitats and Housing Industries, Tehran, Iran; October 2002.
- “An introduction to national forest conservation system: first step in Iranian forests management”, Hamshahri Newspaper, June, 2002.
- A glance on forest and its management in Iran, Hamshahri Newspaper, June, 2002.
- Forest products trade as one of the most crucial problems of Low Forest Cover Countries (LFCC), A report to Expert Meeting on: “Special Needs and Requirements of Developing Countries with LFC”, Iran’s Forest and Range Land Organization and FAO, Tehran, Iran; October 1999.
- Course of paper imports to Iran, presented in 10th International Conference of IUFRO, in Division VI, August 1996.
- 50 years of paper imports to Iran, Journal of Print Industry, Vol. 136, pp. 44-48, 1994.

Unpublished

- Création des coopératives forestières dans la zone Caspienne: Contribuer à une bonne gestion des ressources forestières ou une accélération de la déforestation?», IUED, l'Université de Genève; Genève -CH; 2006.
- La situation de l'agriculture iranienne: Quelles orientations et à partir de quelles mutations?, IUED, l'Université de Genève; Genève -CH; 2006.
- La déforestation en Iran: Cas des forêts Caspiennes», IUED, l'Université de Genève; Genève -CH; 2006.
- Face à la dégradation de l'environnement naturel: Quel avenir pour le développement urbain et rural dans la région Caspienne?, IUED, l'Université de Genève; Genève -CH; 2005.
- A report on "National capacity assessment for protection of knowledge, innovations, community based measures in line with conservation and sustainably use of biodiversity; UNDP/GEF/DoE, Tehran, Iran; 2002.
- La notion de Réseaux et son essor dans l'application (in French), The University of Fribourg, Fribourg-CH; 1998.
- L'essor des projets pétroliers dans la mer Caspienne, The University of Fribourg, (in French), Fribourg-CH; 1997.

In Press

- Total Economic Value of Caspian forests: An appraisal of some elaborated ecological functions, In press.
- How much is the monetary value of Carbon sequestration in Caspian forests?: An Iranian economic valuation experience, In press.

Languages

- **Farsi and Azeri:** Mother tongues
- **English:** Perfect
- **French:** Fluent
- **Arabic:** Fair

Other qualifications**Personal**

- Very good communication abilities;
- High managerial capacity;
- Ability to think and decide in critical situations;
- Proven strategic approach in planning;
- Quite innovative and receptive to new ideas;

Technical

- advised biodiversity and natural habitat related projects;
- coordinated several national seminars and workshops;
- supervised professional and administrative staff;
- directed Budget and Planning activities;

- coordinated international affairs.
- developed national plans and international joint initiatives;
- improved financial and human resources.
- coordinated auditing process;
- coordinated national and international meetings and workshops;
- contributed in formulation of biodiversity and environmental projects;
- integrated GEF and SGP initiatives;
- organized participatory consultative sessions and workshops;
- supervised and coordinated national and international missions;
- monitored projects' activities and outputs;
- prepared financial and progress reports;
- participated actively in many field surveys and studies.
- conducted In-depth appraisals;
- compiled Projects' Log-frame;
- compiled Full Projects' Brief;
- Familiar with **UNDP Administration and Financial** system;
- Knowledgeable on **Adaptive Management in Natural Resources Management**;
- Knowledgeable on **Capacity Assessment Methodologies**;

Kazuhiko Takeuchi

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Profile

Kazuhiko Takeuchi is an enthusiastic scientific leader dedicated to strengthening links between research and policymaking. He is one of the founders of sustainability science as a recently established trans-disciplinary academic field, and a leading expert in the field of biodiversity and ecosystem services. Kazuhiko is a key figure in the *Satoyama* Initiative, which explores the value of traditional knowledge (TK) in maintaining landscapes and promotes the integration of TK and modern science, in order to promote biodiversity and human well-being.

At the United Nations University (UNU) he spearheaded the integration of existing natural and social science divisions to form a new interdisciplinary institute, the UNU Institute for Sustainability and Peace (UNU-ISP). As Director of UNU-ISP he is leading the development of interdisciplinary, problem-focused research and introducing innovative new capacity building and postgraduate programmes.

Kazuhiko has extensive experience in international scientific and policy processes, including the Convention on Biological Diversity, the UN Convention to Combat Desertification, and the UN Framework Convention on Climate Change. He has also hosted and chaired two Scientific Workshops on Assessment and IPBES at UNU which facilitated the participation of scientists from a broad range of disciplines and regions. He has served in key posts in various advisory boards and councils, including those of the Government of Japan. In each of these roles he has been a vocal proponent of scientific research and actively contributed to enhancing linkages between science and policy, particularly in the field of natural resource management.

Current Positions

- Vice Rector, United Nations University (UNU)
- Director, UNU Institute for Sustainability and Peace (UNU-ISP)
- Director and Professor, Integrated Research System for Sustainability Science (IR3S), The University of Tokyo
- President, International Society for Sustainability Science (ISSS)
- Editor-in-Chief of the journal *Sustainability Science*, published by Springer

Awards

2005	Commendation for Contributions to Environmental Conservation, from the Ministry of the Environment, Japan
1994	Ishikawa Award of the City Planning Institute of Japan
1994	Award of the Association of Rural Planning, Japan
1980	Award of the Japanese Institute of Landscape Architecture

Education

Specializes in landscape ecology, regional landscape planning, and global sustainability.

1980	PhD (Agrobiology), Graduate School of Agriculture, The University of Tokyo
1976	MSc (Agrobiology), Graduate School of Agriculture, The University of Tokyo

Professional Record

2012 - present	Director and Professor, Integrated Research System for Sustainability Science, The University of Tokyo
2009 - present	Director, United Nations University Institute for Sustainability and Peace (UNU-ISP)
2009 - present	Visiting Professor, United Nations University Institute of Advanced Studies
2008 - present	Vice-Rector, United Nations University
2007 - 2008	Vice President for International Relations; Executive Representative for The University of Tokyo, Beijing Office
2005 - 2012	Deputy Executive Director, Integrated Research System for Sustainability Science (IR3S), The University of Tokyo
2005 - 2008	Special Advisor to the President, The University of Tokyo
2004 - 2005	Director, Asian Natural Environmental Science Center, The University of Tokyo
1997 - 2012	Professor, Department of Ecosystem Studies, Graduate School of Agricultural and Life Sciences, The University of Tokyo
1995 - 1997	Professor, Asian Natural Environmental Science Center, The University of Tokyo

1985 - 1995	Associate Professor, Faculty of Agriculture, The University of Tokyo
1977 - 1985	Lecturer, Faculty of Science, Tokyo Metropolitan University

Contributions to Scientific and Policy Processes

2012 - present	Board Member, Institute for Global Environmental Strategies (IGES)
2012 - present	Review Editor, Intergovernmental Panel on Climate Change (IPCC), Working Group II, Fifth Assessment Report, Chapter 24 (Asia)
2011 - present	Co-Chair, International Science Workshops on IPBES Assessments, hosted by UNU and the Ministry of the Environment, Japan
2011 - present	Chairman, Natural Environment Committee, Central Environment Council, Government of Japan
2010 - present	Vice-Chairman, Food, Agriculture and Rural Area Policies Council, Government of Japan
2009 - 2011	President, Japanese Institute of Landscape Architecture
2008 - Present	Chairman, Sound Material Society Committee, Central Environment Council, Government of Japan.
2008 - 2010	President, The City Planning Institute of Japan
2008 - 2010	Board Co-Chair, Japan <i>Satoyama Satoumi</i> Assessment
2006 - present	Editor-in-Chief, <i>Sustainability Science</i> (Springer)
2003 - 2004	President, Rural Planning Association, Japan
2002 - 2007	Member of the UNCCD Group of Experts
2000 - 2001	Chair, UNCCD Ad-Hoc Panel on Early Warning Systems

Selected Publications related to Biodiversity and Ecosystem services

Peer-Reviewed Books

Duraiappah, K.A., Nakamura, K., Takeuchi, K., Watanabe, M., Nishi, M. (eds.), *Satoyama-Satoumi Ecosystems and Human Well-Being: Socio-Ecological Production Landscapes of Japan*, United Nations University Press, 480pp, 2012

Komiyama, H., Takeuchi, K., Shiroyama, H., Mino, T. (eds.), *Sustainability Science: A Multidisciplinary Approach*, United Nations University Press, 375pp, 2011.

Takeuchi, K., Brown, R.D., Washitani, I., Tsunekawa A. and Yokohari, M. (eds.), *Satoyama –The Traditional Rural Landscape of Japan*, Springer Tokyo, 229pp, 2003.

Peer-Reviewed Book Chapters

Seguchi, R., Brown R.D., and Takeuchi, K., "Land use change from traditional to modern eras: Saitama prefecture, Japan", in S.K. Hong, N. Nakagoshi, B. Fu, Y. Morimoto, and J. Wu (eds.) *Landscape ecological applications in man-influenced areas - Linking man and nature systems*, Springer Tokyo, 113-128pp, 2007.

Takeuchi, K. and Okayasu, T., "Integration of benchmarks and indicators, monitoring and assessment, and early warning systems, and its application to pilot studies for desertification EWS", in United Nations (ed.): *Know Risk*, 251-253, 2005.

Kar, A. and Takeuchi, K., "Toward an early warning system for desertification", in United Nations Convention to Combat Desertification Ad Hoc Panel (ed.): *Early Warning Systems*, 37-72, 2003.

Asdak, C., Takeuchi, K. and Takada, H. "Biophysical evaluation of the Upper Citarum Watershed: An overview methodology and application", in Hayashi, Y., Syafrida, M. and Hartono, S. (eds.), *Sustainable Agriculture in Rural Indonesia*, Gadjah Mada University Press, 439-448, 2003.

Harashina, K., Takeuchi, K. and Arifin, H.S. "Toward restructuring for sustainable regional ecosystems in the humid tropics", in Hayashi, Y., Syafrida, M. and Hartono, S. (eds.), *Sustainable Agriculture in Rural Indonesia*, Gadjah Mada University Press, 369-390, 2003.

Murakami, A., Takeuchi, K., Tsunekawa, A. and Zain, A.M., "Trends in special extension and land-use mixture in Metro Manila", in Ohmachi, T. and Roman, E.R. (eds.), *Metro Manila in Search of a Sustainable Future: Impact Analysis of Metropolitan Policies for Development and Environmental Conservation*, University of the Philippines Press, 174-184, 2002.

Peer-Reviewed Journal Articles

- Sasaki, T., Okuro, T., Kakinuma, K., Okayasu, T., Undarmaa, J., and Takeuchi, K., "Vegetation in a post-ecological threshold state may not recover after short-term livestock exclusion in Mongolian rangelands", *Arid Land Research and Management* (accepted 2012).
- Han, J., Fontanos, P., Fukushi, K., Herath, S., Heeren, N., Naso, V., Cecchi, C., Edwards, P., Takeuchi, K., "Innovation for sustainability: toward a sustainable urban future in industrialized cities", *Sustainability Science* 7, 91-100 (2012).
- Sasaki, T., Okuro, T., Undarmaa, J., and Takeuchi, K., "Changes in the herbage nutritive value and yield associated with threshold responses of vegetation to grazing in Mongolian rangelands", *Grass and Forage Science*, 2012.
- Okubo, S., Tomatsu, A., Parikesit, Muhammad D., Harashina, K., Takeuchi, K., "Leaf functional traits and functional diversity of multistoried agroforests in West Java, Indonesia", *Agriculture, Ecosystems and Environment* 149, 91-99 (2012).
- Okayasu, T., Okuro, T., Undarmaa, J., Takeuchi, K., "Inherent density-dependency of wet-season range even at the extreme of nonequilibrium environments", *Journal of Arid Environments* 78, 144-153 (2012).
- Jiao, Y., Li, X., Liang, L., Takeuchi, K., Okuro, T., Zhang, D. and Sun, L., "Indigenous ecological knowledge and natural resource management in the cultural landscape of China's Hani Terraces", *Ecological Research* 27, 247-263 (2012).
- Okubo, S., Tomatsu, A., Parikesit, Muhammad D., Harashina, K. and Takeuchi, K., "Leaf functional traits and functional diversity of multistoried agroforests in West Java, Indonesia", *Agriculture, Ecosystems and Environment* 149, 91-99 (2012).
- Koyanagi, T., Kusumoto, Y., Yamamoto, S., Okubo, S., Iwasaki, N. and Takeuchi, K., "Grassland plant functional groups exhibit distinct time-lags in response to historical landscape change", *Plant Ecology* 213, 327-338 (2012).
- Okayasu, T., Okuro, T., Undarmaa, J. and Takeuchi, K., "Degraded rangeland dominated by unpalatable forbs exhibits large-scale spatial heterogeneity", *Plant Ecology*, 2011.
- Okayasu, T., Okuro, T., Undarmaa, J. and Takeuchi, K., "Threshold distinctions between equilibrium and non-equilibrium pastoral systems along a continuous climatic gradient", *Rangeland Ecology & Management* 64, 10-17 (2011).
- Yoshikawa, M., Motoki, Y., Hibino, G., Takeuchi, K., Hanaki, K., Arai, S., Masui, T. and Inoue, T., "Global-scale quantitative assessment for biodiversity on forest land use: applying the Global NoNet Loss approach", *Sustainability Science* 6, 169-175 (2011).
- Zhou, D., Tsuchiya, K., Hara, Y., Matsuda, H., Okayasu, T. and Takeuchi, K., "Agricultural land dynamics in peri-urban areas: a case study of Xiqing district, Tianjin, China", *Journal of Environmental Information Science* 39(5), 61-70 (2011).
- Miyasaka, T., Okuro, T., Zhao, H., Zhao, X., Zuo, X. and Takeuchi, K., "Impacts of the local land-use system in a semi-arid region of northeastern China on soil prosperities, crop growth, and weed communities", *Journal of Arid Environments* 75, 1155-1163 (2011).
- Okubo, S., Parikesit, Muhammad, D., Harashina, K., Takeuchi, K. and Umezaki, M., "Land use/cover classification of a complex agricultural landscape using singledated very high spatial resolution satellite-sensed imagery", *Canadian Journal of Remote Sensing* 36(6), 722-736 (2010).
- Sasaki, T., Okubo, S., Okayasu, T., Jamsran, U., Okuro, T. and Takeuchi, K., "Indicator species and functional groups as predictors of proximity to ecological thresholds in Mongolian rangelands", *Plant Ecology* 212, 327-342 (2010).
- Yoshihara, Y., Sasaki, T., Okuro, T., Jamsran, U. and Takeuchi, K., "Cross-spatial scale patterns in the facilitative effect of shrubs", *Ecological Engineering* 36, 1719- 1724 (2010).
- Okubo, S., Parikesit, Harashina, K., Muhammad, D., Abdoellah, O. S., and Takeuchi, K., "Traditional perennial crop-based agroforestry in West Java: The tradeoff between on-farm biodiversity and income", *Agroforestry Systems* 80(1), 17 -31 (2010).

Takeuchi, K., "Rebuilding the relationship between people and nature: The Satoyama Initiative", *Ecological Research* 25, 891-897 (2010).

Takeuchi, K. and Herath, S., "Sustainability: Engaging in global change thorough harmonious adaptation in Asia", *Nova Acta Leopoldina* NF112, Nr. 384, 213-226 (2010).

Okayasu, T., Okuro, T., Jamsran, U. and Takeuchi, K., "An intrinsic mechanism for the co-existence of different survival strategies within mobile pastoralist communities", *Agricultural Systems* 103, 180-186 (2010).

Okayasu, T., Okuro, T., Jamsran, U. and Takeuchi, K., "Impact of the spatial and temporal arrangement of pastoral use on land degradation around animal concentration point", *Land Degradation & Development* 21, 1-16 (2010).

Yoshihara, Y., Okuro, T., Buuveibaatar, B., Undarmaa, J. and Takeuchi, K., "Complementary effects of disturbance by livestock and marmots on the spatial heterogeneity of vegetation and soil in a Mongolian steppe ecosystem", *Agriculture, Ecosystems & Environment* 135, 155-159 (2010).

Yoshihara, Y., Okuro, T., Buuveibaatar, B., Undarmaa, J. and Takeuchi, K., "Pollinators are attracted to mounds created by burrowing animals (marmots) in a Mongolian grassland", *Journal of Arid Environments* 74, 159-163 (2010).

Yoshihara, Y., Okuro, T., Buuveibaatar, B., Undarmaa, J. and Takeuchi, K., "Spatial pattern of grazing affects influence of herbivores on spatial heterogeneity of plants and soils", *Oecologia* 162, 427-434 (2010).

Yoshihara, Y., Okuro, T., Buuveibaatar, B., Undarmaa, J. and Takeuchi, K., "Clustered animal burrows yield higher spatial heterogeneity", *Plant Ecology* 206, 211-244 (2010).

Yoshihara, Y., Okuro, T., Buuveibaatar, B., Undarmaa, J. and Takeuchi, K., "Responses of vegetation to soil disturbance by Sibirian marmots within a landscape and between landscape positions in Hustai National Park, Mongolia", *Grassland Science* 56, 42-50 (2010).

Okayasu T., Okuro, T., Undarmaa, J. and Takeuchi, K., "Desertification emerges through cross-scale interaction", *Global Environmental Research* 14, 71-77 (2010).

CURRICULUM VITAE

Prof. Kwi-Gon Kim, Ph.D. (UCL, England)

Professor Emeritus of Landscape and Ecological

Planning at Seoul National University



EDUCATION

- Ph. D. in Planning Studies, University College London, University of London, England [Sep. 1981~Feb. 1985]
- M. Sc. in Regional and Urban Planning Studies, School of Planning, University of Reading, England [Sep. 1980~Oct. 1981]
- Post-Graduate Diploma in Landscape Architecture, Lincoln College, University of Canterbury, New Zealand [Feb. 1973~Dec. 1974]
- Canadian International Development Agency (Univ. of Toronto), Training in Natural Resource Survey Design and National Park Management, Ontario, Canada [Sep. 1970~May 1971]
- B. Sc. in Forestry, Seoul National University, Korea [Mar. 1963~Feb. 1967]

PRESENT POSITIONS

- Mar. 2010 ~ present : Professor Emeritus of Landscape and Ecological Planning, Seoul National University, Korea
- Jun. 2012 ~ present : Member, SER 2013 Scientific Committee, International Society of Ecological Restoration
- Sept. 2011 ~ present : Board Member, Korea Academy of Environment
- Jun. 2012 ~ present : Member, UNEP Steering Committee, Global Initiative for Resource Efficient Cities (GI-REC)

- Feb. 2012 ~ present : Secretary - General, Urban Environment Accords (UEA) in partnership with UNEP
- Jun. 2012 ~ present : Chair, Environment Committee, 2018 Pyongchang Winter Olympic Games, Korea
- Sept. 2010 ~ present : Founder & Advisor, International Consortium for Landscape and Ecological Engineering (based in Japan) and Journal of Landscape and Ecological Engineering, Springer
- Sept. 2010 ~ present : Co-Standing President, Korea Council on DMZ
- Jun. 2010 ~ present : Member, Presidential Commission on Sustainable Development
- Mar. 2010 ~ present : Co-Chair, International Inter-Agency Advisory Group for Urban Environmental Evaluation Index and Urban CDM (Clean Development Mechanism) (in Partnership with UNEP & World Bank)
- Nov. 2008 ~ present : Member, UNESCO Korea MAB National Committee
- Nov. 2008 ~ present : Member, Advisory Committee, Korea Water Resources Corporation
- Oct. 2008 ~ present : Member, Advisory Committee, Four Major River Restoration Project, Ministry of Land and Marine Affairs
- Mar. 2008 ~ present : Advisor, Korea Society of Wetlands
- Feb. 2008 ~ present : President, Korean Society for Good Community (working with Local governments)
- Feb. 2008 ~ present : President, Korea Eco-City Network
- Mar. 2007 ~ present : Director, UN-HABITAT International Urban Training Center
- Jun. 2006 ~ present : Member, Scientific Review Board, Horizon International (based at Yale University, USA)
- Sept. 2000 ~ present : Group leader, DMZ Survey of Environmental Ecology in Railroad and Road Connection between North and South Korea
- Jun. 2000 ~ present : Member, UNESCO Urban Futures Programme
- Sept. 1985 ~ present : Founder and Member , UNESCO North - East Biosphere Reserve Network
- Consultant, UNDP, UNESCO, UNEP, World Bank and UN-HABITAT

POSITIONS HELD IN THE PAST

- Professor, Seoul National University (Dec. 1978 ~ Feb. 2010)
- Visiting Professor, Institute of Ecology, Berlin Technical University [Jul.~Aug. 1990]
- Committee Member, Central Urban Planning Committee, Ministry of Construction and Transportation
- Committee Chair, Environmental Ecology, Presidential Commission on Sustainable Development
- President, the Korean Council for Local Agenda 21
- Member of Advisory Committee, Presidential Committee on Balanced National Development
- President, Korea Society of Environmental Policy
- President, Korean Society for Environmental Education
- President, Korea Society for Environmental Restoration and Revegetation Technology
- Invited Outside Executive Director, Korea Environment Institute (KEI)
- Invited Outside Executive Director, Korea Rural Community Corporation
- Member of UNESCO Urban Forum
- Senior Research Fellow, East-West Center, USA
- President, the Chung-Soo Scholarship Foundation, Seoul, Korea
- Advisor, UNDP Seoul Office
- Editor, Professor' News Paper
- Government Officer in Charge of Nature Protection, Green Belt Management and Cultural Properties, Office of President(Blue House), Republic of Korea
- Member, Policy Advisory Committee Korea Land Corporation
- Chair, Advisory Committee, Korea National Park Authority
- Chair, Planning Committee for C40 Large Cities Climate Change Summit Seoul 2009
- Member, Advisory Committee, Central Environment Preservation, Ministry of Environment
- President, International Consortium of Landscape and Ecological Engineering
- Chair, Advisory Committee, Han River Management, Seoul Metropolitan Government
- Member, Advisory Committee for Design (Ecological Restoration), Capital Region Landfill Site Management Corporation

Awards

- Feb. 2, 2010 : The Order of National Service Merit (Red), Korean Government, for serving the Government (SNU) for more than 30 years
- Jun, 5, 2001(World Environment Day): The Order of National Service Merit(Green), Korean Government, for environmental protection and sustainable use
- Jun, 5, 2000 (World Environment Day): Presidential Award, Korean Government, for research on DMZ biodiversity and ecosystem services.

Major Books In English

- DMZ : Land of Peace and Life (Forthcoming, Springer, 2013)
- Natural Infrastructure for CBD COP in Hyderabad in October, 2012(CBD, Oct. 2012)
- Climate Change (Forthcoming, Co-author, UN-HABITAT and IUTC, 2012)
- Climate Change in Cities (Co-author, Cambridge University Press, 2011)
- RED Zones (Co-Author, Springer, 2011)
- Green Growth : Coping with Environmental, Energy and Economic crises (Co-author, The Korea Herald, 2009)
- Ecological Restoration (UN-HABITAT and IUTC, 2009)
- Crucibles of Hazards: Mega-Cities and Disasters in Transition (Co-author, United Nations University Press, 1999)
- Urban Ecology (Co-author, Springer, 1998)
- Restoring the Land (Co-author, Melbourne University Press, 1994)
- Ecological Studies of Seoul Urban Systems(UNESCO, 1993)
- New Towns in East and South-east Asia Planning and Development (Co-author, Oxford University Press, 1987)

Major Reports In English

- Kwi-Gon Kim, Biodiversity Strategy in a Biosphere Reserve- Focusing on the Habitats of *Grus japonensis* in Cholwon DMZ, South Korea, UNESCO, 2003.
- Kwi-Gon Kim, A Study on the Feasibility as well as an Operational Strategy to Develop DMZ Transboundary Biosphere Reserve between DPR Korea and Republic of Korea, UNESCO, 2001

- Kwi-Gon Kim, BIODIVERSITY : The Hanam Green City Strategy, UNDP/ UN-HABITAT, 2000
- Kwi-Gon Kim, A Detailed Study and Proposal for ESSD in Northern Kyunggi Province(DMZ as a Protected Area), ROK/96/007, UNDP, 2000
- Kwi-Gon Kim, Guide for Environmental Impact Assessment of New Town Developments, UNEP, 1983

Major Articles In English

- Kwi-Gon Kim / Hoon Lee / Dong-Hyun Lee, Wetland restoration to enhance biodiversity in urban areas : a comparative analysis, Springer, Landscape Ecol Eng(2011) 17:27-32
- Kwi-Gon Kim / Mi-Young Park / Hee-Sun Choi, Developing a wetlandtype classification system in the Republic of Korea, Springer, Landscape Ecol Eng(2006) 2:93-100
- Kwi-Gon Kim / Dong-Gil Cho, Status and ecological resource value of the Republic of Korea's Demilitarized Zone, Springer, Landscape and ecological engineering(2005) Volume 1, Number 1 3-15 ISSN 1860-1871
- Kwi-Gon Kim, The application of the biosphere reserve concept to urban areas ; the case of green rooftops for habitat network in Seoul. Ann NY Acad Science;2004 Jun;187-214

Major Columns In English

- Kwi-Gon Kim, "Mechanism for clean development", Times Forum, The Korea Times, Tuesday, September 27, 2011, p.9
- Kwi-Gon Kim, "Extending Korea's 'ODA contribution diplomacy' ANALYSIS & FEATURE, The Korea Herald, Wednesday, July 22, 2009, p.4
- Kwi-Gon, Kim "Cities in the age of low carbon, green growth", ANALYSIS & FEATURE, The Korea Herald, Thursday, March 19, 2009, p.10

NOTE: Further information on this CV can be referred to on the next attachment – Personal Statement

Personal Statement

for Selection of MEP Members

Kwi-Gon Kim, Ph. D. (UCL, England)

(Professor Emeritus of
Landscape and Ecological Planning
at Seoul National University, the Republic of Korea)

Personal Statement for selection of MEP members

“Environmental Outlook to 2050” published by OECD states that:

“Total terrestrial Mean Species Abundance (MSA) is projected to further decline by approximately 10% between 2010 and 2050, with the majority of loss occurring before 2030.”

IPBES, whose establishment was determined in Panama in May 2012, will have a critical role as the “interface between science and policy” in the biodiversity and ecosystem services, as well as have the responsibility to help drive the efforts and policies to deal with related challenges

Prof. Kwi-Gon Kim strongly believes that the issues and solutions for biodiversity and ecosystem services need to be addressed in a broader framework in order to contribute to the realization of the “The Future We Want” principles and of the “Sustainable Development Goals(SPG)” adopted on the occasion of Rio+20 in June 2012.

He taught landscape ecology, ecosystem and habitat management, and ecological planning for more than 30 years at Seoul National University, Republic of Korea. He is now a Professor Emeritus of landscape ecology and ecological planning at Seoul National University. He also serves as the first Director of the UN-HABITAT Gangwon International Urban Training Center. This center is well known for training courses on ecological restoration.

He heads the Joint Ecological Survey Team for the DMZ, commissioned by the Korean Government in 2000. Based on the survey results, he is actively involved in linking scientific information into policy decisions for the DMZ ecosystem management. The untouched DMZ offers unique opportunities as “natural laboratories” not only for studying the mechanism of evolution, ecology and biodiversity since the end of the Korean war in 1953, but also for the development of local eco-cultural tourism which may contribute to creating a cash economy for the local surrounding residents and further raising the attention and awareness on the critical value and importance of ecosystems and bio-diversity..

His new book, “The DMZ: Land of Peace and Life” is expected to be published by Springer in 2013. Key features of the book include:

- i. The DMZ is increasingly recognized as an important ecosystem nationally, regionally, and internationally.
- ii. The book presents a diverse range of exciting new hypothesis and perspectives on wetland ecosystems which have developed in the abandoned idle agricultural lands for almost over 60 years.
- iii. Information is included on Korean biotas, available in English here for the first time.

Kim is the co-author of “Urban Ecosystems Chapter” for the recent COP18 CBD Information Book which looks at hydrological cycle, policy tools and policy opportunities, policy recommendations and knowledge gap for urban biodiversity and eco-system services.

He is also well known for his advocacy and pioneering work since 2011 on “Urban CDM for Low-Carbon Green City” which brings together GHG reduction activities at the appropriately aggregated level to solve the world’s most pressing problem, global warming. He serves as co-chair of the International Inter-Agency Advisory Group for the Urban CDM whose members include UNEP, UNDP, UN-HABITAT, UNFCCC, UNESCO, World Bank, and OECD.

He created an international sensation when he conducted a study on “Human Ecological Studies on Seoul Urban Ecosystems by the integrated method with natural and social science” for 11 years, resulting in an 11 volume report, targeting Seoul Capital Region and funded by Division of Ecology and Earth Sciences, UNESCO.

Other major achievements of his scientific works and impact on policies include:

- i. Contributed to the establishment of “East Asian Biosphere Reserve Network (EABRN)” through an empirical UNESCO MAB research for about 11 years.
- ii. Through the DMZ UNDP Report, 2000:
 - ✍ Voiced the significance of the value of biodiversity in DMZ and its ecosystem services nationally, regionally and globally.
 - ✍ Contributed the foundation of “The Korea DMZ Council”
 - ✍ Convinced Korean and local government to register DMZ to UNESCO Biosphere Reserve
- iii. Founded the “International Consortium for Landscape and Ecological Engineering” attended by related international academic societies, and made Springer Publishing Company publish “Journal of Landscape and Ecological Engineering” (SCI-Expanded). Also chaired the second term of presidency of this Consortium
- iv. Through active participation in the International Society of Ecological Restoration:
 - ✍ Founded Korea Society of Ecological Restoration and Technology and chaired the second term of presidency.
 - ✍ Introduced Ecological Restoration Licensing System
- v. Conducted Holistic Integrated Studies on Urban Ecosystem, and Country Director of Sustainable City Programme, UN-HABITAT:
 - ✍ Helped various cities make “The City Biodiversity Strategy and Action Plan”
 - ✍ Founded “The Korea Eco-City Network” and chaired the first term of presidency
 - ✍ Developed the UNESCO Urban Biosphere Reserve model and presented it in “The New York Academy of Sciences”
- vi. Established the International Urban Training Center (IUTC) Supported by UN-HABITAT with successful fund raising that amounts to \$ 1,500,000 as a founding director.
 - ✍ Signed MOU with International Society of Ecological Restoration for R&D and training in Ecological Restoration sector
- vii. Developed the theory and model of Urban CDM, which is designed to create low-carbon green cities, with an Urban Planning Concept and Framework:
 - ✍ Raised fund amounting to apr. \$750,000 from the Korean central Government (Ministry of Environment) and Korean local government (Gwangju Metropolitan City) in order to develop the Urban CDM

concept and approach

- ✍ Organized a Core-Team consisting of UNEP, World Bank, etc. in order to conduct Pilot Testing of targeted cities
- ✍ In accordance with UN Rules and Regulations, carried out peer reviews, organized an International Inter-Agency Advisory Group and currently chairs a Co-Chair

Kim has participated over 40 times in large and small UN-related meetings, e.g. “Human Settlement Meeting 1996” held in Istanbul, Turkey, “WSSD” in Johannesburg 2002” in South Africa, “Rio+20” in Brazil, 2012, “Nagoya Urbio Conference” in Japan, 2000, “ASEAN Biodiversity Conference” in Phnom Penh, Cambodia, and IPBES meetings in Teheran and Panama, 2012.

If he has the honor to work as a member of MEP he will put all his scientific expertise in biodiversity and ecosystem services,, energy and network to effectively contribution to the IPBS agenda in providing an interface between the scientific community and policy makers .

*Curriculum Vitae***Anantha Kumar Duraiappah**

Birth: March 30, 1958

Personal: Citizenship: Malaysian;

Education: Ph.D. Economics, University of Texas at Austin, 1991
Fields: Optimal Control Theory, Development Economics and Planning; Environmental Economics; Dissertation: "Economic Growth and Global Warming: A Holistic Approach to Policy Coordination and International Cooperation"; Committee Chair: Professor David A. Kendrick
Professional Development Award, 1991; Hale Fellowship, 1991; Dissertation selected and nominated by the Economics Department for the Resources for the Future Award for best dissertation in Environmental Economics

MBA, Finance, University of San Francisco, 1983

Bsc, Electronics, University of Kent, Canterbury, England, 1980

Employment:

2010 --- Present	Executive Director, International Human Dimensions Programme, United Nations University, Bonn, Germany
2006 ---2009	Chief, Ecosystem Services and Economics Unit, United Nations Environment Programme, Nairobi, Kenya The UNEP team leader for the establishment of the Intergovernmental Science-Policy Platform for Biodiversity and Ecosystem Services.

International Advisory Positions and Professional Service:

Inclusive Wealth Report 2012 Director
Guest Professor (2011-2015), Beijing Normal University, Beijing.
Associate Editor, Journal of Human Development and Capabilities.
Editorial Board, Springer series on Sustainability Science
Co-Chair, Science Assessment Panel, Japan Sub-Global Assessment
Member of the International Science Committee, DIVERSITAS, ICSU, Paris
Member of the International Advisory Group, of the PRESA Initiative, ICRAF.
Co-chair, Biodiversity-Human Wellbeing Synthesis Report, UN Millennium Ecosystem Assessment
Coordinating Lead Author, Conceptual Framework, UN Millennium Ecosystem Assessment
Coordinating Lead Author, Response Working Group, UN Millennium Ecosystem Assessment

Key Publications (publications in bold related directly to IPBES)

Duraiappah, A.K and others., The Inclusive Wealth Report 2012, IHDP-UNU and UNEP, Cambridge University Press, 2012

Duraiappah, A.K et.al., Satoyama-Satoumi Ecosystems and Human Well-being, United Nations University Press, Tokyo 2012

Dasgupta, Partha and Anantha Duraiappah, Wealth and Well-being in The Inclusive Wealth Report 2012, UNU-IHDP and UNEP, Cambridge University Press, 2012

Duraiappah, A.K., The Intergovernmental Platform on Biodiversity and Ecosystem Services: Strengthening the science-policy interface, forthcoming in Nunes, P, P.Kumar and T.Dedeurwaerdere, Economics of Biodiversity and Ecosystem Services, Edward Elger, forthcoming 2012.

Duraiappah, A.K and Rogers, D. The Intergovernmental Platform on Biodiversity and Ecosystem Services: opportunities for the social sciences, Innovation: The European journal of social science research, Routledge, 2011.

Perrings, C, Duraiappah, Lariguarde, Mooney, IPBES, Science, 2011

Duraiappah, A.K, Ecosystems services and human well-being: Do global findings make sense, Bioscience, 2011

Duraiappah A.K with others in, The Economics of Ecosystem Services, in Naeem et.al, Biodiversity and Human Impacts. Cambridge University Press, 2010

Duraiappah,A.K with others in, Valuation of Ecosystem Services, in Naeem et.al, Biodiversity and Human Impacts. Cambridge University press, 2010

Duraiappah and others in Carpenter et.al, Science for Managing Ecosystem Services: Beyond the Millennium Ecosystem Assessment, Proceedings of the National Academy of Sciences, 2009

Duraiappah, A.K and Shahid Naeem et.al., Millennium Ecosystem Assessment., *Biodiversity and Human Well-being: Synthesis report of the Millennium Ecosystem Assessment*, World Resource Institute, 2005.

Duraiappah and others, Millennium Ecosystem Assessment., *Ecosystems and Human Well-being: Synthesis report of the Millennium Ecosystem Assessment*, Island Press, 2005.

Duraiappah and others, Millennium Ecosystem Assessment., *Ecosystems and Human Wellbeing*, Island Press, 2003.

Curriculum Vitae

Name: Saw Leng Guan
Born: 14 December 1955, Taiping, Perak, MALAYSIA
Sex: Male
Nationality: Malaysian
Home Address: 7 Lebuhr Palas
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52109 Kepong
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Malaysia
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e-mail: sawlg@frim.gov.my



Academic Qualifications

- a. Bachelor of Science (Forestry), Agriculture University of Malaysia (UPM), 1981
- b. Master of Science (Pure and Applied Plant and Fungal Taxonomy), University of Reading, 1990
- c. Doctor of Philosophy, University of Reading, 1994
"The taxonomy and ecology of the genus *Licuala* (Palmae) in Malaya"

Schools attended

- a. Anglo Chinese (Primary) School, Malacca
1962–1967
- b. Anglo Chinese (Secondary) School, Malacca
1968
- c. High School, Klang
1968–1975

Previous Employment

- a. Audit clerk with Price Waterhouse & Co.
1976–1977
- b. Teaching in a secondary school
1981

Present Employment

Forest Research Institute Malaysia (FRIM)
from 11 June 1982

History of Employment at the Forest Research Institute Malaysia

- a. 11 June 1982
Hill Forest Silviculturist
- b. 1 March 1985
Forest Botanist
- c. 1 September 1990
Promoted Senior Research Officer, Scale Q2
- d. 1 September 2001
Promoted to Senior Research Officer, Scale Q1
- e. 4 October 2002
Deputy Director, Forest Environment Division
- f. 1 August 2004
Programme Director, Tropical Forest Biodiversity Centre
- g. 1 September 2007
Promoted to Principal Research Officer, Senior Director, Scale VU7
- h. 1 January 2009
Division Director, Forest Biodiversity Division

Research Project Involvement

1. Tree Flora of Malaya Project – contributor to the revision of families, 1985–1989.
2. The conservation of economically important, and rare, threatened or endangered forest plants in Peninsular Malaysia – project leader, 1996–1999.
3. Tree Flora of Sabah and Sarawak Project – initiated the project and currently editor and contributor to revision of families, 1991 till present.
4. To determine the optimum size of Virgin Jungle Reserves to enhance the conservation of flora and their attended management prescriptions for each of the ecological forest types – project leader, 1998–2002.
5. Krau Game Reserve, a totally protected forest in Peninsular Malaysia for the conservation of higher plants – project collaborator, 1999–2004.
6. Coordinator to: Plant Diversity Centre with 14 projects in the Centre. Project leader to two of the projects in the programme.
7. South East Asian Botanical Collections Information Network (SEABCIN), funded by European Commission, joint project with National Herbarium Netherlands, University of Oxford, Forest Research Institute Malaysia, Forest Department Sabah, Forest Department Sarawak, Philippine National Herbarium, Forest Herbarium Bangkok and Herbarium Bogoriense.
8. FRIM-GEF project on the Conservation of Biological Diversity through Improved Forest Planning Procedures. GEF funded project.
9. Population and conservation biology of selected threatened Malaysian ornamental species with special emphasis on *Johannesteijsmannia* (Palmae), joint project funded by ARCBC Research Funds, with National University of Singapore, Royal Botanic Gardens Kew and FRIM. My input here is as co-supervisor to a student that will conduct this study.
10. Flora of Peninsular Malaysia Project – project initiated in 2005 to revise the about 8,300 species of vascular plants in Peninsular Malaysia.
11. Conservation of Rare and Threatened Plants of Peninsular Malaysia – project initiated in 2005 to develop conservation tools and conserve rare and threatened plants of Peninsular Malaysia.

Experiences

1. As an undergraduate, I have completed 24 weeks of practical training in different aspects of forestry activities.

2. Assisted in the Lanjak-Entimau Wildlife Sanctuary Expedition in Sarawak, Malaysia in 1981. The expedition was organised and sponsored by the World Wildlife Fund, Malaysia.
3. Participated in the Endau-Rompin Expedition in Johor in 1986–1987. The expedition was organised by the Malayan Nature Society.
4. Participated in the Maliau Basin Expedition, Sabah as botanist/ecologist between 26 April and 6 May 1988. The expedition was organised by the Sabah Foundation and the World Wildlife Fund, Malaysia.
5. Participated in the Pulau Redang Expedition, Terengganu between 2 and 10 February 1989. The expedition was organised by the Malayan Nature Society.
6. Participated in the Belum Expedition, Perak in 1993–1994.
7. Organised numerous collecting expeditions in Malaysia in the course of my work in the Botany Section in FRIM.
8. Between 1985 and 1990, I was also managing the FRIM Research Station at Pasoh Forest Reserve, Negeri Sembilan.
9. Currently, conducting taxonomic and botanical work in FRIM. I am also in charged of the herbarium as Curator.
10. The Arboretum and the development of the Kepong Botanic Gardens are also under my charge.
11. Currently, planning and developing Kepong Botanic Gardens.
12. Liaison officer for the Tree Flora of Sabah and Sarawak in Royal Botanic Gardens Kew, U.K. and the Rijksherbarium, Leiden, the Netherlands from 23 March to 3 May 1997.
13. Organised the Fourth International Flora Malesiana Symposium in Holiday Villa Subang, Kuala Lumpur, Malaysia, 20–24 July 1998.

Main Research Interests

1. Palm taxonomy and ecology
2. Taxonomic revision of Malaysian plants (in particular, tree families)
3. Ecology of Malaysian forests including plant geography
4. Conservation of Malaysian flora and ecosystems

Language Skills

1. Chinese; speak conversational Hokkien dialect fairly well.
2. English; written and spoken both well.
3. Bahasa Malaysia; written and spoken both fair.

Society membership

1. Malaysian Nature Society – Council member (1997–1998)
2. FRIM sports club – Ordinary member
3. Church of Shekinah Glory – Secretary (since August 2001, Treasurer 2000 until August 2001)
4. Klang Club – Ordinary member
5. International Palm Society – Ordinary member
6. Malaysian Scientific Association – Ordinary member

National Committees and International Involvement

International

1. Member to the Brahms (Botanical Research and Herbarium Management System) Advisory Group, since 2001, a database management system for the curation of herbarium specimens and research

2. Member to the International Advisory Committee to the Fifth International Flora Malesiana Symposium, Sydney, Australia, 9–15 September 2001
3. Board member of the International Flora Malesiana Foundation, since September 2004
4. Appointed as a member of Science Audit to the Royal Botanic Gardens, Kew, U.K., June 2006
5. Board member of the Kew Bulletin, since January 2007.
6. Editorial member of the Journal of Tropical Ecology, since April 2007.
7. Editorial member of *Pertanika* Journal of Tropical Agriculture Science, since February 2009.
8. Editorial board member of *Blumea*, since June 2010.

National

1. Member of the National Technical Biological Diversity Committee
2. Member of the Sungai Buloh Botanic Gardens Committee, 1994
3. Member of the National Technical Committee of CITES (Convention on International Trade in Endangered Species of Wild Fauna and Flora)
4. Represented Malaysia in the Standing Committee for CITES on the Working Group on Timber
5. Party of the Malaysian delegation to the Sixth Conference of Parties, Convention for Biological Diversity, 2002, The Hague, Netherlands
6. Party of the Malaysian delegation to the Seventh Conference of Parties, Convention for Biological Diversity, February 2004, Kuala Lumpur, Malaysia
7. Party of the Malaysian delegation to the Eighth Conference of Parties, Convention for Biological Diversity, 2006, Curitiba, Brazil
8. Chair to the Vulnerability & Adaptations for Biodiversity of the Second National Communications for Climate Change, since 2007.
9. Party of the Malaysian delegation to the Ninth Conference of Parties, Convention for Biological Diversity, 2008, Bonn, Germany
10. Panel of experts on Advanced Informatics for MIMOS, since November 2009

Reviewer for Journals

I regularly review scientific articles for the Journal of Tropical Forest Sciences, Malayan Nature Journal, Gardens' Bulletin Singapore, Kew Bulletin and Thai Forest Bulletin (Botany).

Editor of publication series

1. Tree Flora of Sabah and Sarawak, since 1995
2. Flora of Peninsular Malaysia, since 2005
3. Series editor for FRIM Research Pamphlet, 1996-2005
4. Malaysian Nature Journal, 1997–1998
5. Sandakania, 1998-1999
6. Flora Malesiana Series I – Spermatophyta, since 1998

Supervisor to Post-graduate Students

1. Dr. Tam Sheh May, M.Sc. supervisor, graduated 1999, Universiti Putra Malaysia, Serdang, Malaysia
2. Dr. Adrian Loo Hock Beng, Ph.D. supervision, graduated 2001, National University of Singapore, Singapore
3. Dr. Look Su Lee, Ph.D. supervisor, graduated 2007, National University of Singapore, Singapore
4. Ms. Chan Yoke Mui, M.Sc. supervisor, graduated in 2010, University of Malaya, Malaysia
5. Ms. Sam Yen Yen, Ph.D. student currently being supervised with University of Malaya, Malaysia

Examiner for Post-graduate Students

1. Berhaman Ahmad, 1998. A taxonomic revision of *Nyctocalos* (Bignoniaceae) in Malesia, and aspects of its comparative morphology and biogeography. M.Sc. thesis submitted to University of Malaya, Malaysia.
2. Tam Sheh May, 1998. Floristic diversity and conservation importance of Bukit Bauk (Terengganu) in Peninsular Malaysia. M.Sc. thesis submitted to Universiti Putra Malaysia, Malaysia.
3. Subhasis Panda, 2007. Taxonomic revision of some selected genera of Ericaceae in India. Ph.D. thesis submitted to the Vidyasagar University, India.

Recent Courses or Lectures Conducted

1. Malaysian plants under the CITES list. Course given to Agriculture Department officers of the Quarantine Section, 12 June 1995
2. Tree identification course. Course conducted for new or newly promoted officers of FRIM since 1996 and on a yearly basis.
3. Herbarium Techniques Course. Course conducted together with staff of the Royal Botanic Gardens, Kew. 4 – 22 March 1996
4. Identification of Fruit Tree species. Course conducted for Quarantine officers of the Department of Agriculture, 3 – 5 September 1996
5. "Managing Biological Diversity", lecture presented at the Second International Short Course on Sustainable Tropical Forest Management, Agriculture University of Malaysia, Serdang, Malaysia. 4 – 16 November 1996
6. "Advances in Dendrology", course conducted for senior officers of the Forest Department, Peninsular Malaysia, Forestry Training School, Kepong. 13 – 15 July 1999
7. BRAHMS workshop for ITTO project in Sarawak. Kuching, Sarawak, 20–25 November 2000
8. Threatened plants of Malaysia under CITES – Identification course to Plant Quarantine Officers of the Agriculture Department of Malaysia, 16-18 July 2001
9. Herbarium and Plant Collection Techniques for Botanic Gardens Course, Forest Research Institute Malaysia, Kepong, 15-24 October 2001
10. Bamboo Collection, Identification and Documentation course – Course jointly organised by International Plant Genetic Resources Institute (IPGRI), Forest Research Institute Malaysia and Rimba Ilmu, University of Malaya, 26 November to 1 December 2001
11. Guest lecturer to training course on "Aspects of plant taxonomy on biodiversity inventory and conservation of protected ecosystems in Southeast Asia", Bogor, Indonesia, 8-21 July 2002.
12. Guest lecturer to Training programme on forest management certification, 16-20 September 2002, Kuala Lumpur. Lectured on Biological diversity – Floral diversity in Peninsular Malaysia, conservation of the rare, threatened and endangered plant species and procedure for assessing changes in biological diversity.
13. Guest lecturer to ASEAN-Korean Environmental Cooperation Project Short-term Training Course: Fundamentals of Forestry Field Research, 20-24 January 2003, Kuala Lumpur. Lectured on "Effective Seminar Presentation".
14. Guest lecturer to Biodiversity Lecture Series to Senior Forest Department Officers of the Forest Department of Peninsular Malaysia, 30 September 2003, Forest Training School, Kepong, Kuala Lumpur. Lectured on "Palms of Malaysia".

Consultancy

1. Preparation of the Environmental Impact Assessment (flora component) for the Kemasah Heights Golf Resort, Kuala Lumpur.
2. Environmental Impact Assessment (flora component) of the development of the Sungai Murum Hydro-electric Power Dam, Sarawak.
3. Preparation of the Environmental Impact Assessment (flora component) of the Klang Valley Outer Ring Road.
4. Preparation of the Conceptual Plan for the Development of Bukit Malawati Botanic Gardens, Kuala Selangor for the Kuala Selangor District Office.
5. Plant and Vegetation survey on the proposed Cameron Highlands–Gua Musang Road — 1999.
6. Develop plan and proposal for the setting up of a Herbarium at the Kulliyah of Architecture and Environmental Design, International Islamic University Malaysia – 2001
7. Botanical consultant to the Putrajaya Botanic Gardens – 2002-2003
8. Plant checklist and vegetation survey of the Bukit Chahaya Botanic Gardens, Shah Alam – 2006

Conference, Seminar and Workshop Participation

1. Planning Meeting for setting up an Asia-Oceania Network of Biological Sciences, Singapore, 13-15 February 1995
2. 35th Meeting of the Standing Committee on Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), Geneva, Switzerland, 21-24 March 1995
3. Flora Malesiana Symposium, Royal Botanic Gardens, Kew, UK, 10-14 July 1995
4. International Palm Symposium, Florida, USA, 19-20 October 1995
5. Tree Flora of Kalimantan Workshop, Punchak, Bogor, Indonesia, 28-30 November 1995
6. Fourth Conference on Forestry and Forest Products Research. Forest Research Institute Malaysia, Kepong, Malaysia, 2-4 October 1997
7. International Conference on Long-Term Ecological Research (LTER) and Biodiversity Studies. Taipei. Republic of China, 12-13 November 1997.
8. Workshop on Biodiversity, Conservation and Utilisation – Present Status and Future Directions. Joint Working Committee on Forestry (Malaysia-Indonesia). Forest Research Institute Malaysia, Kepong, Malaysia, 27-28 November 1997.
9. First Workshop on Botanic Garden Policy on Access and Benefit-Sharing – Pilot Project. Royal Botanic Gardens Kew, UK, 15-16 December 1997.
10. Field work and visit to University Brunei Darussalam, Kuala Belalong Field Study Centre and Ulu Temburong National Park, Brunei, for the "Tree Flora of Brunei Project", 20-26 April 1998.
11. Stone Memorial Symposium, Rimba Ilmu, University of Malaya, Kuala Lumpur, Malaysia, 16-18 July 1998.
12. Fourth International Flora Malesiana Symposium, Holiday Villa, Subang Jaya, Kuala Lumpur, Malaysia, 20-24 July 1998.
13. Second Workshop on Botanic Garden Policy on Access and Benefit-Sharing – Pilot Project. Kirstenbosch National Botanic Garden, Cape Town, South Africa, 21-22 September 1998.
14. Third Workshop on Botanic Garden Policy on Access and Benefit-Sharing – Pilot Project. Institute of Botany, The Chinese Academy of Sciences, Beijing, 17-19 May 1999.
15. Forty-second Standing Committee Meeting Convention on International Trade in Endangered Species Of Wild Fauna and Flora (CITES), Lisbon (Portugal), 28 September – 1 October 1999
16. Fourth Workshop on Common Policy Guidelines on Access and Benefit-Sharing for Botanic Garden– Pilot Project. Cartagena, Colombia, 6-8 November 2000.
17. Third Meeting of the Scientific Expert Committee and Second Research Conference of ASEAN Regional Centre for Biodiversity Conservation (ARCBC), Tagaytay City, the Philippines, 7-10 February 2001.
18. Fifth International Flora Malesiana Symposium, Royal Botanic Gardens, Sydney, Australia, 9-15 September 2001.
19. Conference on Forestry and Forest Products Research, Kuala Lumpur, 1-3 October 2001.

20. Workshop on the South East Asian Botanical Collections Information Network (SEABCIN), Saraburi, Thailand, 11-15 March 2002.
21. Asia and the Pacific Regional Preparatory Meeting for the Sixth Meeting of the Conference of the Parties to the Convention on Biological Diversity, Bangkok, Thailand, 18-20 March 2002.
22. Sixth Conference of the Parties for the Convention on Biological Diversity at The Hague, Netherlands, 7-19 April 2002.
23. Experts Meeting on "Access to Genetic Resources, Traditional Knowledge and Intellectual Property Rights" among the Mega-diverse Like-minded groups of countries held on 27-29 November 2002, Urubamba Valley, Cusco, Peru.
24. Experts Meeting among Mega-diverse Like-minded groups of countries held on 21-23 July 2003, Kuala Lumpur, Malaysia.
25. Conference on Forestry and Forest Products Research, Crown Princess Hotel, Kuala Lumpur, 6-8 October 2003.
26. Second workshop on the South East Asian Botanical Collections Information Network (SEABCIN), Forest Research Institute Malaysia, Kepong, 27-31 October 2003.
27. Ninth Meeting of the Subsidiary Body on Scientific, Technical and Technological Advice for the Convention on Biological Diversity, Montreal, Canada, 10-14 November 2003.
28. Regional Workshop on Important Plant Areas and Standardization of Habitat Classification for Asean, Bangkok, Thailand, 27-31 January 2004.
29. Seventh Conference of the Parties for the Convention on Biological Diversity at Kuala Lumpur, Malaysia, 9-20 February 2004.
30. The International Palm Society – 2004 Biennial Meeting, Hawaii, United States of America, 8-19 May 2004.
31. Species 2000 & Global Strategy for Plant Conservation (GSPC) workshop – Towards a working list of known plant species: Coverage, gaps and metadata, Royal Botanic Gardens, Kew, UK, 28-30 Jun 2004.
32. International Symposium 2004 – Asian Plant Diversity and Systematics, International Association of Plant Taxonomy, 29 July to 2 August 2004, Sakura, Japan.
33. Organised the Plant Conservation Strategy for Malaysia Workshop held in Forest Research Institute Malaysia, Kepong, Malaysia, 12-13 October 2004
34. Second Regional Workshop on Important Plant Areas and Standardization of Habitat Classification for Asean, Kota Kinabalu, Malaysia, 27-30 October 2004.
35. International Palm Symposium, Linnean Society, Natural History Museum, London, 6-8 April 2005.
36. Eighth Conference of the Parties for the Convention on Biological Diversity at Curitiba, Brazil, 20-31 March 2006.
37. Delegation with Hon. Minister, NRE visiting the Natural History Museum, London and signing of MOU with Royal Botanic Gardens, Kew, UK, 17-20 May 2006
38. Appointed as a member of Science Audit to the Royal Botanic Gardens, Kew, U.K., 4-7 June 2006
39. Fourth International Symposium on the family Zingiberaceae: Singapore Botanic Gardens, 3-6 July 2006.
40. South East Asia Botanic Gardens Network Director's Meeting, Singapore Botanic Gardens, 7-9 February 2007.
41. Invited plenary speaker for the Third Global Botanic Gardens Congress, Wuhan China, 14-21 April 2007.
42. Workshop on Plant Conservation Assessment for Southeast Asia, Los Banos, Philippines, 5-9 June 2007.
43. Seventh Flora Malesiana Symposium, Leiden, the Netherlands, 17-22 June 2007.
44. Strategies for the sustainable use and management of timber tree species subject to international trade, Kuala Lumpur, 5-7 September 2007.
45. *Ad hoc* technical expert group on technology transfer and scientific and technological cooperation, Geneva, 10-12 September 2007.
46. Organised the consultative workshop for Natural History Museum in Malaysia, 15 November 2007, Legend Hotel, Kuala Lumpur.

47. Study tour for the establishment of a Natural History Museum in Malaysia. Field Museum, Chicago, Smithsonian National Natural History Museum, Washington, Natural History Museum, London, Naturalis, Leiden, the Netherlands. 3-19 December 2007.
48. Second Opened Ended Working Group on Protected Areas (WGPA2) and Thirteenth Subsidiary Body for Technology and Technological Advice (SBSTTA13). Rome, Italy. 9-25 February 2008
49. Eighth Conference of the Parties for the Convention on Biological Diversity at Bonn, Germany. 19-30 May 2008.
50. The ASEM Seminar on Adaptation to Climate Change, Tokyo, Japan, 2-3 October 2008.
51. 5th International Symposium on the Family Zingiberaceae, Xishuangbanna, China, 5 –12 July 2009
52. Plant Conservation for the next decade: A celebration of Kew 250th Anniversary, Royal Botanic Gardens, Kew, United Kingdom, 12-16 October 2009.
53. International Meeting for Promoting Asia-Pacific Biodiversity Observation Network (AP-BON) and the Intergovernmental Meeting on ESABII, East and Southeast Biodiversity Information Initiative, United Nations University, Tokyo, 11-14 December 2009.
54. 4th GEOSS Asia-Pacific Symposium and International Meeting for Promoting Asia-Pacific Biodiversity Observation Network (AP-BON), Bali, Indonesia, 10-12 March 2010.
55. Fourteenth meeting of the Subsidiary Body on Scientific, Technical and Technological Advice (SBSTTA 14) of the Convention on Biological Diversity and the "Third meeting of the Ad Hoc Open-ended Working Group on Review of Implementation of the Convention (WGRI 3), Nairobi, Kenya, 14-29 May 2010.
56. 8th International Flora Malesiana Symposium, Singapore Botanic Gardens, Singapore, 23-27 August 2010.
57. Tenth Conference of Parties, Convention on Biological Diversity (CBD), Nagoya, Japan, 17-30 October 2010.
58. Third Scientific Advisory Committee Meeting (SAC) of the ASEAN Centre for Biodiversity, Manila, Philippines, 12-13 November 2010.

Awards

1. Group award for excellence service for Botany section in 1995
2. Individual excellence service award in 1997 in FRIM
3. Best research paper award for FRIM in 1998 – "A revision of *Licuala* (Palmae) in the Malay Peninsula", Sandakanian (1997) 10: 1–95"
4. British High Commission's Chevening Scholarships Scheme: Royal Society – Malaysian Fellowship, 1999/2000 (15 January 2000 – 15 June 2000)
5. Second prize Publication Award – Technical Publication category for 2000 Annual FRIM Award – "Saw L.G. & Y.Y. Sam (2000). Conservation of Dipterocarpaceae in Peninsular Malaysia. Journal of Tropical Forest Science 12: 593–615"
6. Second prize Publication Award – Technical Publication category for 2005 FRIM Annual Award – "Chua L.S.L., H. Nurulhuda, M. Hamidah & L.G. Saw (2004). Conservation status of *Hopea subalata* (Dipterocarpaceae) in Peninsular Malaysia. Journal of Tropical Forest Science 16: 271–282".
7. First prize Publication Award – Book category for 2007 FRIM Annual Award – "Chua L.S.L. & L.G. Saw (2006). Plants of Krau. FRIM Research Pamphlet No. 126. Forest Research Institute Malaysia. 227 pp".
8. First prize Publication Award – Technical Publication category for 2007 FRIM Annual Award – "Lee S.L., K.K.S. Ng, L.G. Saw, C.T. Lee, N. Muhammad, N.Tani, Y. Tsumura & J. Koskela (2006). Linking the gaps between conservation research and conservation management of rare dipterocarps: A case study of *Shorea lumutensis*. Biological Conservation 131: 72–92".

9. Second prize Publication Award – Technical Publication category for 2007 FRIM Annual Award – "Ng K.K.S., S.L. Lee, L.G. Saw, J.B. Plotkin & C.L. Koh (2006). Spatial structure of three tropical tree species with different habitat preferences in hill dipterocarp forest. *Tree Genetics & Genomes*. 2: 121–131".
10. Best Research Award for 2007 FRIM Annual Award – "Tree Flora of Sabah and Sarawak" project.
11. Long Service Award for 2007 FRIM Annual Award.
12. Best FRIM Researcher Award for 2009 FRIM Annual Award.

Thesis

1. Saw L.G. (1981). Progress of crop: Composition, density and growth patterns of *Rhizophora* dominated stands before first thinning in Matang Mangroves Forest Reserve, Perak. Final year thesis, U.P.M.
2. Saw L.G. (1990). A revision of the genus *Licuala* (Palmae) subgenus *Libericula*. M.Sc. thesis. University of Reading.
3. Saw L.G. (1994). The taxonomy and ecology of the genus *Licuala* (Palmae) in Malaya. Ph.D. thesis, University of Reading.

Species and other taxa described by L.G. Saw

1. Tiliaceae *Schoutenia leprosula* Saw – *Malayan Nat. J.* 41(2-3): 272 (1987).
2. Escalloniaceae, *Polyosma robusta* (Ridl.) Saw – in *Tree Fl. Malaya*, 4: 468 (1989)
3. Palmae, *Licuala ahlidurii* Saw – *Sandakania* 10: 30 (1997).
4. Palmae, *Licuala bayana* Saw – *Sandakania* 10: 21 (1997).
5. Palmae, *Licuala cameronensis* Saw – *Sandakania* 10: 76 (1997).
6. Palmae, *Licuala egregia* Saw – *Sandakania* 10: 16 (1997).
7. Palmae, *Licuala fractiflexa* Saw – *Sandakania* 10: 32 (1997).
8. Palmae, *Licuala kamarudinii* Saw – *Sandakania* 10: 24 (1997).
9. Palmae, *Licuala khoonmengii* Saw – *Sandakania* 10: 43 (1997).
10. Palmae, *Licuala malajana* Becc. var. *humilis* Saw – *Sandakania* 10: 90 (1997).
11. Palmae, *Licuala mustapana* Saw – *Sandakania* 10: 55 (1997).
12. Palmae, *Licuala palas* Saw – *Sandakania* 10: 59 (1997).
13. Palmae, *Licuala peltata* Roxb. ex Buch.-Ham. var. *sumawongii* Saw – *Sandakania* 10: 10 (1997).
14. Palmae, *Licuala ruthiae* Saw – *Sandakania* 10: 41 (1997).
15. Palmae, *Licuala sallehana* Saw – *Sandakania* 10: 11 (1997).
16. Palmae, *Licuala sallehana* Saw var. *incisifolia* Saw – *Sandakania* 10: 13 (1997).
17. Palmae, *Licuala stongensis* Saw – *Sandakania* 10: 90 (1997).
18. Palmae, *Licuala tenuissima* Saw – *Sandakania* 10: 37 (1997).
19. Palmae, *Licuala terengganuensis* Saw – *Sandakania* 10: 61 (1997).
20. Palmae, *Licuala thoana* Saw & J.Dransf. – *Gard. Bull. Singapore* 42(1-2): 71: 1990 [1989 publ. 1990]
21. Palmae, *Licuala whitmorei* Saw – *Sandakania* 10: 78 (1997).
22. Palmae, *Pinanga johorensis* C.K.Lim & Saw – *Gard. Bull. Singapore* 50(1): 104. 1998
23. Orchidaceae, *Bulbophyllum setuliferum* J.J.Verm. & Saw – *Gard. Bull. Singapore* 52(2): 289. 2000

24. Dipterocarpaceae, *Vatica yeechongii* Saw – Gard. Bull. Singapore 54(2): 247 (2002).
25. Palmae, *Pinanga sarmentosa* Saw – Palms (1999+). 47(3): 141 (2003).
26. Escalloniaceae, *Polyosma maliauensis* Saw – Sandakania 14: 57(-59; fig.). 2004 [April 2004]
27. Zingiberaceae, *Scaphochlamys abdullahii* Y.Y.Sam & Saw – Gard. Bull. Singapore 57(2): 253 (-256; fig. 1). 2005 [30 Dec 2005]
28. Zingiberaceae, *Scaphochlamys cordata* Y.Y.Sam & Saw – Gard. Bull. Singapore 57(2): 256 (-258; fig. 2). 2005 [30 Dec 2005]
29. Zingiberaceae, *Scaphochlamys laxa* Y.Y.Sam & Saw – Gard. Bull. Singapore 57(2): 258 (-261; fig. 3). 2005 [30 Dec 2005]
30. Cycadaceae, *Cycas cantafolia* Jutta, K.L.Chew & Saw – Blumea: 55(3): 248 (2010)

New species accepted for publication:

31. Palmae, *Licuala atrovirens* Saw – Kew Bulletin
32. Palmae, *Licuala bruneiiana* Saw – Kew Bulletin
33. Palmae, *Licuala burretii* Saw – Kew Bulletin
34. Palmae, *Licuala campestris* Saw – Kew Bulletin
35. Palmae, *Licuala chaiana* Saw – Kew Bulletin
36. Palmae, *Licuala collina* Saw – Kew Bulletin
37. Palmae, *Licuala cordata* Becc. var. *ashtonii* Saw – Kew Bulletin
38. Palmae, *Licuala elliptica* Saw – Kew Bulletin
39. Palmae, *Licuala exigua* Saw – Kew Bulletin
40. Palmae, *Licuala flammula* Saw – Kew Bulletin
41. Palmae, *Licuala intermedia* Saw – Kew Bulletin
42. Palmae, *Licuala kuchingensis* Saw – Kew Bulletin
43. Palmae, *Licuala lambii* Saw – Kew Bulletin
44. Palmae, *Licuala leopoldii* Saw – Kew Bulletin
45. Palmae, *Licuala leucocarpa* Saw – Kew Bulletin
46. Palmae, *Licuala maculata* Saw – Kew Bulletin
47. Palmae, *Licuala meijerii* Saw – Kew Bulletin
48. Palmae, *Licuala micholitzii* var. *leeana* Saw – Kew Bulletin
49. Palmae, *Licuala miriensis* Saw – Kew Bulletin
50. Palmae, *Licuala mukahensis* Saw – Kew Bulletin
51. Palmae, *Licuala oryzoides* Saw – Kew Bulletin
52. Palmae, *Licuala pilosa* Saw – Kew Bulletin
53. Palmae, *Licuala pseudovalida* Saw – Kew Bulletin
54. Palmae, *Licuala rheophytica* Saw – Kew Bulletin
55. Palmae, *Licuala rubiginosa* Saw – Kew Bulletin
56. Palmae, *Licuala sabahana* Saw – Kew Bulletin
57. Palmae, *Licuala yilana* Saw – Kew Bulletin

Papers and Publications

1. Wong K.M., L.G. Saw & K.M. Kochummen (1987). A survey of the forests of the Endau-Rompin Area, Peninsular Malaysia: Principal forest types and floristic notes. *The Malayan Nature Journal* 41: 125–144.
2. Wong K.M., L.G. Saw & K.M. Kochummen (1987). Some new and interesting plant species from the Endau-Rompin area of Peninsular Malaysia. *The Malayan Nature Journal* 41: 267–274.
3. Saw L.G. (1987). Conservation of Mango and its relatives in Peninsular Malaysia. Report submitted to the World Wildlife Fund, Malaysia. Project MAL 80/85.
4. Saw L.G., T. Uji & J.F. Veldkamp (1988). Notes on the *Setaria palmifolia* group (Graminae) in Malesia. *Floribunda* 1: 21–24.
5. Wong K.M., L.G. Saw & Y.S. Wong (1988). Notes on the early exploration and botanical collecting in the Endau-Rompin area of Peninsular Malaysia. *The Gardens' Bulletin Singapore* 41: 83–91.
6. Srivastava P.B.L., L.G. Saw & Ashari Muktar (1988). Progress of crop: Composition, density and growth patterns of *Rhizophora* dominated stands before first thinning in Matang Mangroves Forest Reserve, Perak. *Pertanika* 11: 365–374.
7. Zakri A.H., L.G. Saw & N. Rajanaidu (1989). National conservation strategies in Malaysia. In A.H. Zadri (ed.), Genetic resources of under-utilised plants in Malaysia. Proceedings of the National workshop on plant genetic resources held in Subang Jaya, Malaysia. Malaysian National Committee on Plant Genetic Resources.
8. Saw L.G. (1989). Sabiaceae. In F.S.P. Ng (ed.), Tree Flora of Malaya. Vol. 1. Malayan Forest Records No. 26. Longmans Malaysia.
9. Saw L.G. (1989). Saxifragaceae. In F.S.P. Ng (ed.), Tree Flora of Malaya. Vol. 1. Malayan Forest Records No. 26. Longmans Malaysia.
10. Saw L.G. (1989). Urticaceae. In F.S.P. Ng (ed.), Tree Flora of Malaya. Vol. 1. Malayan Forest Records No. 26. Longmans Malaysia.
11. Wong K.M. & L.G. Saw (1989). Caprifoliaceae. In F.S.P. Ng (ed.), Tree Flora of Malaya. Vol. 1. Malayan Forest Records No. 26. Longmans Malaysia.
12. Saw L.G. & J. Dransfield (1989). A new species of *Licuala* (Palmae) from Peninsular Malaysia. *The Gardens' Bulletin, Singapore* 42: 71–73.
13. Saw L.G. & C.W. Marsh (1989). Vegetation classification and mapping. In C.W. Marsh (ed.), Expedition to Maliau basin, Sabah, April – May 1988. Yayasan Sabah Information paper No. 30: 117–125.
14. Saw L.G., J.V. LaFrankie K.M. Kochummen & S.K. Yap (1991). Fruit trees in a Malaysian rain forest. *Econ. Bot.* 45(1): 120–136.
15. Saw L.G. & R.S. Raja Barizan. (1991). Directory of Plant Genetic Resources in Malaysia. FRIM Research Pamphlet No. 109. 161 pg.
16. Saw L.G. (1991). Forest resources and ecosystem conservation in Malaysia. *Forest Ecology and Management* 43: 32–40.
17. Maschwitz U., B. Fiala & L.G. Saw (1991). Two new myrmecophytic associations from the Malay Peninsula: Ants of the genus *Cladomyrma* (Formicidae, Camponotinae) as partners of *Saraca thaipingensis* (Caesalpiniaceae) and *Crypteronia griffithii* (Crypteroniaceae). *Ins. Soc.* 38: 27–35.
18. Saw L.G. (1992). Forest Resources and Ecosystem Conservation in Malaysia. Forest Resources Genetic Resources Information No. 20: 32–37. FAO.
19. Saw L.G. (1993). *Tacca*: Flowering and Fruiting Behaviour. *Nature Malaysiana* 18(1): 3–7.
20. Maschwitz U., B. Fiala, L.G. Saw, Norma-Rashid & I. Azare (1994). *Ficus obscura* Bl. var. *borneensis* (Miq.) Corner, a new unspecific ant-plant from Malesia. *Malayan Nature J.* 47(4): 409–416.

21. Saw L.G. & H.T. Chan (1995). Vegetation and Plants. In S.S. Lee (ed.), A guide book to Pasoh. FRIM Technical Information Handbook No. 3. Forest Research Institute Malaysia.
22. Dransfield J. & L.G. Saw (1995). A preliminary checklist of palms in Temengor Forest Reserve, Hulu Perak, Malaysia. *Malayan Nature J.* 48: 209–214.
23. Saw L.G., K.M. Wong, J.T. Pereira & R.C.K. Chung (1996). "Species capture" and Endemism: Some preliminary notions of tree biodiversity in Sabah and Sarawak. Proceedings of the third Conference on Forestry and Forest Products Research, 3–4 October 1995, Forest Research Institute Malaysia, Kepong.
24. Chua L.S.L. & L.G. Saw (1996). Forests of Malaysia – A resource for horticulture. Proceedings of the Seminar: Commercialisation of Malaysian R & D. 15–17 August 1996, Ministry of Science, Technology and the Environment, Malaysia, Kuala Lumpur. Pg. 177–181.
25. Saw L.G. (1997). A revision of *Licuala* (Palmae) in the Malay Peninsula. *Sandakania* 10: 1–95.
26. Saw L.G. & N. Manokaran (1997). Long-term ecological studies in Malaysia. First regional conference on international long-term ecological research: the East Asia and Pacific region. Taipei. Republic of China.
27. Hawthorn W., L.S.L. Chua, L.G. Saw & E.S. Quah (1998). A biodiversity database. In Lee S.S., Dan Y.M., Gauld I.D. & Bishop J. (eds.), Proceedings of "The workshop on Malaysia-United Kingdom: Conservation, management and development of forest resources", 21–24 October 1996, pg. 30–40. Forest Research Institute Malaysia, Kuala Lumpur, Forestry Department, Peninsular Malaysia, Government of Great Britain and Northern Ireland.
28. Saw L.G. (1998). *Caryota*. Lesser-known timbers. *PROSEA* 5(3): 140–142. Pudoc Scientific Publishers, Wageningen.
29. Saw L.G. (1998). *Cyrtostachys*. Lesser-known timbers. *PROSEA* 5(3): 177–178. Pudoc Scientific Publishers, Wageningen.
30. Saw L.G. (1998). *Licuala*. Lesser-known timbers. *PROSEA* 5(3): 329–331. Pudoc Scientific Publishers, Wageningen.
31. Saw L.G. (1998). *Livistona*. Lesser-known timbers. *PROSEA* 5(3): 332–334. Pudoc Scientific Publishers, Wageningen.
32. Saw L.G. (1998). *Pholidocarpus*. Lesser-known timbers. *PROSEA* 5(3): 444–445. Pudoc Scientific Publishers, Wageningen.
33. Saw L.G. (1998). *Pinanga*. Lesser-known timbers. *PROSEA* 5(3): 448–449. Pudoc Scientific Publishers, Wageningen.
34. Lim C.K., J. Dransfield, R. Kiew & L.G. Saw (1998). Four new *Pinanga* Blume (Palmae) species from Peninsular Malaysia. *The Gardens' Bulletin Singapore* 50: 99–114.
35. Tam S.M., S.C. Quah, R. Kiew, L.G. Saw, L. Chua, K. Salleh & S. Anthonysamy (1998). Floristic survey of Bukit Bauk, Terengganu, Peninsular Malaysia. *Malaysian Applied Biology* (Supplementary Issue) 27: 78–82.
36. Saw L.G. (1998). Palms. In E. Soepadmo, Plants. *Encyclopaedia of Malaysia*. Volume II, pg. 54–55, Editions Didier Millet, Kuala Lumpur.
37. Saw L.G. (1998). Rattans. In E. Soepadmo, Plants. *Encyclopaedia of Malaysia*. Volume II, pg. 106–107, Editions Didier Millet, Kuala Lumpur.
38. Saw L.G. (1998). Full treatment on *Hopea odorata*, *Neobalanocarpus heimii*, *Azadirachta excelsa*, *Agathis borneensis*, *Parkia speciosa* and *Intsia palembanica*. Electronic Forestry Compendium in CD-ROM. CAB International.
39. Saw L.G. (1998). Partial treatment on *Alstonia angustiloba*, *Anisoptera scaphula*, *Artocarpus lanceifolius*, *Dyera costulata*, *Macaranga gigantea*, *M. hypoleuca*, *Mangifera caesia*, *M. foetida*, *Shorea acuminata*, *S. curtisii*, *S. glauca*, *S. maxwelliana*, *S. multiflora*, *S. ovalis* and *S. teysmanniana*, Electronic Forestry Compendium in CD-ROM. CAB International.
40. Larsen L., H. Ibrahim, S.H. Khaw & L.G. Saw (1999). Gingers of Peninsular Malaysia and Singapore. *Natural History Publications (Borneo)*, Kota Kinabalu. 134 pg.

41. Saw L.G. & N. Manokaran (1999). Some results from long-term ecological research plots in Peninsular Malaysia. International Conference on Long-Term Ecological Research (LTER) and Biodiversity Studies (12–13 November 1997). Taipei. Pg. 52–56. Taiwan Forestry Research Institute (TFRI) Press. Taiwan.
42. Rajaseger G. H.T.W. Tan, I.M. Turner, L.G. Saw & P.P. Kumar (1999). Random amplified polymorphic DNA variation among and within selected *Ixora* (Rubiaceae) populations and mutants. *Annals of Botany* 84: 253–257.
43. Ng F.S.P. & Saw L.G. (1999). Kochummen, Kizhakkedathu Mathai. *Flora Malesiana Bulletin* 12: 251–253.
44. Loo A.H.B., H.T.W. Tan, P.P. Kumar & L.G. Saw (1999). Population analysis of *L. glabra* Griff. var. *glabra* (Palmae) using RAPD profiling. *Annals of Botany* 84: 421–427.
45. Saw L.G. & Y.Y. Sam (2000). Conservation of Dipterocarpaceae in Peninsular Malaysia. *Journal of Tropical Forest Science* 12: 593–615.
46. Ng, K. K. S., S. L. Lee, L. G. Saw & C. L. Koh (2000). Comparison of microsatellite data generated by using high resolution agarose gel and denaturing polyacrylamide gel. In M. S. Saad, Q. Z. Faridah, M. A. Kadir, M. Z. M. Khalid, O. Mohamad, G. B. Saleh & J. M. Panandam (eds.). *Genetic Manipulation – Challenges and Advances. Proceedings of the 4th National Congress on Genetics*, 26–28 September 2000, Genting Highlands, pp. 271–279
47. Vermeulen J.J. & L.G. Saw (2000). *Bulbophyllum* sect. *Hirtula* (Orchidaceae): A new species and a new record for Peninsular Malaysia. *The Gardens' Bulletin Singapore* 52: 289–292.
48. Saw L.G., Noorsiha A., Soepadmo E., Nur Supardi M.N. & Wong J.L.P. (2001). Pioneer Forestry Research: Development of Forest Botanical Research. In Wong J.L.P.(ed.). *Forestry and Forest Products R&D in FRIM. Yesterday, Today & Tomorrow 1901–2001 Centennial Celebration*. Forest Research Institute Malaysia.
49. Loo A. H. B., H. T. W. Tan, P. P. Kumar, L. G. Saw (2001). Intraspecific variation in *Licuala glabra* Griff. (Palmae) in Peninsular Malaysia – a morphometric analysis. *Biological Journal of the Linnean Society* 72 (1): 115–128.
50. Chua, L.S.L. & L.G. Saw (2001). A reassessment of the flora of Gunung Ulu Kali, Genting Highlands, Malaysia – Preliminary findings and trends. *The Malayan Nature Journal* 55 (1&2): 65–76.
51. Chua, L.S.L. & L.G. Saw (2001, unpublished report). Technical Report on the Flora Component. Management of Krau Wildlife Reserve – Capacity Building and Human Resource Development. PERHILITAN and DANCED.
52. Saw L.G. 2001. Linkages and Interrelationships of Natural Ecosystems to Development – “The Value of Biodiversity”. Proceedings of the Second Research Conference and Minutes of the Third Meeting of the Scientific Experts Committee (SEC) of ASEAN Regional Centre for Biodiversity Conservation (ARCBC). Tagaytay City, the Philippines, 7–10 February 2001.
53. Lee S. L., Ng K.K.S., Saw L.G., Norwati A., Siti Salwana M. H., Lee C. T., & Norwati M. (2002). Population genetics of *Intsia palembanica* (Leguminosae) and genetic conservation of Virgin Jungle Reserves in Peninsular Malaysia. *American Journal of Botany*. 89(3): 447–459.
54. Saw L.G. (2002). *Costus oligophyllus* K. Schum. (Costaceae) – Its discovery after more than a century. *Malaysian Naturalist* 56/1: 44–47.
55. Saw L.G. (2002). A new species of *Vatica* (Dipterocarpaceae) from Peninsular Malaysia. *The Gardens' Bulletin Singapore* 54: 247–251.
56. Saw L.G. & E. Soepadmo (2002). The Flora Malesiana project and its relevance to Malaysia. *Flora Malesiana Bulletin* 13(2): 178–190.
57. Lee S.L., Ng Kevin. K.S., Saw L.G., Norwati A., Salwana S. H., Lee C.T., & Norwati M. (2002). Population genetics of *Intsia palembanica* (Leguminosae) and genetic conservation of virgin jungle reserves in Peninsular Malaysia. *American Journal of Botany* 89(3): 447–459.
58. Barfod A.S. & Saw L.G. (2002). The genus *Licuala* (Palmae, Coryphoideae) in Thailand. *Kew Bulletin* 57: 827–852.

59. Saw L.G. (2003). A new stoloniferous *Pinanga* from Peninsular Malaysia. *Palms* 47(3): 139–142.
60. Saw L.G., J. Dransfield & D.M. Keith-Lucas (2003). Morphological diversity of the genus *Licuala* (Palmae). *Telopea* 10(1): 187–206.
61. Saw L.G. (2003). *Palms of Malaysia*. *Gardenasia* 15:12–15, 52–53.
62. Fiala B. & L.G. Saw (2003). Ant fauna of the lower vegetation stratum in Pasoh Forest Reserve with special reference to the diversity of plants with extrafloral nectaries and associated ants. In Okuda K., N. Manokaran, Y. Matsumoto, K. Niiyama, S.C. Thomas & P.S. Ashton (eds). *Pasoh: Ecology of a lowland rain forest in Southeast Asia*. Springer, Tokyo. 628 pp.
63. Moog J., B. Fiala, M. Werner, A. Weissflog, L.G. Saw & U. Maschwitz (2003). Ant-plant diversity in Peninsular Malaysia, with special reference to Pasoh Forest Reserve. In Okuda K., N. Manokaran, Y. Matsumoto, K. Niiyama, S.C. Thomas & P.S. Ashton (eds). *Pasoh: Ecology of a lowland rain forest in Southeast Asia*. Springer, Tokyo. 628 pp.
64. Chua L.S.L. & Saw L.G. (2003). A new record of *Dryobalanops beccarii* (Dipterocarpaceae) from Peninsular Malaysia. *The Gardens' Bulletin Singapore* 55: 1–6.
65. Chua L.S.L. & Saw L.G. (2003). Conservation notes on *Vatica yeechongii* (Dipterocarpaceae) from Peninsular Malaysia. *The Gardens' Bulletin Singapore* 55: 7–12.
66. Saw L.G. & L.S.L. Chua (2003). Discovering dipterocarps in an era of diminishing forests. *FRIM in Focus*, October, November, December 2003: 6–7.
67. Saw L.G. (2004). Tropical forests/Tropical moist forests. In Burley J. (ed.), *Encyclopedia of forest sciences*. Elsevier. Pg. 1775–1782.
68. Saw L.G. (2004). A new species of *Polyosma* (Escalloniaceae) from Sabah, Malaysia. *Sandakania* 14: 57–59.
69. Okuda T., N. Adachi, M. Suzuki, H.A. Hussein, N. Manokaran, L.G. Saw, A.H. Mohd. Shariff & P.S. Ashton (2004). Local variation of canopy structure in relation to soils and topography and the implication for species diversity in a rainforest of Peninsular Malaysia. In E.C. Losos & E.G. Leigh, Jr. (eds.), *Tropical forest diversity and dynamism*. The University of Chicago Press. Chicago & London.
70. Chua L.S.L., H. Nurulhuda, M. Hamidah & L.G. Saw (2004). Conservation status of *Hopea subulata* (Dipterocarpaceae) in Peninsular Malaysia. *Journal of Tropical Forest Science* 16: 271–282.
71. Moog, J., L.G. Saw, R. Hashim & U. Maschwitz (2005). The triple alliance: how a plant-ant, living in an ant-plant, acquires the third partner, a scale insect. *Insectes Sociaux* 52 (2): 169–176.
72. LaFrankie, J.V. & L.G. Saw. 2005. The understory palm *Licuala* (Palmae,) suppresses tree regeneration in a lowland forest in Asia. *Journal of Tropical Ecology* 21: 703–706.
73. Saw L.G. (2005). Ecology and distribution of *Licuala* in Peninsular Malaysia. *Palms & Cycads* 86: 4–13.
74. Sam Y.Y., Kamarudin S., Markandan M. & Saw L.G. (2005). A preliminary checklist of seed plants at Sungai Bebar, Pekan Forest Reserve, Pahang. Pp 105-106. In A. Latiff, Khali A.H., Norhayati, A., Mohd. Nizam M.S. Toh A.N. & Savinder K.G. (eds) *Biodiversity Expedition Sungai Bebar, Pekan, Pahang. Summary Findings. Peat Swamp Forest Technical Series No. 4. Peat Swamp Forest Project, UNDP/GEF Funded, in collaboration with the Pahang Forestry Department and Universiti Kebangsaan Malaysia, 2005.*
75. Sam Y.Y. & L.G. Saw (2005). Three new species of *Scaphochlamys* (Zingiberaceae) in Peninsular Malaysia. *Singapore Gardens' Bulletin* 57:253–261.
76. Chua L.S.L. & L.G. Saw (2006). *Plants of Krau*. FRIM Research Pamphlet No. 126. Forest Research Institute Malaysia. 227 pp.
77. Ng K.K.S., S.L. Lee, L.G. Saw, J.B. Plotkin & C.L. Koh (2006). Spatial structure of three tropical tree species with different habitat preferences in hill dipterocarp forest. *Tree Genetics & Genomes*. 2: 121–131.

78. Lee S.L., K.K.S. Ng, L.G. Saw, C.T. Lee, N. Muhammad, N.Tani, Y. Tsumura & J. Koskela (2006). Linking the gaps between conservation research and conservation management of rare dipterocarps: A case study of *Shorea lumutensis*. *Biological Conservation* 131: 72–92.
79. Kiew R., R.C.K. Chung, L.G. Saw & E. Soepadmo. (2006). Guide to preparing manuscripts for the Flora of Peninsular Malaysia. Forest Research Institute Malaysia. 39 pp.
80. Chua L.S.L. & Saw L.G. (2006). Malaysian Plant Red Data Book. Guide to Contributions. Forest Research Institute Malaysia.
81. Chung R.C.K., E. Soepadmo, L.G. Saw, S. Kamarudin & M.Z. Syahrir-Farihan (2006). Wild Fruit Plants of Peninsular Malaysia. In Y.F. Ho & K.A. Sarifah. Highlights of FRIM non-IRPA Projects. FRIM, Kepong, Malaysia.
82. Saw L.G. (2006). Issues and challenges in forest biological diversity. In Abd. Rahman Milan, Abdul Latif A.Z., Sahilah A.M., Rosliza J. Lo N.P. & Mohd. Shukor N. (eds.) Proceedings of Convention on biological diversity and international treaty on plant genetic resources for food and agriculture – Issues and Challenges in Malaysia. MARDI.
83. Saw L.G. & R.C.K. Chung (2007). Towards the Flora of Malaysia. In L.S.L. Chua, L.G. Kirton & L.G. Saw (eds.). Proceedings of seminar and workshop on the Status of biological diversity in Malaysia & Threat assessment of plant species in Malaysia. Forest Research Institute Malaysia, Kepong, Malaysia. Pgs 203–219.
84. Lee S.L., K.K.S. Ng, L.G. Saw, C.T. Lee, M. Norwati, N. Tani, Y. Tsumura & J. Koskela (2007). Conservation strategies of *Shorea lumutensis* (Dipterocarpaceae) in Peninsular Malaysia. In L.S.L. Chua, L.G. Kirton & L.G. Saw (eds.). Proceedings of seminar and workshop on the Status of biological diversity in Malaysia & Threat assessment of plant species in Malaysia. Forest Research Institute Malaysia, Kepong, Malaysia. Pgs 271–290.
85. Saw L.G. (2007). Hernandiaceae. In E. Soepadmo, R.C.K. Chung & L.G. Saw (eds.). Tree Flora of Sabah and Sarawak. Vol. 6.
86. Lee C.T., S.L. Lee, K.K.S. Ng, H. Siti Salwana, M. Norwati & L.G. Saw (2007). Allozyme diversity of *Koompassia malacensis* (Leguminosae) in Peninsular Malaysia. *Journal of Tropical Forest Science* 19(2): 63–78.
87. Saw L.G. (2007). Plant conservation in Malaysia – Meeting the challenges of the twenty first century. Proceedings of the Third Global Botanic Gardens Congress, Wuhan, China. Plenary Paper. 1–5. Published online <http://www.bgci.org/wuhan/plenary/>.
88. Saw L.G., Chua L.S.L., Hamidah M., Chan Y.M., Yong W.S.Y., Shuaida M., Chan Y.C., Damanhuri S. & Koh H.L. (2007). Conservation and Management of Threatened Plants in Malaysia. In Mohd. Yunus Z., Nasir Khan N.K. & Mohd. Yusoff B. (eds). Proceedings of the National Conference on the Management and Conservation of Forest Biodiversity in Malaysia. Forest Department, Peninsular Malaysia. Pg. 535–562.
89. Wiens, F., A. Zitzmann, M.-A. Lachance, M. Yegles, F. Pragst, F.M. Wurst, D. Von Holst, L.G. Saw & R. Spanage. (2008). Chronic intake of fermented floral nectar by wild treeshrews. *Proc. Natl. Acad. Sci. USA*. Vol. 105 (30): 10426–10431.
90. Jutta M., Chua L.S.L. & Saw L.G. (2008). Malaysian Cycads – ancient plants with little hope for the future? *Conservation Malaysia* 8 (2008): 1–2.
91. Saw L.G., Ng F.S.P., Ahmad Mustaffa B., Singh M., Inger R.F., Ng P.K.L. & Freeman E. (2008). (Project team). Natural History Museum Malaysia – Planning and Development. UNDP and Forest Research Institute Malaysia. 217 pp.
92. Chan Y.M. & Saw L.G. (2009). The use of *Johannesteijmannia* by indigenous communities and the current trade in the genus. *Palms*: 53: 147–152.
93. Ng F.S.P. & Saw L.G. (2010). Biodiversity-Biotechnology in the context of knowledge generation and management. IN Rita M., Zaliha C.A., Fasihuddin B.A. & Kuek C. Proceedings of Biodiversity-Biotechnology: Gateway to discoveries, sustainable utilization and wealth creation. Kuching, Sarawak. Sarawak Biodiversity Centre. Pg. 189-193.

94. Kiew, R., Chung R.C.K., Saw L.G. & Soepadmo E. (2010). Seed plant families in Peninsular Malaysia. IN Kiew R., Chung R.C.K., Saw L.G., Soepadmo E. & Boyce P.C. (eds.) Flora of Peninsular Malaysia. Series II: Seed Plants. Vol. 1. Malayan Forest Records No. 49. Pg. 3–20.
95. Saw L.G. (2010). Vegetation of Peninsular Malaysia. IN Kiew R., Chung R.C.K., Saw L.G., Soepadmo E. & Boyce P.C. (eds.) Flora of Peninsular Malaysia. Series II: Seed Plants. Vol. 1. Malayan Forest Records No. 49. Pg. 21–45.
96. Chua L.S.L., Suhaida M., Hamidah M. & Saw L.G. (2010). Malaysia Plant Red list - Peninsular Malaysian Dipterocarpaceae. Research Pamphlet No. 129. Forest Research Institute Malaysia, Kepong.
97. Jutta M., Chew K.L. & Saw L.G. (2010). A new species of *Cycas* (Cycadaceae) from Peninsular Malaysia. *Blumea* 55: 249–252.
98. Lau K.H. & Saw L.G. (2010). The southernmost location of *Livistona speciosa* in Peninsular Malaysia. *Conservation Malaysia* 12: 3–4.
99. Sam Y.Y., Ibrahim H. & Saw L.G. (2010). *Scaphochlamys krauensis* and *S. pusilla* spp. nov. (Zingiberaceae) from Krau Wildlife Reserve, Pahang, Peninsular Malaysia. *Nordic Journal of Botany* 28: 673–679.
100. Saw L.G. & Chua L.S.L. (accepted). Conservation of rare, endangered and threatened plants of Malaysia. *Kew Bulletin*.
101. Saw L.G. (accepted). *Licuala* (Palmae) of Borneo. *Kew Bulletin*.

Editor of Published Books and Proceedings

102. Soepadmo E., K.M. Wong & L.G. Saw (1996) (eds.). Tree Flora of Sabah and Sarawak, Vol. 2. Forest Research Institute Malaysia.
103. Soepadmo E. & L.G. Saw (2000) (eds.). Tree Flora of Sabah and Sarawak, Vol. 3. Forest Research Institute Malaysia.
104. Saw L.G., L.S.L. Chua & K.C. Khoo (2001) (eds.). Taxonomy: The cornerstone of biodiversity. Proceedings of the fourth International Flora Malesiana Symposium 1998.
105. Soepadmo E., L.G. Saw & R.C.K. Chung (2002) (eds.) Tree Flora of Sabah and Sarawak, Vol. 4. Forest Research Institute Malaysia.
106. Soepadmo E., L.G. Saw & R.C.K. Chung (2004) (eds.) Tree Flora of Sabah and Sarawak, Vol. 5. Forest Research Institute Malaysia.
107. Series editor to *Conservation Malaysia*, a periodical highlighting conservation in Malaysia, since 2005
108. Mohizah, M., S. Julia & W.K. Soh (2006). A Sarawak Gazetteer. Edited by Soepadmo, E., R.C.K. Chung & L.G. Saw. Sarawak Forestry Department & Forest Research Institute Malaysia.
109. Chua L.S.L., L.G. Kirton & L.G. Saw (2007). Status of biological diversity in Malaysia and Threat Assessment of Plant Species in Malaysia. Proceedings of the Seminar and Workshop 28–30 June 2005. Forest Research Institute Malaysia.
110. Soepadmo E., L.G. Saw & R.C.K. Chung (2007). (eds.) Tree Flora of Sabah and Sarawak, Vol. 6. Forest Research Institute Malaysia.
111. Saw L.G., Chua L.S.L. & Abdul Rahim N. (2009) (eds.) Malaysia – National Strategy for Plant Conservation. Ministry of Natural Resources and Environment & Forest Research Institute Malaysia. 73 pp.
112. Parris B.S., Kiew R., Chung R.C.K., Saw L.G. & Soepadmo E. (eds.) (2010). Flora of Peninsular Malaysia. Series I: Ferns and Lycophytes, Volume 1. Malayan Forest Records No. 48. 249 pp.
113. Kiew R., Chung R.C.K., Saw L.G., Soepadmo E. & Boyce P.C. (eds.) (2010). Flora of Peninsular Malaysia. Series II: Seed Plants. Vol. 1. Malayan Forest Records No. 49. 329 pp.

Book Reviews

114. Saw L.G. (1995). Book review "Conifers: Morphology and Variation by Mirko Vidakovic (1992). Graficki zvod Hrvatske, Zagreb", Journal of Tropical Forest Science 7: 513–514.
115. Saw L.G. (1997). Book review "Trees of the Balikpapan-Samarinda area, East Kalimantan, Indonesia. Paul J.A. Keßler and Kade Sidiyasa. The Tropenbos Foundation, Wageningen, The Netherlands", Journal of Tropical Forest Science 10: 277–278.
116. Saw L.G. (2001). Book review "What's that tree? A field guide to tropical plants of Asia. Times Editions, Singapore, D. H. Engel & S. Phummal (2000)", Journal of Tropical Forest Science 13: 402–403.

Newspaper Article

117. Saw L.G. (1997). "Preserve our fruitley vegetation". The Star, Section 2, November 4, 1997: 7.

Poster Presentation in Conferences

1. Ng K.K.S., Lee S.L., Saw L.G. & Koh C.L. 2001. Cross-species amplification of *Shorea curtisii* and *Neobalanocarpus heimii* microsatellites in eight selected dipterocarp species. Poster paper presented at the International Conference of Forestry and Forestry Products Research CFFPR 2001, Kuala Lumpur 1-3 October 2001
2. Siti Salwana H., Norwati M., Norlia B., Lee S.L., Ng. K.S., Lee C.T. & Saw L.G. 2001. Genetic diversity of *Shorea parvifolia* (Dipterocarpaceae) in Peninsular Malaysia. Poster paper presented at the International Conference of Forestry and Forestry Products Research CFFPR 2001, Kuala Lumpur 1-3 October 2001.
3. Lee S. L., Ng K.K.S., Saw L.G., Norwati A., Siti Salwana M. H., Lee C. T., & Norwati M. 2001. Genetic conservation of virgin jungle reserves (VJRs): *Intsia palembanica* (Leguminosae). Poster paper presented at the International Conference of Forestry and Forestry Products Research CFFPR 2001, Kuala Lumpur 1-3 October 2001
4. Lee C.T., Lee S.L., Ng K.K.S., Salwana H.S., Norwati, M. & Saw L.G. (2002). Population genetic structure and mating system of *Koompassia malaccensis* (Leguminosae) in Peninsular Malaysia. Poster presented at DYGEN Conference on Dynamics and Conservation of Genetic Diversity in Forest Ecosystems, 2-5 Dec 2002, Strasbourg, France.
5. Look S.L., Kumar P.P., Saw L.G., Dransfield J., Baker W.J., Tan H.T. (2005). Genetic Relationships among *Johannesteijsmannia perakensis* evaluated by AFLP markers. The Palms: an international symposium on the biology of the Palm family. 6-8 April 2005. The Linnean Society of London & Royal Botanic Gardens, Kew.
6. Sam Y.Y., Saw L.G. & Ibrahim H. 2006. Distribution of *Scaphochlamys*. A poster presented at the Fourth International Symposium on the family Zingiberaceae. 3-6 July, 2006. Singapore

CURRICULUM VITAE

1. **Name of** : **Mr. Umesh Kumar Mandal**
2. **Date of Birth** : 19 May, 1967
3. **Years with Consultant/Entity** : Consultant, since 1994
4. **Nationality** : Nepalese
5. **Membership in Professional Societies:**
 - Life Member of *International Remote Sensing Society and Indian Remote Sensing Society (IRSS & IRSS)*.
 - Life Member of *Nepal GIS Society (NGIS)*.
 - Life Member of *Nepal Geographical Society (NGS)*.
 - Board member of *Resource Himalaya Foundation (RHF)*
 - Member of *Center for Nepalese Geographer (CENEGE)*.
6. **Key Qualifications:**

Mr. Umesh Kumar Mandal is one of the painstaking GI science Experts, Geographers and development experts in Nepal. Mr Mandal had his M.A. in Geography from Tribhuvan University (1992).Mr Mandal has his M.Tech in Remote Sensing & Geographical Information System from Andhara University ,Vishakhapatnam , India (2006) .Mr Mandal has his Post Graduate Diploma In Remote Sensing & Geographical Information System (PGD -RS & GIS) from Center for Space Science And Technology Education In Asia And The Pacific (CSSTE-AP) affiliated to the United Nations (UN), Deharadun, India (1999). Beside these, Mr Mandal has taken training and academic courses related to biodiversity resource and, data base management and ecosystem services and natural resource management and development planning , Mr Mandal has been one of emergent for constantly imparting consultant services to development organizations and training to the scientific and technical personals in the field of resource development and planning , biodiversity resource management, and GIS , Remote Sensing(RS) and GPS with prime objectives of Training, Research and Consultancy in areas of resource management and development and planning.
7. **Education:**
 - Master's of Technology (M.Tech.) in Remote Sensing & Geographical Information System (first division) from Andhara University ,Vishakhapatnam through Center for Space Science and technology Education in Asia and the Pacific (CSSTE-AP) (Affiliated to the United Nations) Deharadun, India in 2006.
 - Post Graduate Course in Remote Sensing & Geographical Information System (PGD-RS & GIS) from Center for Space Science and technology Education in Asia and the Pacific (CSSTE-AP) (Affiliated to the United Nations), Deharadun, India in 1999.
 - M. A. , Central Department of Geography, Tribhuvan University, 1992
8. **Employment Record** :

2012- Central Department of Geography, Tribhuvan University, Kirtipur

Associate Professor – Teaching: Biodiversity and Remote Sensing (RS) and Geographical Information System(GIS), Natural Resource Management , Statistical & Quantitative Technique, Resource Development Planning ,Regional development Planning Management

International and National Conference/Workshop/Seminar/Training Attended

- As a Country Representative participation in the second session of the plenary Meeting to determine modalities and institutional arrangements for an intergovernmental science-policy platform on biodiversity and ecosystem services (IPBES), hosted by the Government of Panama in Panama City from 15 to 21 April 2012 organized by UNEP-Nairobi, Kenya.
- As a Country Representative Participation in the regional capacity building workshop and consultative meeting on Intergovernmental Platform on Biodiversity and Ecosystem Services (IPBES) in Tehran of Iran by joint efforts-Department of Environment of Iran, ECO-IEST and UNEP , 10-12 March 2012.
- As a Country Representative Participation and presenting A country Report on *Mainstreaming Biodiversity Conservation in Development under Emerging Global Changes* Presented in 4th South and Central Asian MAB Network (SACAM) Meeting in Qeshm Island of Iran by joint efforts-Department of Environment of Iran, UNESCO, MAB and Iranian National Commission for UNESCO, 14-17 November 2011.
- A Paper on *International Labor Migration as A Livelihood Strategy of Marginalized Terai-Madheshi Communities In Nepal: A Structural Exclusionary Perspective* Presented In International Conference on Structures of Exclusion in South Asia by Indian Formation Research Society, New Delhi, India, 23-25 November 2011
- A Paper on Markov Chain Process in Modeling Urban Land use Pattern in Butwal Municipal Area, Nepal
- Presented in International Geographical Union Commission on Geography of Governance: Dynamics of Local Development by the IGU, held at Park Village, Budha Nilkanth, Kathmandu, from 31 October-6 November 2011.

2012: Team member: Preparation of Soil Map of Package-IV Nayabelhani, Prasauni & Tasmania: Preparation of VDC level Present Land Use Maps, Soil Maps, Land Capability Maps, Land Use Zoning Maps and Cadastral Layer Superimpose and VDC Profile (Package IV), National Landuse project, Ministry of Land Reform and Management, Government of Nepal

- Soil Survey design.
- Soil pit collection.
- Report writing.

2012: Team member: Preparation of Soil Map of Package-II (Pithauli, Pragatinagar, Dibyapuri, Rajahar, Amarapuri & Mukundpur. Preparation of VDC level Present Land Use Maps, Soil Maps, Land Capability Maps, Land Use Zoning Maps and Cadastral Layer Superimpose and VDC Profile (Package II), National Landuse project, Ministry of Land Reform and Management, Government of Nepal

- Soil Survey design.
- Soil pit collection.
- Report writing.

2012 : Individual Consultant : Baseline Survey Study of RAIDP Road Sub-project(30 districts), Rural Access Improvement & Decentralization Project(RAIDP), DoLIDAR, Jwalakhel ,Kathmandu , Ministry of Local Development, Government of Nepal, World Bank Aided.

- Survey design.
- Field survey.
- Report writing.

2011: Individual Researcher: The Study of Socio-Economic Ecology of Human Population in Nepal: A spatio-Factor Analytical Approach, Rector's Office, Research Division, Tribhuvan University (TU), Kirtipur

- Research design.
- Database Creation.
- Report writing.

2011: Team member: Preparation of Soil Map of Package-IV(Mangalpur, Sardanagar, Fulbari, Sibnagar, Gitanagar, Parbatipur, & Patihani. Preparation of VDC level Present Land Use Maps, Soil Maps, Land Capability Maps, Land Use Zoning Maps and Cadastral Layer Superimpose and VDC Profile (Package IV), National Landuse project, Ministry of Land Reform and Management, Government of Nepal

- Soil Survey design.
- Soil pit collection and analysis.
- Report writing.

2010: Team coordinator: Land Evaluation for Sustainable Land use Planning Using Remote Sensing and GIS Technology: A Case Study of Maheshkhola Watershed, Central Hill Region of Nepal, A Faculty Research, Research Division, University Grants Commission, Bhaktapur Kathmandu Nepal 2009.

- Field observation for landuse planning .
- Prepared the physical & socio-economic final data base.
- Analyzed and prepared the final report.

2010: Team coordinator , Baseline & feasibility survey of Micro-enterprise Development Programme , Kapilbastu District, Supported by Micro-Enterprise Development Programm, Ministry of Industry & Commerce, Government of Nepal & UNDP Pulchowk , Kathmandu

- Field observation for development strategy.
- Prepared the final data base.
- Analyzed and prepared the final report.

2008 and 2009: Team member , Preparation of Tourism Master Plan of Khaptad National Park including all districts of Far Western Development Region, Submitted to Khaptad National Park Development Board, Babarmahal , Kathmandu

- Attraction point collection through GPS .
- Prepared the final map.
- Analyzed and prepared the final report.

2008: Team member , Baseline survey for Advancing Policy Options for Higher Education: Improving Transition and Access to Higher Education in collaboration with University Grants Commission, Bhaktapur Kathmandu and UNESCO Nepal 2008.

- Reviewed the existing plan documents related to higher education
- Conducted campus level workshops

- Prepared the final data base in SPSS software.

Analyzed and prepared the final report.

2008 :Team Leader , *Preparation of Municipal Database Profile of All Municipalities in Nepal Based on National Census 2001*(Digital CD:ROM) Submitted to Municipal Association of Nepal (MuAN) , Dilibazar Kathmandu Supported by MLD and CBS.

- Analyzed the data provided by CBS
- Designed the final municipality profile.
- Prepared the Digital CD ROM of database and final report

2007 :Team Leader , A Case Study and Impact Assessment of Community Based Disaster Preparedness (CBDP) Program supported by New Zealand Submitted to Disaster Management Department, Nepal Red Cross , Central Office Soaltee Mode, Kathmandu,

- Reviewed the existing plan documents and strategy policy papers
- Site visit
- Prepared the final data base
- Analyzed and prepared the final report.
- Present the final output to NRC

2006 :Team member :EMIS and School Mapping, Project sponsored by World Bank through Higher Secondary Education Board (HSEB) HMG/ Nepal by Central Department of Geography,T.U. Kirtipur 2006 second phase

- Supervised and control the field officie related to data base quality.
- Prepared the final database.
- Prepared the final report and metadata of digital data

2005 :Team member :EMIS and School Mapping, Project sponsored by World Bank through Higher Secondary Education Board (HSEB) HMG/ Nepal by Central Department of Geography,T.U. Kirtipur first phase

- Supervised and control the field officie related to data base quality.
- Prepared the final database.
- Prepared the final report and metadata of digital data

2001 :Team member: Baseline Survey for Physical development of Human Settlements and Emerging Towns along Banepa-Bardibas Highway Corridor Submitted to Central Regional Directorate Department of Urban Development and Building construction Ministry of Physical Planning and Works Babarmahal, Katmandu by CDG, TU, Kathmandu, Nepal.

- Conduct field survey along Banepa-Bardibas Highway Corridor
- Gather the data from Household and Market suvey and FGD
- Analyze the data collected.
- Prepared the final report and submission

2001 :Team member: The Study of Land Use Plan and its mapping, Preparation of District Profile, Jhapa District Submitted to National Land Use Project, Ministry of land Reform and Management, HMG, Nepal, Putali Sadak, Kathmandu by CDG, TU, kirtipur,

- Conduct field survey in Jhapa district
 - Gather the data from different concerned office
 - Analyze the data collected.
- Prepared the final report and submission

Training Trainer:

- Training on Data Analysis Using Statistical Package for Social Science (SPSS) for Master students in CAS, Khopa College and Department of Environment ,during 20 -30 March,2012 organized by Resource Himalaya Foundation (RHF) Nayabato Lalitpur, Kathmandu Nepal
- Training on ICT Applications for Managing and GIS Mapping of Livestock Data using SPSS for Livestock Officials of Bhutan ,during 28 Feb -20 March,2010 organised by SAIT, Sundhara Patan, , Lagankhel Lalitpur, Kathmandu Nepal
- GIS Training for District Veterinary and Regional Officers from 15 Jan to 1 Feb I 2010, financed by Central Department of Livestock, Kathmandu
- Basic Training on Geographic Information System from May 31 to June 05,2009 Organized by Nepal Geographical Society, Jawalakhel , Kathmandu
- Basic Training on Geographic Information System from May 31 to Jine 05,2009 Organized by Nepal Geographical Society, Jawalakhel , Kathmandu
- Training Program on participatory Research and Action in Integrated Conservation Development using SPSS for Bhutanese Professionals held on April 13-28, 2009 , organized by South Asian Institute of Technology(SAIT) , Sundhara Patan, , Lagankhel Kathmandu
- GIS Training for District Veterinary and Regional Officers from 29 March to 3 April 2009, financed by Central Department of Livestock, Kathmandu
- One –week GIS and RS Training for District Veterinary and Regional Officers from 13 January 2008 to 20 January 2008, financed by Central Department of Livestock ,Kathmandu
- One –week Remote Sensing course for M.Sc. Environmental Science Students from 11 December 2007 to 19 December 2007, financed by Central Department of Environment Science, T.U. Kirtipur
- Orientation Programme of Research Methodology for participants of NCCR North –South Project held at CDG, TU, and Kirtipur from 25th March -13th April, 2007
- Training on Remote Sensing and Image Analysis for National park and Wild life Conservation Professionals of Bhutan, organized by South Asian Institute of Technology , Sundhara Patan, held in 21 Jan to 10 Dec,2007 , Lagankhel Kathmandu
- One –week Remote Sensing course for M.Sc. Environmental Science Students from 26 December 2006 to 03 January 2007, financed by Central Department of Environment Science, T.U. Kirtipur
- Faculty member for the program MSc in Regional Development Planning and Management on contract basis for Teaching course RDPM301 (Quantitative Techniques) in South Asian Institute of Technology , held in 26 March to 26 July,2006 , Sundhara Patan Lagankhel Kathmandu
- 18th Professional GIS Training on Resource Planning and Development held at CDG, TU.Kirtipur during 08-27 January,2005
- One –day Remote Sensing orientation for M.Sc. Botany (Ecology) Students in November, 27, 2005
- One –week Remote sensing GIS course for M.Sc. Environmental Science Students during October, 23-21, 2005

- One –week Remote sensing GIS course for M.Sc. Environmental Science Students during sep 20-27, 2004
- GIS Training for DOLIDAR Senior Divisional Engineers & Engineers held at CDG, T. U., kirtipur from 19th July – 8th August, 2004.
- Professional GIS Training on Natural Resource Planning and Management held at CDG, TU. Kirtipur during Feb. 23-Mar.11, 2003
- One –week Remote sensing GIS course for M.Sc. Environmental Science Students during July 21-28, 2003
- Professional GIS and RS Training for Nepalese Electrical Engineers held at NEA Training Centre, Kharipati., Bhaktapur from March 17th -April 16th 2003
- One –week Remote sensing GIS course for M.Sc. Botany Students during Nov 22-29, 2002
- Professional GIS Training for PDDP & CBS Staffs held at CDG, TU., Kirtipur from April 17th -May 16th 2002
- GIS/RS Training on Locational Planning in Service and Infrastructure for GARDEP - Professionals working in different fields representing GARDEP districts., Central Department of Geography, T.U., (18 Feb - 8 March 2002)

RS & GIS Related Training

- International Training Course On Interpretation of High resolution aerospace imagery for environmental management and geo-hazard Assessment at IIRS Dehradun during Jan.25 to Feb.12,2010 organized in collaboration with faculty of Geo-Information Science and Earth Observation(ITC) of the University of Twente, Netherlands,UNU-ITC School for Disaster Geo-information Management. & CSSTE-AP, India
- Training on Remote Sensing and Geographic Information System in Decision Making for Sustainable Rural Development during 07-09 October 1998 held at IIRS (NRSA), Department of Space, and Dehradun, India
- Training on Remote sensing and Geographical Information System for Natural Resource Assessment, Monitoring and Management, held at IIRS, Dehradun, India from 9-11 March 1999, Organized by Indian Institute of Remote sensing (IIRS) and International Institute for Aerospace Survey and Earth Sciences (ITC), the Netherlands
- Training on Landslide Risk Assessment in Rural Access Sector GIS and Satellite Imagery organized from 10-11th May 2001 held at CDG, TU by DFID, Scott Wilson, T.U. and Durham University
- Training on ERDAS, Leica Mapping Solutions-Nepal Road Show held at Radisson, 6th September 2003,Organized by Soyan Mega Soft International, Kathmandu and, India Private Limited
- Training on Remote Sensing and ENVI 4.2 held in WDN, Sidhi Bhavan , Kantipath, Kathmandu, Nepal in 30 December, 2005 jointly organised by NEPASOFT Solutions PVT.LTD in collaboration with GIS Society

Academic Research works

Digital Image Classification for Urban Landscape Mapping Using ETM Sensor Data: Environmental Resources and Cultural Landscape (edited book), Central Department of Geography, TU kirtipur ,2011

Rural Development through MEDEP in Western Terai Region of Nepal: A Substantial Approach to Poverty Alleviation & Employment Generation, Environment, Livelihood& Micro-enterprises (Edited book) Central Department of Geography, TU kirtipur ,2011

Logit Analysis of Violence Against Women in Marginalized Communities, Eastern Terai Region of Nepal, *TU Journal Research Division, TU, Kirtipur, 2010*

SPSS Application to Multivariate Data Analysis, *Research Methodology Manual: Central Department of Geography, TU kirtipur & NCCR , 2009 .*

Agricultural Regionalization in Nepal: Q-Mode Factor Analysis Approach, *Perspective on Higher Education: A Journal of University Campus* Volume 4 & 5. Nepal University Teacher Association, Central Campus Unit Committee, Kirtipur 2009 ‘

Agro-ecological Zonation for Sustainable Agriculture Development Planning: A GIS Perspective *The Fifth National Conference Science and Technology (NAST)* Nov. 10-12 2008 Kathmandu,

International Labor Migration: A Rural Livelihood Strategy of Madheshi Community: A case study of Saptari District Eastern Terai Region of Nepal, Submitted to Social Inclusive Research Fund Secretariat (SIRF) SNV, The Netherlands Development Organization, September, 2007

Factorial Functional Pattern of Municipal Town in Nepal: *GISNepal: volume V* 2006 Quarterly Publication of Nepal GIS Society , Local Development Training Academy(LDTA), Jwalakhel, Lalitpur, P.O. Box 7141, KTM

Determination of Relative Importance of Periodic Market places in Rural Development in Saptari District, Eastern Nepal: A Multiple Regression Approach. *Nepalese Journal of Development and Rural Studies*, Central Department of Rural Development, T.U. Kirtipur , Kathmandu, Nepal, 2006

Management of Periodic Markets for Rural Development in Nepal: the case study of Saptari District: *Public Policy and Local Development: opportunities and constraints* edited by P.K. Pradhan, Doris Wastl-Walter and Steven Folmar of International Geographical Union Commission on Geography and Public Policy 2008

Mini Research on Satellite Remote sensing and Geographical information system Technology in Agro-Ecological Zoning for Sustainable Agricultural Development Planning: : A case Study of Maheshkhola Watershed ,a part of Trishuli Watershed , Central Hill Region of Nepal ,submitted to University Grant commission, Naya Baneshwor, Kathmandu , March 2005

Project on *Characterization of Agro-Ecological Zoning Using RS and GIS Technology for Sustainable Agricultural Developmental Planning: A case Study of Maheshkhola Watershed ,a part of Trishuli Watershed , Central Hill Region of Nepal*, submitted to CSSTE-AP, Andhara University Dehradun, India, 2004

A Pilot Project on *Satellite Remote Sensing and GIS Technology in Agro-ecological Zoning for Sustainable Agricultural Developmental Planning: A case Study of Kotdwar and Bijnor Districts of UP, India*, financed by CSSTE-AP/ICIMOD, 1998.

A functional Ecological Study of Municipal Town in Nepal: A Factor Analysis Approach. Tribhuvan University Journal, Research Division, T.U. Kirtipur , Kathmandu, Nepal, 2005

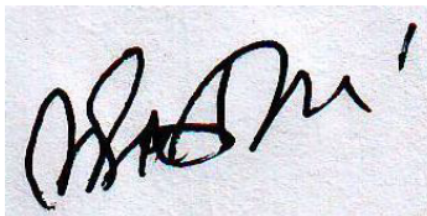
Identification of Major Components of Relative Importance of Periodic Markets Using Principal Component Analysis: A Case Study of Saptari District, Eastern Terai Region of Nepal. Proceedings of the National Conference on Geography in Nepal: Mountain Environment and Human Activities, Central Department of Geography, TU, Nepal Geographical Society and National Centre of Competence in Research North-South ,January, 2005

9. Languages:

	<u>Speaking</u>	<u>Reading</u>	<u>Writing</u>
English	Excellent	Excellent	Excellent

Certification:

I, the undersigned, certify that to the best of my knowledge and belief, these data correctly describe me, my qualifications, and my experience.



Signature

Date: 19 Sep, 2012

Full name: Mr. Umesh Kumar Mandal

A.C. ALCALA *Brief Curriculum Vitae*

Dr. Angel C. Alcala is the Chairman, Board of Advisers of the Silliman University-Angelo King Center for Research and Environmental Management (SUAKCREM) at Silliman University, Dumaguete City, Philippines. He is an Emeritus Professor of Biological Sciences at Silliman University and Adjunct Professor at James Cook University, Townsville, Australia. He also teaches graduate courses in herpetology and marine science at Silliman.

Alcala is currently consultant of the Department of Environment and Natural Resources Integrated Coastal Resources Management Project responsible for marine biodiversity research supported by the Asian Development Bank (2010-2012). He was Consultant to the German GTZ ACC Bio (Climate Change Adaptation) Project dealing with Coastal and Marine Ecosystems (October 2009-January 2010), the National Program Support for Environment and Natural Resources Management in the Philippines under the Department of Environment and Natural Resources (2006), and the Coastal and Marine Biodiversity Component of the Mindanao Rural Development Project supported by the World Bank and the GEF (2002-2005). Under his leadership, two large marine protected areas (ca 2,000 hectares in area) were established on Bongo Island, Parang, Maguindanao province and in Kalamansig, Sultan Kudarat province in 2005.

He has had an extensive experience in government and in academe. He served as Deputy Executive Director of the Philippine Council for Aquatic and Marine Research and Development of the Department of Science and Technology from 1989 to 1991. He was Secretary of the Department of Environment and Natural Resources (DENR) in 1992-1995, and later as the first Chairman of the Commission on Higher Education (CHED) from 1995 to 1999. He was Chief Scientist (*pro bono*) for the Maritime and Ocean Affairs Center of the Department of Foreign Affairs of the Philippine Government (2004-2007) and led three marine expeditions, one to southern Philippines and the other two (JOMSRE III, IV) to the Spratlys, South China Sea, the latter two jointly conducted by the Philippines and Vietnam under a bilateral agreement between the two nations. He has edited the 200-page Proceedings of JOMSRE-SCS I-IV published in 2008.

Alcala works with local government units, NGOs, Peoples' Organizations and academic institutions including colleges and universities, in programs on research and coastal and marine resource management. He gives lectures on subjects like biodiversity, conservation, resource management, etc. He is member or Chair of boards of several research and educational institutions and organizations. These include the Fulbright Scholars Association, Haribon Foundation, Foundation for the Philippine Environment, PATH Foundation of the Philippines, Worldwide Fund for Nature, (WWF), Wildlife Conservation Society of the Philippines, National Network of Quality Assurance Agencies, Philippine Institute of Traditional and Alternative Health Care of the Department of Health, Silliman University, CAP College, and Centro Escolar University.

In the early 1970s, **Alcala** as biology professor at Silliman University founded the Silliman Marine Laboratory (now the Institute of Environmental and Marine Sciences), which is actively engaged in research on marine science.

Alcala established the first working no-take marine reserve in the country (**Sumilon marine reserve**) off southern Cebu in 1974, the **Apo marine reserve** off southern Negros in 1982, and a dozen similar reserves in southern Philippines, particularly in the Bohol (Mindanao) Sea, as well as strengthened the management of about 60 no-take marine reserves in this body of marine waters. Apo marine reserve is a template of community-based marine resource conservation in the world and is show-cased at the famous Shedd Aquarium in Chicago, U.S.A. He continues to promote the establishment of community-based, no-take marine reserves in various parts of the country through visits to various places and through formal lectures and speeches.

Alcala has conducted research since his student days in the mid-1950s. The subjects of his research during the early years were taxonomy and ecology of Philippine amphibians and reptiles supported by grants from the U.S. National Science Foundation based at Stanford University and the California Academy of Sciences, of which he is an Honorary Fellow. He is also an Honorary Fellow of the American Society of Ichthyologists and Herpetologists. He has published almost every year in marine science since the early 1980s and has authored or co-authored, to date, some 200 + papers and books on Philippine herpetology (mostly with Dr. Walter C. Brown) and marine science, marine protected areas and biodiversity conservation (more than 40 papers, mostly with Dr. Garry Russ). He and Garry Russ are presently involved in studies on larval dispersal and connectivity of marine reserves in the Bohol Sea, which connects the Sulu Sea with the Pacific Ocean.

For his achievements in research and development in the areas of herpetology, marine science, and terrestrial and marine conservation, he received a number of awards, among them the **Outstanding Sillimanian**, the **Outstanding Negrense Award**, the **Fulbright Award in Ecology**, **Biodiversity Award** from the Field Museum, Chicago, USA, the **Ramon Magsaysay Award for Public Service** in 1992, and the prestigious **Pew Fellowship in Marine Conservation** with Garry Russ in 1999-2003. He was elected Academician to the Philippine National Academy of Science and Technology in 2004. In 2008, The Department of Science and Technology chose him as **one of the 50 men and women of science in the Philippines for the period 1958-2008**. He and Dr. Garry Russ won the national **Republica Award** from CHED for the best paper in the natural science category in 2009. In **September 2011**, he received the **Gregorio Y. Zara Award** for Basic Science from the Philippine Association for the Advancement of Science, Inc.

Alcala obtained his B.S. in Biology *magna cum laude* from Silliman University in 1951 and went on to finish an M.A. (1960) and a Ph.D. (1966) both in Biological Sciences at Stanford University, California, U.S.A. He has also received honorary doctorates from Xavier University and the University of Southeastern Philippines.

RESUME

PERSONAL INFORMATION

Name : Yousef Saleh Al-Hafedh
Date of Birth : 08.12.1961
Gender : Male
Marital Status : Married
Nationality : Saudi
Place of Birth : Al-Hassa, Saudi Arabia
Institute/Directorate : Center of Excellence for Wildlife Research,
 King Abdulaziz City for Science & Technology
Scientific Grade : Professor
Telephone : 00966-1-4813604
Fax : 00966-1-4813811
E-mail : yhafedh@KACST.edu.sa

EDUCATIONAL QUALIFICATION

Ph.D. 1994	Fish Breeding and Genetics University of Guelph, Canada
M.Sc. 1990	Wildlife and Fisheries Mississippi State University, USA
B.Sc. 1986	Aquatic Wealth Development King Faisal University, Al-Hassa, KSA
Ph.D. Thesis	Estimation of genetic parameters and comparison of breeding strategies for <i>Tilapia nilotica</i> .
M.Sc. Thesis	Response to selection for body length and weight in channel catfish (<i>Ictalurus punctatus</i>) at six-month age in earthen ponds.
Specialization	Fish breeding and genetics with emphasis on stock improvement, genetic manipulation, quantitative and population genetics, Biosafety, Biodiversity and Sustainable development.

OTHER STUDIES & TRAININGS

Nov 2011	Asia sub-regional Training of Trainers' Workshop on the Identification and Documentation of Living Modified Organisms under the Cartagena Protocol on Biosafety.	Convention on Biological Diversity (CBD) under the United Nations Environment Program (UNEP) at New Delhi (India)
Nov 2011	Asia and Pacific Regional Workshop on the Nagoya-Kuala Lumpur Supplementary Protocol on Liability and Redress to the Cartagena Protocol on Biosafety.	Convention on Biological Diversity (CBD) under the United Nations Environment Program (UNEP) at New Delhi (India)
Jul-Aug 2009	Certificate of Participation in Genetically Modified Organism (GMO) in Ecological Risk Assessment for Effects on Biological Diversity. Under the International Project on GMOs Ecological Risk Assessment	Department of Entomology, College of Food, Agricultural and Natural Resource Science, University of Minnesota, St. Paul, MN, USA
Apr 2007	Microsoft project in project management	Emcanat Training Center, Riyadh
Jul-Aug 2004	Certificate Course on Assessment And Regulation of Genetic Engineering & GMOs. Received 12 ECTS-credits (European Credit Transfer System) In the Doctoral programs at the Faculty of Medicine	UNEP & University of Tromso, Norway
June 2000	Aquaponics and Tilapia Culture	University of Virgin Island, USA
Nov 1999	Flow Cytometry	Heidelberg, Germany
Aug 1999	Automated DNA Sequencing	Sweden
Aug 1997	Chromosome Manipulation and Biotechnology	University of Auburn, USA
Aug 1996	Cryopreservation	University of Idaho, USA
1995	Aquaculture	Taiwan
EMPLOYMENT RECORD		

June 2008 till date	Research Professor King Abdulaziz City for Science & Technology, Riyadh, KSA
May 2000 to June 2008	Associate Research Professor King Abdulaziz City for Science & Technology, Riyadh, KSA
1994 to May 2000	Assistant Research Professor King Abdulaziz City for Science & Technology, Riyadh, KSA
1986 to 1987	Researcher King Abdulaziz City for Science & Technology, Riyadh, KSA

ADMINISTRATIVE EXPERIENCE

Apr 2007 till date	Director , Center of Excellence for Wildlife Research, King Abdulaziz City for Science & Technology
July 2006 till date	Consultant to the General Secretary of the National Commission for Wildlife Conservation and Development (NCWCD)
Currently	Chairman of the National Biosafety Committee
Currently	Chairman of the National committee on Access to Genetic Resources and Benefit Sharing (ABS)
Currently	Elected Bureau member of the Subsidiary Body on Scientific, Technical and Technological Advice (SBSTTA) to represent Asia at the Convention on Biological Diversity (CBD) under the United Nations Environment Program (UNEP).
Currently	Member of the Compliance Committee under the Cartagena Protocol on Biosafety
Currently	Member of the Committee on Access to Genetic Resources and Benefit Sharing (ABS) for Gulf Cooperation Council (GCC)
Currently	Managing Editor of the Fauna of Arabia.
Jan. 1998 to Mar. 2003	Program Coordinator Saudi-Japanese Joint Research & Development Program consisting of total 17 Projects on Wastewater Reclaiming and Increasing Greenery in Saudi Arabia with a Budget of US\$ 30 million for a period of 5 years.
Sep. 1996 to Mar. 2000	Chairman Biotechnology and Genetic Engineering Program King Abdulaziz City for Science & Technology, Riyadh, KSA

Jan. 1996	Assistant Director
to	Natural Resources & Environmental Research Institute
Jun. 1998	King Abdulaziz City for Science & Technology, Riyadh, KSA

PUBLISHED PAPERS / RESEARCH WORK

1. **Yousef S. Al-Hafedh**, Aftab Alam, Alejandro H. Buschmann and Kevin M. Fitzsimmons 2012. Experiments on an integrated aquaculture system (seaweeds and marine fish) at the Red Sea coast of Saudi Arabia: efficiency comparison of two local seaweed species for nutrient biofiltration and production. **Reviews in Aquaculture**. 4: 21-31.
2. **Yousef S. Al-Hafedh**, Aftab Alam and M. S. Beltagi 2008. Food production and water conservation in a recirculating aquaponic system in Saudi Arabia at different ratios of fish feed to plants. *J. World Aquaculture Society*. 39 (4): 510-520.
3. **Yousef S. Al-Hafedh** and Aftab Alam 2007. Design and performance of an indigenous water recirculating aquaculture system for intensive production of Nile tilapia, (*Oreochromis niloticus* (L.)), in Saudi Arabia. *Int. J. Recirculating Aquaculture* 8: 1-19.
4. **Yousef S. Al-Hafedh** 2007. An eco-biological study of the mosquitofish, *Gambusia affinis*, from the Eastern Province of Saudi Arabia. *Saudi J. Biological Sciences*. 14 (1): 115-122.
5. **Yousef S. Al-Hafedh** 2007. Effects of dietary protein level on growth, feed conversion and protein efficiency ratio of freshwater prawn, *Macrobrachium rosenbergii*, in outdoor concrete tanks. *J. App. Aquaculture*. 19 (1): 51-60.
6. Aftab Alam and **Yousef S. Al-Hafedh** 2006. Diurnal dynamics of water quality parameters in an aquaculture system based on recirculating greenwater technology. *J. Appl. Sci. Environ. Mgt.* 10 (1) 19–21.
7. **Yousef S. Al-Hafedh** 2006. Evaluation of the adequacy of methodology and testing systems for detection and identification of GMOs. *J. Food, Agric. Evt.* 4 (2) 8-11.
8. **Yousef S. Al-Hafedh** and Aftab Alam 2005. Operation of a water recirculating greenwater system for the semi-intensive culture of mixed sex and all male Nile tilapia (*Oreochromis niloticus*). *J. App. Aquaculture*. 17 (4): 47-59.
9. **Yousef S. Al-Hafedh** and S. A. Ali 2004. Effects of Feeding on Survival, Cannibalism, Growth and Feed Conversion of African catfish, *Clarias gariepinus* (Burchell) in Concrete Tanks. *J. App. Ichthyol.* 20: 225-227.
10. Ejaz Askari, Nasser S. Al-Khalifa, T. Ohmura, **Yousef S. Al-Hafedh**, Faiq A.

- Khan, Abdulmannan Al-Hindi and R. Okawara 2003. Molecular phylogeny of seven date palm (*Phoenix dactylifera* L.) cultivars by DNA fingerprinting. *Pakistan J. Botany* 35: 323-330.
11. **Yousef S. Al-Hafedh** 2003. Biodiversity and Biotechnology and their legislation. *Science and Technology Magazine: Biodiversity Part II*. Published by King Abdulaziz City for Science and Technology (KACST), Riyadh, Saudi Arabia. 67: 38-42.
 12. **Yousef S. Al-Hafedh** 2003. Convention on biodiversity. *Science and Technology Magazine: Biodiversity Part I*. Published by King Abdulaziz City for Science & Technology (KACST), Riyadh, Saudi Arabia. 66: 10-12.
 13. **Yousef S. Al-Hafedh**, Aftab Alam and M. Afaq Alam 2003. Performance of plastic biofilter media with different configuration in a water recirculation system for the culture of Nile tilapia (*Oreochromis niloticus*). *Aquacultural Engineering* 29: 139-154.
 14. **Yousef S. Al-Hafedh** 2002. Development of fisheries in the Kingdom of Saudi Arabia in the era of the custodian of the two Holy Mosques through twenty years. *Proc. Of the Conference on Agriculture Technology and Water Resources in the era of the custodian of the two Holy Mosques through twenty years*, Hofuf, Saudi Arabia.
 15. **Al-Hafedh, Y.S.** 1999. Effects of dietary protein on growth and body composition of Nile Tilapia, *Oreochromis niloticus* L. *Aquaculture Research* 30: 385-393.
 16. **Al-Hafedh, Y.S.**, A.Q. Siddiqui and M.Y. Al-Saiady. 1999. Effect of dietary protein levels on gonad maturation, size and age at first maturity, fecundity and growth of Nile tilapia. *Aquaculture International* 7: 319-332.
 17. Siddiqui, A.Q. and **Y.S. Al-Hafedh**. 1998. Effect of dietary protein level on the reproduction of Nile tilapia, *Oreochromis niloticus* (L.). *Aquaculture Research* 29: 349-358.
 18. **Al-Hafedh, Y.S.** and A.Q. Siddiqui. 1998. Evaluation of guar seed as a protein source in Nile tilapia, *Oreochromis niloticus* (L.), practical diets. *Aquaculture Research* 29: 703-708.
 19. Siddiqui, A.Q., A.H. Al-Harbi and **Y.S. Al-Hafedh**. 1997. Effects of stocking density on patterns of reproduction and growth of hybrid tilapia in concrete tanks in Saudi Arabia. *Asian Fisheries Science* 10: 41-49.
 20. Siddiqui, A.Q., A.H. Al-Harbi and **Y.S. Al-Hafedh**. 1997. Effects of food supply on size at first maturity, fecundity and growth of hybrid tilapia, *Oreochromis niloticus* (L.) x *Oreochromis aureus* (Steindachner), in outdoor tanks in Saudi Arabia. *Aquaculture Research* 28: 341-349.
 21. Siddiqui, A.Q., **Y.S. Al-Hafedh**, A.H. Al-Harbi and S.A. Ali. 1997. Effects of

stocking density and monosex culture of freshwater prawn, *Macrobrachium rosenbergii* on growth and production in concrete tanks in Saudi Arabia. *Journal of the World Aquaculture Society* 28 (1): 106-112.

Published Papers in the Proceedings

1. **Yousef S. Al-Hafedh** and Aftab Alam 2006. Recirculating aquaculture in Saudi Arabia: aquaponics and greenwater. *Proc. 6th International Conferences on Recirculating Aquaculture*, Roanoke, Virginia, USA. Pp. 440-447.
2. **Yousef S. Al-Hafedh** 2002. Development of fisheries in the Kingdom of Saudi Arabia in the era of the custodian of the two Holy Mosques through twenty years. *Proc. Of the Conference on Agriculture Technology and Water Resources in the era of the custodian of the two Holy Mosques through twenty years*, Hofuf, Saudi Arabia.

Papers/Posters presented in Conferences and Seminars

1. **Yousef S. Al-Hafedh and Aftab alam 2006**. Testing an integrated aquaculture system for seaweeds and marine fish at the Red Sea of Saudi Arabia. The Ninth International Conference on Recirculating Aquaculture in Roanoke (Virginia), USA. 24-26 August. 2012.
2. **Yousef S. Al-Hafedh 2006**. Potential risk of GMOs to environment and human health. Second Islamic Conference for Environment in Jeddah, Saudi Arabia 13-15 Dec. 2006.
3. **Yousef S. Al-Hafedh and Aftab alam 2006**. Recirculating aquaculture in Saudi Arabia: Aquaponics and Greenwater. The Sixth International Conference on Recirculating Aquaculture in Roanoke (Virginia), USA. 21-23 July. 2006.
4. Attended an International Conference on Biosafety and presented a paper on Biosafety Legislation and Regulation in Muscat, Oman in Feb. 2005.
5. **Yousef S. Al-Hafedh 2004**. Biosafety in Saudi Arabia: Regulations and Legislation. Conference organized by the Inter-Islamic Network on Genetic Engineering and Biotechnology (INOGE), Ismailia, Egypt.
6. **Yousef S. Al-Hafedh 2002**. Environmental legislation in the Kingdom of Saudi Arabia in the era of the custodian of the two Holy Mosques through twenty years. 21st annual meeting of the Saudi Biological Society on Biological Sciences and Biological Natural Resources of Saudi Arabia: a view for future. King Khaled University, Abha Saudi Arabia from 9-11 April 2002.
7. N. Al-Khalifah, R. Okawara, **Yousef S. Al-Hafedh**, M. Yaneshita, T. Ohmura, F. A. Khan, E. Askari and A. Al-Hindi **2001**. RAPD analysis of some date

palm (*Phoenix dactylifera* L.) cultivars of Saudi Arabia. HorSci. 36: 535.

8. N. Al-Khalifah, R. Okawara, **Yousef S. Al-Hafedh**, M.Yaneshita, T. Ohmura, F. A. Khan, E. Askari and A. Al-Hindi **2001**. In vitro culture of some cultivars of date palm (*Phoenix dactylifera* L.) cultivars in Saudi Arabia. HorScience 36: 457.
9. Siddiqui, A.Q. and **Y. S. Al-Hafedh 1998**. Integration of aquaculture with halophytic plant production in coastal regions of Saudi Arabia. Proceedings of Saudi Symposium for Halophytic Plantation. King Abdulaziz City for Science and Technology (KACST), Riyadh, Saudi Arabia. (20-22 April 1998).
10. **Al-Hafedh, Y.S. 1996**. Breeding Programs for Tilapia. Proceedings of the GCC Meet, Kuwait. 15-16 January 1996.

Book Published

Yousef S. Al-Hafedh and others (2003). Renewable Natural Resources in the era of the custodian of the two Holy Mosques through twenty years. Published by the Saudi Biological Society, College of Science, King Saud University, Riyadh, Saudi Arabia.

SCIENTIFIC ACTIVITIES AND ACHIEVEMENTS

A. Completed Research Projects:

1. Completed a Research project entitled, "Biosafety Assessment of Genetically Modified Crops used in animal diets" as Principal Investigator.
2. Completed a Research project entitled, "Intensive culture of the indigenous mosquitofish (*Gambusia spp.*) for biological control of mosquitofish in Saudi Arabia" as Investigator.
3. Completed a Research project entitled, "Development of water recirculating system for high density culture of Nile tilapia (*Oreochromis niloticus*) in Saudi Arabia" as Principal Investigator.
4. Completed a Research project entitled, "Cultivation of date palms and trees" as Co-Investigator.

B. Ongoing Research Projects:

1. Working in marine biodiversity under National Strategy for Wildlife Conservation as a team member.
2. Working in "Strategic Plan for Environmental Technology (SPET)" as a team member.

3. Scientific and technical expert/coordinator for Biodiversity assessment in Kingdom of Saudi Arabia with the International Union for Conservation of Nature (IUCN) under the National Commission for Wildlife Conservation and Development.
4. Working as Scientific and Technical expert/coordinator in a project entitled, "Conservation Science for Protected Area Management" under the National Commission for Wildlife Conservation and Development and National Science and Technology Plan.
5. Running a KACST funded Research project entitled, "Treatment of shrimp culture wastewater by using aquaponic technology to protect coastal environment" as Principal Investigator.
6. Running a KACST funded Research project entitled, "Use of Single Cell Protein produced from the date surplus, residues and the date waste in the animal diets in Saudi Arabia as Co-Investigator.
7. Running a KACST funded Research project entitled, " Limiting greenhouse gas emissions by producing high protein edible algae in Saudi Arabia Principal Investigator.
8. Running a KACST funded Research project entitled, " Identification of Important Fish Species from Saudi Arabia through Mitochondrial DNA Barcodes as Principal Investigator.

C. Project Proposals Prepared

1. His Highness Sultan bin Mohammed bin Saud Al Kabeer Houbara bustard captive-breeding project in Algeria.
2. Houbara bustard captive-breeding project for the "Center of Excellence for Wildlife Conservation Research and Studies (CEWCRS)" at Al-Taif and Al-Thumamah sites in Saudi Arabia.

D. Scientific Reports Submitted

1. Participated in the team for the Capacity building in the Scientific Research and Development to discuss the mechanism and strategy to fulfill scientific capacity and to identify program and projects under long term National Planning for Scientific Research. June 2004.
2. Convention on Biological Diversity with Technical and Legal point of view.

3. Comprehensive Study of Biotechnology under long term planning for Science and Technology as requested by the Division of Experts in the Ministerial Council through KACST.
4. Six Monthly and Annual Progress Reports as Principal Investigator of Project R1-2 entitled, "Development of a Recirculation System for High Density Culture of Nile Tilapia (*Oreochromis niloticus*) in Saudi Arabia" under the Saudi-Japanese Joint R&D Program on Wastewater Reclaiming and Increasing Greenery in Saudi Arabia. Feb 2003.
5. Six Monthly and Annual Progress Reports as Co-Investigator of Project K2-2 entitled, "Cultivation of Date Palm Trees" under the Saudi-Japanese Joint R&D Program on Wastewater Reclaiming and Increasing Greenery in Saudi Arabia. Feb 2003.
6. Submitted a report on participation in the workshop entitled, "Aquaponics and Tilapia Culture" held at University of Virgin Island, USA between 25 June and 01 July, 2000.

E. Consultant Scientific Studies

1. Report on the establishment of Biosecurity laboratory.
2. Report on the Strategical Plan for Environmental Technology.
3. Report on the Center of Excellence in Wildlife Conservation.
4. Advisor in the Bureau of Experts to the Council of Ministers of the Kingdom of Saudi Arabia to study the National Strategy for Biodiversity. Nov. 2006
5. Advisor in the Shoura Council of the Kingdom of Saudi Arabia for Bioethical regulation for the research on living organisms. May 2006.
6. Advisor in the Shoura Council of the Kingdom of Saudi Arabia to study the Cartagena Protocol for Biosafety. April 2006
7. Advisor in the Bureau of Experts to the Council of Ministers of the Kingdom of Saudi Arabia to study the Cartagena Protocol for Biosafety. Mar. 2006
8. Participated as an expert to evaluate the potential of Investment in Aquaculture in Jizan area. 2001.
9. Suggestions and Recommendation for the Fish Culture Project of H.H. Prince Dr. Mohammad bin Salman Al-Saud. Mar 2000.
10. Expert of ALESCO to study the Capacity Building in Biotechnology in Egypt for the Establishment of Scientific Data Base to improve Biotechnology at National and Arab level in Sep. 1998.

11. Technical Survey of Fish Farm at King Khalid Military City for the assessment of fish culture facilities, production potential and water quality of the farm in 1997.
12. A report to study the establishment of a center, similar to the Food and Drug Administration (FDA) of USA as requested by the Bureau of Experts in the Ministerial Council in 1997.
13. Technical Survey of Tamimi Fish Farm at Seehat for the assessment of fish culture facilities, production potential and water quality of the farm.
14. Technical Survey of Al-Rajhi Farm for the assessment of fish culture facilities on January 17, 1995.

F. Evaluation of progress reports and proposals for research projects:

1. External Evaluation Reports over Three Proposals submitted to Saudi Electric Company (RFP No. S20803) upon company's request of such proposals entitled, "Protection of open lagoon seawater intakes: Qurayyah water intake case study"
2. External Evaluation Report over a Proposal for Establishing "Center of Excellence in Biodiversity" by King Saud University submitted to Ministry of Higher Education.
3. Evaluation of the project (AT-22-61) entitled, "Development of viable cage culture technology for *Sparidentex hasta* (Sobaity) production under Saudi environmental conditions".
4. Evaluation of the project (MX-9-44) entitled, "Establishment of processing facility for Dates".
5. Evaluated the Technical Report of the project (No. LG 1-73) entitled, "The Feasibility of Cultivating Sea Breams (Family: *Sparidae*) In Saudi Arabia".
6. Evaluated the Technical Report of the project (No. LG 1-8) entitled, "The relationship between fish growth and the water exchange rate".
7. Evaluated the Technical Report of the project (No. LG 2-76) entitled, "Study of the growth of tilapia fishes reared in cages by using three regimes of water exchange".

G. Reviewer in International/National Journals:

Serving as referee/reviewer for the scientific research manuscripts to report their suitability for publication in Aquaculture (an International Journal published by Elsevier publications) and the following manuscripts were reviewed-

1. Nov 2012 AQUA-D-11-01057

“Reducing water exchange in recirculating aquaculture systems decreases feed intake and growth in Nile tilapia (*Oreochromis niloticus*)”

2. Nov 2011 AQUA-D-11-00969
“Joint effect of temperature, salinity and pH on the percentage fertilization and hatching of Nile tilapia (*Oreochromis niloticus*)”
3. Jun 2011 AQUA-D-11-00179
“Characterizing the structural diversity of bacterial community associated with filter materials in recirculating aquaculture systems of the Scortum barcoo”
4. Jan 2011 AQUA-D-10-00974
“Depletion study and estimation of the withdrawal period for oxytetracycline in tilapia cultured in Brazil”
5. Jun 2010 AQUA-D-09-01162
“The efficiency of a shrimp (*Litopenaeus vannamei*) and Tilapia (*Oreochromis niloticus*) polyculture system determined by a new index: The Polyculture efficiency index (PEI).”
6. Sep 2009 AQUA-D-09-00663
“Is growth retardation present in Nile tilapia *Oreochromis niloticus* cultured in low water exchange Recirculating Aquaculture Systems?”
7. Mar 2009 AQUA-D-08-00845R1
“The accumulation of substances in Recirculation Aquaculture Systems (RAS) affects embryonic and larval development in common carp *Cyprinus carpio*”
8. Sep 2008 AQUA-D-08-00882
“Effects of stocking density of freshwater prawn *Macrobrachium rosenbergii* and addition of different levels of tilapia *Oreochromis niloticus* on production in C/N controlled periphyton based system.
9. Apr 2008 AQUA-D-08-00845
“Effects of fish bioturbation on the vertical distribution of water temperature and dissolved oxygen in a fish culture-integrated waste stabilization pond system in Vietnam
10. Mar 2008 AQUA-D-07-01457
“Evaluation of *Heterotis niloticus* as candidate species for polyculture with Nile tilapia (*Oreochromis niloticus*) under tropical conditions”
11. Jun 2006 AQUA-D-06-00210
“Integrated rice-fish farming in saline and freshwater interface in south-west coastal region of Bangladesh”

TEACHING IN COLLEGES AND UNIVERSITIES

1. Fish Genetics course in King Faisal University during 2006-2007 session.
2. Plant Cytogenetics course in Plant Science Department at Scientific Division of the Women College of Education in 2002-2003 session.
3. Population Genetics graduate course in Plant Science Department at Scientific Division of the Women College of Education in 2001-2002 session
4. Fish Breeding and Genetics course at the College of Agriculture, King Faisal University in 1998 first and second semester.
5. Fish Breeding and Genetics courses at the College of Agriculture, King Faisal University in 1996 first semester.
6. Fish Hatchery courses at the College of Agriculture, King Faisal University in 1996 first semester.

RESEARCH SUPERVISION

Supervision of the MS Thesis entitled, "Application of Chromosome Engineering on Tilapia using Ultra-Violet Radiation in Saudi Arabia" and submitted to the Girls College of Education in Riyadh. 2005.

LECTURES/PRESENTATIONS IN TRAININGS/WORKSHOPS

1. Participated and delivered a presentation entitled, "The effects of Mariculture on Biodiversity" in a Training Course on 'Management and Conservation of Marine Biodiversity', organized by Food and Agriculture Organization of the United Nation (FAO) in Jubail (Kingdom of Saudi Arabia) 12-23 Dec. 2009.
2. Invited for delivering a lecture on the International Treaty on Plant Genetic Resources for Food and Agriculture. 2008.
3. Participated and delivered a lecture on Biodiversity and Biosafety in a Training Course organized by the Ministry of Agriculture, Riyadh, Kingdom of Saudi Arabia. Feb, 2008.
4. Participated and delivered a lecture on Biodiversity and Biosafety in a Training Course organized by the Ministry of Agriculture, Riyadh, Kingdom of Saudi Arabia. Aug, 2007.
5. Participated and delivered a lecture on Biodiversity and Biosafety in a Training Course organized by the Ministry of Agriculture, Riyadh, Kingdom of Saudi Arabia. July, 2006.
6. Participated as an instructor and delivered a lecture in 'Mariculture Training Course in RECOFI Region', jointly organized by Food and Agriculture Organization of the United Nation (FAO) and Kuwait Institute of Scientific

Research (KISR) in Kuwait from 17-26 April, 2000.

SCIENTIFIC/TECHNICAL CONSULTANCY

1. Provided scientific and technical consultancy to the Minister of Agriculture, Kingdom of Saudi Arabia through personal communication.
2. Provided scientific and technical consultancy to the Meteorology and Environmental Protection Administration (MEPA), Jeddah, Kingdom of Saudi Arabia through personal communication.
3. Nominated as an Expert Consultant by the Environmental Law Center of the International Union for Conservation of Nature (IUCN) to prepare a draft national Strategy on Access and Benefit Sharing in Relation to Genetic Resources and a Strategic Plan for the Collection and Documentation of Biosafety Related Traditional Knowledge and Practice for Saudi Arabia in the year 2009.
4. Nominated as an expert in Biosafety and Biodiversity by the Convention on Biological Diversity (CBD).

COMMITTEES

Administrative Committees:

Nov. 08, 1996	Head of Committee	to estimate the equipment and machines for a factory for animal feed production using date palm leaves and chicken manure
Oct. 26, 1996	Committee Member	quotation scrutiny panel
June 30, 1996	Head of Committee	to study the specifications, operation and utilization of a factory for animal feed production using date palm leaves and chicken manure
Apr. 14, 1996 to Dec. 31, 1997	Committee Member	for purchasing Scientific Equipment for KACST

Technical Committees:

May 2007	Committee Member	Bureau of Consultants for Meteorology and Environmental Protection Administration (MEPA)
May 2007	Committee Member	for Environment Technology Strategy

Apr 2007	Chairman of Committee	for preparing strategy for Center of Excellence for Wildlife Conservation Research & Studies under King Abdulaziz City for Science & Technology and the Fifth Plan for Science & Technology
Mar 2007	Committee Member	for establishing capacity building in Research and Development Technology in Saudi Arabia
Feb 2007	Committee Member	for establishing a Bio-security laboratory
Jan 2006	Committee Member	for establishing Seed Council and its strategy for regulation in the Ministry of Agriculture
Dec. 28, 1997 to Mar. 2003	Chairman, Technical Committee	Saudi-Japanese Joint Research & Development Program on Wastewater Reclaiming and Increasing Greenery in Saudi Arabia
May 21, 1998	Member	Editorial Board of the Arabic Magazine of Biotechnology
Mar. to Aug. 1998	Committee Member	Comprehensive study of Biotechnology under long term national planning for Science and Technology at KACST
Oct. 8, 1996	Expert	Convention on Biological Diversity with Technical and Legal point of view at KACST
	Committee Member	National Bio-diversity Committee
	Head of Committee	for studying the General Frame of Bio-diversity Strategy
	Committee Member	branched committee for Fisheries in Riyadh Chamber of Commerce
	Member of the Board	Saudi Biological Science Society

SAUDI DELEGATION IN INTERNATIONAL MEETINGS

May 2012	Ninth meeting of the Compliance Committee under the Cartagena Protocol on Biosafety	Montreal (Canada)
May 2012	Fourth meeting of the Ad Hoc Open-ended Working Group on Review of Implementation of the Convention, Organized by the Convention on Biological Diversity (CBD) under the United Nations Environment Program (UNEP).	Montreal (Canada)
May 2012	Sixteenth meeting of the Subsidiary Body on Scientific, Technical and Technological Advice (SBSTTA), Organized by the Convention on Biological Diversity (CBD) under the United Nations Environment Program (UNEP).	Montreal (Canada)
Apr 2012	The second session of the plenary meeting on the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) Organized by the United Nations Environment Program (UNEP).	Panama city (Panama)
Apr 2012	Subregional Workshop for West Asia and North Africa on Capacity-building for Implementation of the CBD Programme of Work on Protected Areas	Dubai (UAE)
Nov 2011	Eighth meeting of the Compliance Committee under the Cartagena Protocol on Biosafety	Montreal (Canada)
Nov 2011	Asia Sub-regional Training of Trainers' Workshop on the Identification and Documentation of Living Modified Organisms	New Delhi (India)
Nov 2011	Asia-Pacific Regional Workshop on the Nagoya-Kuala Lumpur Supplementary Protocol on Liability and Redress to the Cartagena Protocol on Biosafety	New Delhi (India)
Nov 2011	Workshop on Capacity-building for research and information exchange on socio-economic impacts of Living Modified Organisms under the Cartagena Protocol on Biosafety	New Delhi (India)
Jun 2010	Meeting to establish an Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services under the United Nations Environment Program (UNEP).	Busan (Rep. of Korea)
Jun 2010	Third meeting of the Ad Hoc Open-ended Working Group on Review of Implementation of the	Nairobi (Kenya)

Convention.

May 2009	Fourteenth meeting of the Subsidiary Body on Scientific, Technical and Technological Advice.	Nairobi (Kenya)
Apr 2010	Meeting of Arab League Group of Experts on International Environmental Convention.	Cairo (Egypt)
May 2008	Ninth meeting of the Conference of the Parties to the Convention on Biological Diversity (COP 9) Organized by the Convention on Biological Diversity (CBD) under the United Nations Environment Program (UNEP).	Bonn (Germany)
May 2008	Fourth meeting of the Conference of the Parties serving as the Meeting of the Parties to the Cartagena Protocol on Biosafety (COP-MOP 4) Organized by the Convention on Biological Diversity (CBD) under the United Nations Environment Program (UNEP).	Bonn (Germany)
Apr 2008	Asia Sub-Regional Workshop on Capacity-Building and Exchange of Experiences on Risk Assessment and Risk Management of Living Modified Organisms	Kuala Lumpur (Malaysia)
Apr 2008	Seventh Meeting of Arab League Group of Experts on International Environmental Convention.	Cairo (Egypt)
Mar 2008	Fifth meeting of the Ad Hoc Open-ended Working Group of Legal and Technical Experts on Liability and Redress in the context of the Protocol Organized by the Convention on Biological Diversity (CBD) under the United Nations Environment Program (UNEP).	Cartagena (Colombia)
Oct-Nov 2007	Conference on Ecosystems and people - biodiversity for development – the road to 2010 and beyond.	Trondheim (Norway)
Oct 2007	Fifth meeting of the Ad Hoc Open-ended Working Group on Article 8(j) and Related Provisions Organized by the Convention on Biological Diversity (CBD) under the United Nations Environment Program (UNEP).	Montreal (Canada)
Oct 2007	Fifth Meeting of the Ad Hoc Open-ended Working Group of Access and Benefit Sharing Organized by the Convention on Biological Diversity (CBD) under the United Nations Environment Program (UNEP).	Montreal (Canada)

July 2007	Second Meeting of the Ad Hoc Open-ended Working Group on Review of Implementation of the Convention on Biological Diversity Organized by the Convention on Biological Diversity (CBD) under the United Nations Environment Program (UNEP).	Paris, France
Oct 2007	Sixth Meeting of Arab League Group of Expert on International Environmental Convention.	Cairo, Egypt
Aug 2007	Fifth Meeting of Arab League Group of Expert on International Environmental Convention.	Cairo, Egypt
July 2007	Twelfth Meeting of the Subsidiary Body on Scientific, Technical and Technological Advice.	Paris, France
Sep. 2006	Fourth Meeting of Arab League Group of Expert on International Environmental Convention.	Cairo, Egypt
Jun. 2006	Seminar on implementation of biodiversity and biosafety protocol in the Arab League States, for a presentation entitled, "Cartagena Protocol for Biosafety in Saudi Arabia – Regulation and Implementation" at Arab Center for the Status of Arid Zones and Dry Lands (ACSAD).	Damascus, Syria
Mar. 2006	Eighth meeting of the conference of the parties to the Convention on Biological Diversity (COP-8) Organized by the Convention on Biological Diversity (CBD) under the United Nations Environment Program (UNEP).	Curitiba, Brazil
Mar. 2006	High level ministerial segment meeting of the conference of the Parties to the Convention on Biological Diversity. Organized by the Convention on Biological Diversity (CBD) under the United Nations Environment Program (UNEP).	Curitiba, Brazil
Mar. 2006	Third meeting of the Conference of the parties serving as the meeting of the parties to the Cartagena Protocol on Biosafety Organized by the Convention on Biological Diversity (CBD) under the United Nations Environment Program (UNEP).	Curitiba, Brazil
Jun. 2005	Second meeting of the Conference of the Parties serving as the meeting of the Parties to the Cartagena Protocol on Biosafety Organized by the Convention on Biological Diversity (CBD) under the United Nations Environment Program (UNEP).	Montreal, Canada
Mar. 2005	Open-ended technical expert group on	Montreal,

	identification requirements of LMOs-FFP' Canada Organized by the Convention on Biological Diversity (CBD) under the United Nations Environment Program (UNEP).	Canada
Feb. 2004	First meeting of the Conference of the Parties serving as the Meeting of the Parties to the Cartagena Protocol on Biosafety (COP/MOP-1) under the Convention on Biological Diversity (Organized by UNEP)	Kuala Lumpur, Malaysia
Nov. 2003	Ninth Meeting of the Subsidiary Body on Scientific, Technical and Technological Advice under the Convention on Biological Diversity (Organized by UNEP)	Montreal, Canada
Mar. 2003	Eighth Meeting of the Subsidiary Body on Scientific, Technical and Technological Advice under the Convention on Biological Diversity (Organized by UNEP)	Montreal, Canada
Apr. 2002	Third Meeting of the Intergovernmental Committee for the Cartagena Protocol of Biosafety under the Convention on Biological Diversity (organized by UNEP)	Hague, The Netherlands
Feb. 1999	Sixth Meeting of the Open-ended Ad Hoc Working Group on Biosafety and the First Extraordinary Session of the Convention on Biological Diversity (CBD)	Cartagena de Indias, Columbia
Mar. 1998	Meeting of the United Nations Council to study and evaluate the Agenda of 21 st Century	New York, USA
Feb. 1998	Fourth meeting of the Open-ended Ad Hoc Working Group on Biosafety, Organized by the Convention on Biological Diversity (CBD) under the United Nations Environment Program (UNEP).	Montreal, Canada
Nov. 1997	Steering Committee Meeting for the participating countries in the United Nations Framework Convention on Climatic Change (Organized by UNEP - United Nations Environment Program)	Tokyo, Japan
Sep. 1997	Third Meeting of the Subsidiary Body on Scientific, Technical and Technological Advice (organized by UNEP)	Montreal, Canada
Jun. 1997	Saudi Arabian Delegate in the Biotechnology meet	Morocco
May 1997	Second Meeting of Open-ended Ad Hoc Working	Montreal,

	Group on Biosafety Organized by the Convention on Biological Diversity (CBD) under the United Nations Environment Program (UNEP).	Canada
Sep. 1996	Second Meeting of the Subsidiary Body on Scientific, Technical and Technological Advice (organized by UNEP).	Montreal, Canada
Jul. 1996	First Meeting of the Open-ended Ad Hoc Working Group on Biosafety, Organized by the Convention on Biological Diversity (CBD) under the United Nations Environment Program (UNEP).	Asrhus, Denmark
Feb. 1996	Steering Committee Meeting for the participating countries in the United Nations Framework Convention on Climatic Change (Organized by UNEP)	Geneva, Switzerland
Jul. 1995	Meeting of Open-ended Ad Hoc Group of Experts on Biosafety (Organized by the Convention on Biological Diversity (CBD) under the United Nations Environment Program (UNEP).	Madrid, Spain

OTHER ACTIVITIES

1. Took part in a television program for Science and Technology telecasted on 30 November 1998 and discussed Fish Culture.
 2. Delivered a lecture on Cryopreservation of Genetic Resources of Aquatic Organisms at KACST, Riyadh on 12 July 1997.
 3. Delivered a lecture on Fish and Shrimp Culture in Atomic Energy Center at KACST, Riyadh on 12 July 1995.
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SCIENTIFIC INTERESTS

Bio-safety of genetically modified crops in animal diets, protected areas and sustainable development, wildlife conservation, quantitative and population genetics of fish breeding and stock improvement through selection and genetic manipulation, Chromosome engineering in tilapia. Investigations over physiological aspects of fish nutrition and reproduction. Establishment of recirculating aquaponic systems in fresh and marine waters in Saudi Arabia. Coastal environment with reference to marine aquaculture development along the Red sea. Biodiversity assessment and DNA barcoding from Saudi Arabia.

CV

Name	Dr. Utis
Last name	Kutintara
Occupation	Senior Consultant, Researcher (Forest Ecology, Plant Community Analysis)
Position	Associate Professor
Organization	Faculty of Forestry , Kasetsart University
Address	Faculty of Forestry, Kasetsart University, Bangkok 10900
Education	Ph.D. (Forest Ecology), Colorado State University, USA.
Year	Details
2001-2006	Dean of Kasetsart University's Forestry Faculty
2007-present	Senior Consultant to the National Committee on Biodiversity Conservation and Sustainable Use (Chaired by Minister to the Ministry of Natural Resources and Environment)
