

Chair Biologican and environmental science

2.5.1 Laboratory : Forest Ecology

Member :	Professor	Kitayama, Kanehiro Ph. D.
	Senior Lecturer	Osawa, Naoya Dr. Agric. Sci.
	Doctor's program	7
	Master's Program	6
	Undergraduate	6
	Post-Doctoral fellow	5

A. Research Activities (2010.4-2011.3)

A-1. Main Subjects

a) Biogeochemical mechanisms of long-term maintenance of forest ecosystems

1) Phosphorus deficiency, and the P-use efficiency and adaptation of tropical rain forest trees, 2) Ecosystem ecology of polyphenols, 3) Water-use and nutrient-use efficiencies of tree leaves, and 4) Acclimation to light environments through the adjustment of module structure

b) Community structure and functions of trees and insects

1) Habitat associations among co-existing tree species, and 2) Soil microbial communities and soil-nutrient dynamics

c) Sustainable management of forest ecosystems

1) Harvest intensity and soil organic carbon, and 2) Developing monitoring methods and indicators of biological diversity for sustainable forest management

A-2.Publications and presentations

a) Publications

Books

- Tuno N., Osawa N., Tanaka C. (2010) Fungal toxins relevant to animals – the case study of Amanita. In: Wen Zhang, Hong Liu (eds.). Behavioral and Chemical Ecology, pp235-250, Nova Science Publishers, New York.

Original Papers

- Imai N., Kitayama K., Titin J. (2010) Distribution of phosphorus in above-to-below-ground profile in a Bornean tropical rain forest. *Journal of Tropical Ecology* 26: 627-636.

- Slik, J.W.F., Aiba, S., Brearley, F.Q., Cannon, C.H., Forshed, O., Kitayama, K., Nagamasu, H., Nilus, R., Payne, J., Paoli, G., Poulsen, A.D., Raes, N., Sheil, D., Sidiyasa, K., Suzuki, E., van Valkenburg, J.L.C.H. (2010) Environmental correlates of tree biomass, basal area, wood specific gravity and stem density gradients in Borneo's tropical forests. *Global Ecology and Biogeography* 19 (1): 50-60.

- Ushio M., Kitayama K., Balser T.C. (2010) Tree species-mediated spatial patchiness of the composition of microbial community and physicochemical properties in the topsoils of a tropical montane forest. *Soil Biology & Biochemistry* 42: 1588-1595.

- Kettle, C. J., Ghazoul, J., Ashton, P., Cannon, C. H., Chong, L., Diway, B., Faridah, E., Harrison, R., Hector, A., Hollingsworth, P., Koh, L. P., Khoo, E., Kitayama, K., Kartawinata, K., Marshall, A. J., Maycock, C., Nanami, S., Paoli, G., Potts, M. D., Samsedin, I., Sheil, D., Tan, S., Tomoaki, I., Webb, C., Yamakura, T. and Burslem, D. F. (2011) Seeing the fruit for the trees in Borneo. *Conservation Letters*, 4: no. doi: 10.1111/j.1755-263X.2010.00161.x

- Kettle, C. J., Ghazoul, J., Ashton, P., Cannon, C. H., Chong, L., Diway, B., Faridah, E., Harrison, R., Hector, A., Hollingsworth, P., Koh, L. P., Khoo, E., Kitayama, K., Kartawinata, K., Marshall, A. J., Maycock, C., Nanami, S., Paoli, G., Potts, M. D., Samsedin, I., Sheil, D., Tan, S., Tomoaki, I., Webb, C., Yamakura, T. and Burslem, D. F. (2011) Mass Fruiting in Borneo: A Missed Opportunity. *Science* 330: 584-585.

- Imai N., Kitayama K., Titin J. (2010) Distribution of phosphorus in above-to-below-ground profile in a Bornean tropical rain forest. *Journal of Tropical Ecology* 26: 627-636.

- Hidaka A., Kitayama K. (2011) Allocation of foliar phosphorus fractions and leaf traits of tropical tree species in response to decreased soil phosphorus availability on Mount Kinabalu, Borneo. *Journal of Ecology* 99: 849–857.

- Fujii S, Takeda H (2010) Dominant effects of litter substrate quality on the difference between leaf and root decomposition process above- and belowground. *Soil Biology & Biochemistry* 42: 2224-2230.

- Imanishi A., Morimoto J., Imanishi J., Shibata S., Nakanishi A., Osawa N., Sakai S. (2010) Sprout initiation and growth for three years after cutting in an abandoned secondary forest in Kyoto, Japan. *Landscape Ecology and Engineering* 6: 219-234.

- Osawa N., Toft R., Tuno N., Kadowaki K., Fukiharu T., Buchanan P.K., Tanaka C. (2010) The community structures of fungivorous insects on the Fly Agaric *Amanita muscaria* in New Zealand. *New Zealand Entomologist* 34: 40-44

- Suzuki N., Osawa N., Nishida T. (2011) Prey capture performance in hatchlings of two sibling *Harmonia* ladybird species in relation to maternal investment through sibling cannibalism. *Ecological Entomology* 36: 282-289.

Reports,others

- Osawa N. (2010) The ecology of *Harmonia axyridis* in its native range. In: Babendreier D., Aebi A., Kenis M., Roy H. (eds.). *Benefits and Risks of Exotic Biological Control Agents*, IOBC/wprs Bulletin 58: 69-73.

b) Conference and seminar papers presented

- The 58th annual meeting of The Japan Ecological Society (Hokkaido University, 2011, March)
Number of presentations 7

- The 55th annual meeting of The Japan Society of Applied Entomology and Zoology (Kyusyu University, 2011, March). Number of presentations 5

- The 121th annual meeting of The Japan Society of Forestry (Tsukuba, 2010, April). Number of presentations 1

- The 2010 International meeting of the Association for Tropical Biology and Conservation, Bali, Indonesia, July 2010. Number of presentations 1

- The 2nd international conference of urban biodiversity and design. Nagoya, Japan. May 18-22, 2010. Number of presentations 3

- Ecology of Aphidophaga 11. Sep. 19-24, 2010. University of Perugia, Italy. Number of presentations 2

- International conference on science and technology for sustainability 2010, Science Council of Japan 1

- Workshop on natural forest management best practices in forest restoration 1

A-3.Off-campus activities 2

Research grants

1. Grants-in-aid for Scientific Research(KAKENHI)

- Grant-in-Aid for Scientific Research : Kitayama, Kanehiro, Ph.D. : Formation of forest limits on tropical mountains in the Walker Circulation

- Grant-in-Aid for Scientific Research : Kitayama, Kanehiro, Ph.D. : The formation of localized soil microbial communities in relation to dissolved soil polyphenols in a species-diverse forest ecosystem

- Grant-in-Aid for Scientific Research : Osawa, Naoya Dr. Agric. Sci. : Applied ecological study on management system for Japan-originated invaders in foreign countries

2.Other Research Grants

- Global Environment Research Fund of the Ministry of the Environment, Japan : Kitayama, Kanehiro, Ph.D. : Maximizing the co-benefits of biodiversity conservation in REDD

A-4.International cooperations and overseas activities

International joint research, overseas research surveys

- JSPS Asia-Africa Science Platform Program: Building a Center for Ecosystem Ecology to Develop Societal Adaptability for the Land-use Change in Tropical Rain Forests (K. Kitayama)
- JSPS AA Science Platform Program Seminar: 3rd Seminar “Land-use Change and Societal Adaptation under Global Climate Change in Asian Tropical Rain Forests” (Kota Kinabalu, Malaysia) (K. Kitayama)

A-4.International cooperations and overseas activities 2

Visiting Research Scholars

- JSPS Fellow 1 (Germany)

B.Educational Activities(2010.4-2011.3)

B-1.On-campus teaching

a) Courses given

- Undergraduate level : Practice of Forest Ecology (K. Kitayama and N. Osawa), Seminar of Forest Ecology (K. Kitayama and N. Osawa), Forest Ecology (K. Kitayama), Community Ecology (N. Osawa), Practice of Forest Sciences II &III (N. Osawa). The Practice of Ecology (N. Osawa).
- Graduate level : Practice of Forest Ecology (K. Kitayama and N. Osawa), Seminar of Forest Ecology (K. Kitayama and N. Osawa). Special Lecture of Community Ecology (N. Osawa)

B-2.Off-campus teaching etc.

Part-time lecturer

- Kitayama, Kanehiro, Ph.D.: Hyogo Prefectural University
- Kitayama, Kanehiro, Ph.D.: Teikyo University of Science

B-3.Overseas teaching 2

Lectures and seminars

- Kanehiro Kitayama

Frontiers in the conservation biology of tropical rain forests(Organizing and teaching the course) :
(Malaysia)

C.Other Remarks

- Kanehiro Kitayama : Developing the MRV system for the REDD+ synergizing biodiversity