



Hitoshi SAKIO, Ph.D.

Professor

Program: Environmental Science and Technology

Area: Environmental Science for Agriculture and Forestry

Field Center for Sustainable Agriculture and Forestry

<http://riparian-forest.jimdo.com>

Professional Expertise

My professional expertise encompasses ecology of riparian forest, restoration and rehabilitation of riparian forest, life history of trees, for example, mast seeding, pollination, seed germination (*Fraxinus platypoda*, *Pterocarya rhoifolia*, *Cercidiphyllum japonicum*, *Actinidia polygama*, *Salix* spp. etc.), effects of global change on forest dynamics and phenology of plants, alpine timberline dynamics (*Larix kampeferi*), ecology and management of alien invasive species (*Robinia pseudoacacia*), and artificial forest management (*Cryptomeria japonica*).

My group and I have joined in “Long-term ecological research (LTER)” and have research the dynamic of natural riparian forest (Chichibu Mountains), natural Japanese cedar forest (Sado Island) and alpine timberline forest (Mt.Fuji).

Research Fields of Interest

<Alpine Timberline Dynamics>

Forest structure, Establishment of trees, Matter production of alder bush, LTER site

<Ecology of Riparian Forest>

Cool-temperate forest (Chichibu Mountains and Sado Island), Monitoring site 1000 Project

Coexistence and Regeneration mechanisms of riparian trees

Effect of large disturbance (Hurricane, Flood, Debris flow etc.) on riparian forest regeneration

<Conservation & Management of Riparian Forest>

Plantation, restoration and rehabilitation of riparian forest

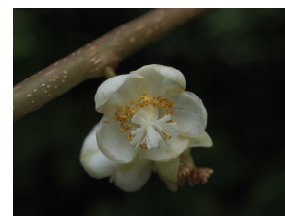
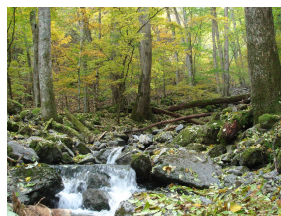
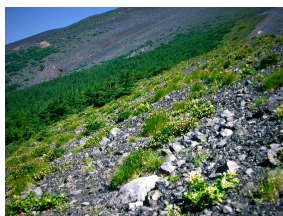
<Life-history Strategy of Trees>

Reproductive strategy: Pollination, Seed dispersal, Seed production (Masting)

Sex expression (Dioecy: *Actinidia polygama*, Androdioecy: *Fraxinus platypoda*)

Sprouts(*Pterocarya rhoifolia*, *Cercidiphyllum japonicum*, *Acer carpinifolium*)

Ecology and management of alien invasive species (*Robinia pseudoacacia*)



Alpine timberline of Mt. Fuji

Natural Riparian Forest

Actinidia polygama

Education

1996: Ph.D. in Biology, Tokyo Metropolitan University, Japan

1982: M.S. in Biology, Graduate School, Shizuoka University, Japan

1979: B.S. in Biology, College of Science, Shizuoka University, Japan

Professional Societies and Activities

1. Chair of Japanese Riparian Forest Association
2. Director, Nonprofit Corporation “Mori to Mizu no Genryu Bunka-Juku”
3. Director, The Institution of Professional Engineers of forest division, Japan

Awards

1. The Award of the Society of Vegetation Science, 2015
2. JPR (Journal of Plant Research) Best Paper Award, 2013
3. The 16th Oze Prize, 2013
4. The 8th Environmental Minamata Prize, 2004
5. The 45th Ringyou Gijutsu Award, 1999

Major Publications

Papers

<Alpine Forest Ecology>

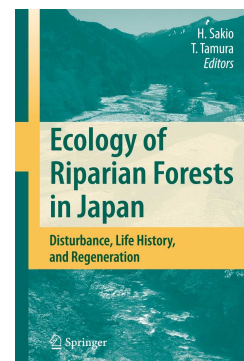
- [1] “An ecological study of microclimate at timberline on Mt. Fuji I. Measurement of diurnal change in air and soil temperature in spring”. Rep. Fac. Sci. Shizuoka Univ. 16:93-101, 1982
- [2] “Ecological studies on the timber-line of Mt. Fuji II. Primary productivity of *Alnus maximowiczii* dwarf forest”. Bot. Mag. Tokyo 100:34 9-363, 1987
- [3] “Ecological studies on the timber-line of Mt. Fuji III. Seasonal changes in nitrogen content in leaves of woody plants”. Bot. Mag. Tokyo 105:47-52, 1992
- [4] “Phenology and nitrogen content in leaves herbaceous perennials on the timberline of Mt. Fuji”. Rep. Fac. Sci. Shizuoka Univ. 27:69-76, 1993
- [5] “Comparison of community structure and growth between the alpine dwarf shrubs *Rhododendron aureum* and *R. brachycarpum* on the Mt. Yatsugatake range, central Japan”. Japanese Journal of Forest Environment 48(2):77-84, 2006
- [6] “The advancing timberline on Mt Fuji : natural recovery or climate change?”. J. Plant Res. 125:539-546, 2012

<Riparian Forest Ecology>

- [7] “Effects of natural disturbance on the regeneration of riparian forests in a Chichibu Mountains, central Japan”. Plant Ecology 132(2):181-195, 1997
- [8] “Coexistence of three canopy tree species in a riparian forest in the Chichibu Mountains, central Japan”. Folia Geobotanica 37:45-61, 2002
- [9] “Effects of flooding on growth of seedlings of woody riparian species”. J. For. Res. 10: 341-346, 2005

<Life-history Strategy of Trees>

- [10] “Factors influencing seedling emergence and survival in *Cercidiphyllum japonicum*”. Folia Geobotanica 39:225-234, 2004
- [11] “Age structure and dynamics of *Cercidiphyllum japonicum* sprout based on growth ring analysis”. Forest Ecology and Management 213: 253-260, 2005
- [12] “Polymorphic microsatellite DNA markers for a relictual angiosperm *Cercidiphyllum japonicum* Sieb. et Zucc. and their utility for *Cercidiphyllum magnificum*”. Molecular Ecology Notes 5(3):596-598, 2005



- [13] “Effect of gene flow on spatial genetic structure in the riparian canopy tree *Cercidiphyllum japonicum* revealed by microsatellite analysis”. Heredity 96:79-84, 2006

- [14] “Difference between sprouting traits of *Cercidiphyllum japonicum* and *C. magnificum*”. J. For. Res. 15(5):337-340, 2010

- [15] “Effect of flooding and prescribed fire on black locust (*Robinia pseudoacacia* L.) seed germination in riverbeds”. Jap. J. Conservation Ecology 15:231-240, 2010

<Species Diversity>

- [16] “Notes on the plant communities in Shizuoka prefecture II. A community of *Balanophora nipponica* Makino which was found out in the south Japanese Alps”. Rep. Fac. Sci. Shizuoka Univ. 16:109-115, 1982

- [17] “Effect of micro-landforms on forest vegetation differentiation and life-form diversity in the Chichibu Mountains, Kanto District, Japan”. Vegetation Science 23:13-24, 2006

Books

- [1] Sakio, H. (ed) 2009. Ecology of *Robinia pseudoacacia*. Bun-ichi shuppan, Tokyo
- [2] Sakio, H. & Tamura, T. (eds) 2008. Ecology of riparian forests in Japan: Disturbance, life history and regeneration. Springer, Tokyo
- [3] Sakio, H. & Yamamoto, F. (eds) 2002. Ecology of riparian forest. Tokyodaigaku shuppankai, Tokyo

Book Chapters

- [1] Sakio H. 2009. “Shioji (*Fraxinus platypoda*)”, Nihon Jumokushi. Nihon-Ringyo-Chousakai, Tokyo. pp401-416.
- [2] Sakio, H. & Masuzawa, T. 2009. “Forest structure and plants of alpine timberline”, Alpine plants, Kyoritu-Shuppan, Tokyo. pp236-246
- [3] Kubo, M., Sakio, H., Shimano, K. & Ohno, K. 2007. “Adaptive regeneration traits and habitat in *Cercidiphyllum japonicum* to riparian disturbances in the Chichibu Mountains, central Japan”, New Research on Forest Ecology. Nova Science Publishers, NY. pp207-246.