Appendix. Detail information of each plot.

This material gives detail information of each plot: forest age, disturbance history, soil type, soil pH, bedrock, snow depth, dwarf bamboo as understory vegetation, maximum canopy height, layout of the plot and subplots, remarks (optional) and acknowledgements (optional). This material includes information which was described in Appendix of Ishihara et al. (2011) and Suzuki et al. (2012). For definition of forest age classifications, see 8.A and Ishihara et al. (2011). Forest age or maximum tree age is the age in 2010 unless specified. Soil types based on the soil classification system of the Food and Agriculture Organization of the United Nations (FAO) (Dudal 1968), were extracted from the 1:200,000 scale soil map of the Land Classification Survey conducted by the Ministry of Land, Infrastructure, Transport and Tourism, Japan (http://nrb-www.mlit.go.jp/kokjo/inspect/landclassification/download/index.html). In addition, Soil types based on the Classification of Forest Soil in Japan (Forest Soil Division 1976) were also shown, which are according to related literatures and personal observations of researchers. Layout of subplots shown below is that in the latest census year for each plot. 'NA' means data not available. References with * are those conducted in the plot.

UR-BC1

Forest age: OG.

Disturbance: No record of human disturbance (Yoshida T. personal communication).

Soil type FAO: Humic Cambisols.

Soil type Forest Soil Division: Brown forest soil (Shibata et al. 2002).

Soil pH: 3.9−4.5 (Ozawa et al. 2001).

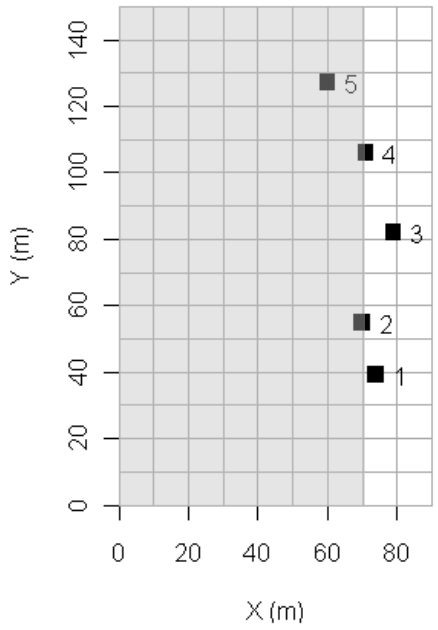
Bedrock: Andesite tuff-breccia (Shibata et al. 2002).

Snow depth: 2 m (Shibata et al. 2002).

Dwarf bamboo as understory vegetation: Understory is covered by dwarf bamboo (Yoshida T. personal observation).

Maximum canopy height: 28 m (Yoshida T. unpublished data).

Plot & Subplots: The shape of plot is 70×150 m. The direction of Y-axis is 71° west from true north.



Grayed area indicates the permanent plot for tree census of which data were published in Ishihara et al. (2011).

Remarks: Croplands are 600 m northwest and 300 m southwest of the plot.

Acknowledgements: We thank the staff of Uryu Experimental Forests of Hokkaido University for the field work.

AS-DB1

Forest age: OG. The forest is estimated to be more than 200 years old (Tashiro N. personal communication).

Disturbance: No evidence of human disturbance (Tashiro N. personal observation).

Soil type FAO: Humic Cambisols. Cambisols, according to the personal observation of Shibata H.

Soil type Forest Soil Division: Black soil (Shibata H. personal observation).

Soil pH: NA.

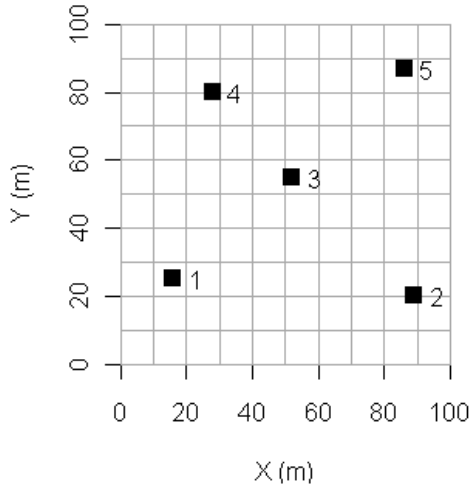
Bedrock: Tuff layer, sandstone, shale (Ashoro Research Forest, Kyushu University unpublished data).

Snow depth: 0.7 m (Tashiro N. personal observation).

Dwarf bamboo as understory vegetation: Understory is dominated by 0.4–0.7 m high *Sasa nippinica* (Tashiro N. personal observation).

Maximum canopy height: 25 m (Tashiro N. personal observation).

Plot & Subplots: The direction of Y-axis is 7° west from true north.



Remarks: Grasslands are 500 m northwest of the plot.

AS-DB2

Forest age: S. The forest is estimated to be about 80 years old (Tashiro N. personal observation).

Disturbance: The forest is a secondary forest regenerated naturally after clear cutting (Tashiro N. personal observation).

Soil type FAO: (Entic) Andosols. Cambisols, according to the personal observation of Shibata H.

Soil type Forest Soil Division: Black soil (Shibata H. personal observation).

Bedrock: Tuff layer, sandstone, shale (Ashoro Research Forest, Kyushu University unpublished data).

Snow depth: 0.7 m (Tashiro N. personal observation).

Dwarf bamboo as understory vegetation: Understory is dominated by 0.4–0.7 m high *Sasa nippinica* (Tashiro N. personal observation).

Maximum canopy height: 25 m (Tashiro N. personal observation).

Plot & Subplots: NA.

TM-DB1

Forest age: OG. About 270−340 years old (Igarashi 1987).

Disturbance: The forest regenerated after the volcanic eruption of Mt. Tarumae in 1669 and 1739 (Igarashi 1987). The forest was disturbed by strong typhoons in 1954 (Mishima et al. 1958) and 2004.

Soil type FAO: (Andic) Rhegosols.

Soil type Forest Soil Division: Shallow top soil (Hiura et al. 1998*).

Soil pH: 5.3−6.2 (Shibata et al. 1998).

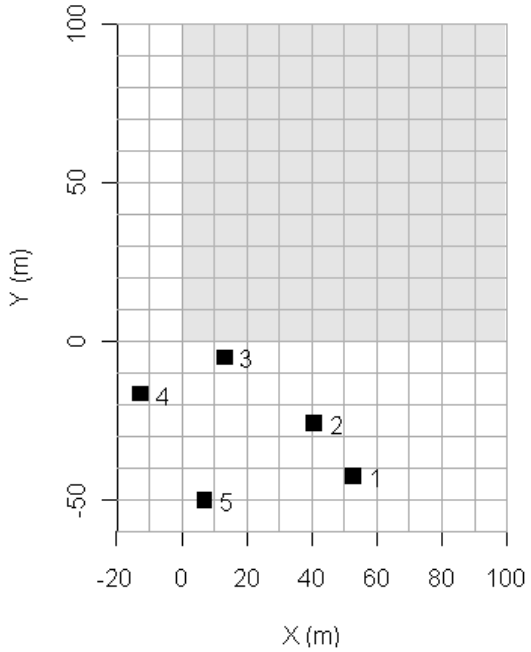
Bedrock: Volcanic ejecta of 1−2 m depth (Igarashi 1987).

Snow depth: 0.5 m (Hiura et al. 1998*).

Dwarf bamboo as understory vegetation: Understory vegetation is partly dominated by *Sasamorpha borealis* (Hiura et al. 1998*).

Maximum canopy height: 26.5 m (Ishihara M. personal observation).

Plot & Subplots: The 1-ha plot is a part of a 9-ha permanent plot. The direction of Y-axis is 31° west from true north.



Grayed area indicates the permanent plot for tree census of which data were published in Ishihara et al. (2011).

Acknowledgements: We thank the staff of Tomakomai Experimental Forests of Hokkaido University for the field work.

TM-DB2

Forest age: S.

Disturbance: The forest was recorded as a dense broadleaf stand in 1948. It was disturbed by strong typhoons in 1954 (Mishima et al. 1958) and 2004. Three artificial gaps were created in 2002.

Soil type FAO: (Andic) Rhegosols.

Soil type Forest Soil Division: Shallow top soil (Hiura et al. 1998*).

Soil pH: 5.3−6.2 (Shibata et al. 1998).

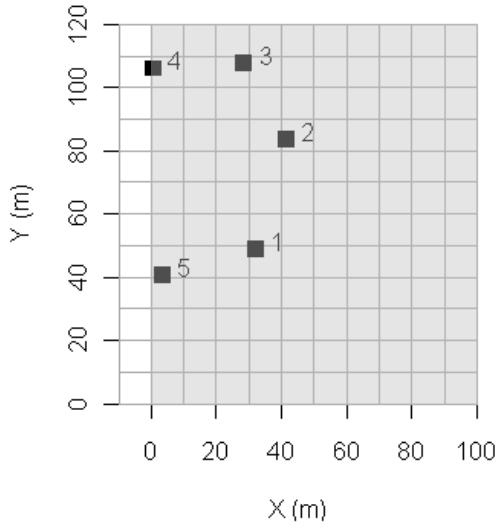
Bedrock: Volcanic ejecta of 1−2 m depth (Igarashi 1987).

Snow depth: 0.5 m (Hiura et al. 1998).

Dwarf bamboo as understory vegetation: Half of the plot is dominated by *Sasamorpha borealis* (Ishihara M. personal observation).

Maximum canopy height: 20 m (Ishihara M. personal observation).

Plot & Subplots: The shape of plot is 100×120 m.



Grayed area indicates the permanent plot for tree census of which data were published in Ishihara et al. (2011).

Remarks: Grasslands (clear-cut stands) are 200 m northwest and 400 m east of the plot.

Acknowledgements: We thank the staff of Tomakomai Experimental Forests of Hokkaido University for the field work.

TM-DB3

Forest age: S.

Disturbance: The forest was used as a coppice forest until about 1945.

Soil type FAO: (Andic) Rhegosols.

Soil type Forest Soil Division: Shallow top soil (Hiura et al. 1998*).

Soil pH: 5.3−6.2 (Shibata et al. 1998).

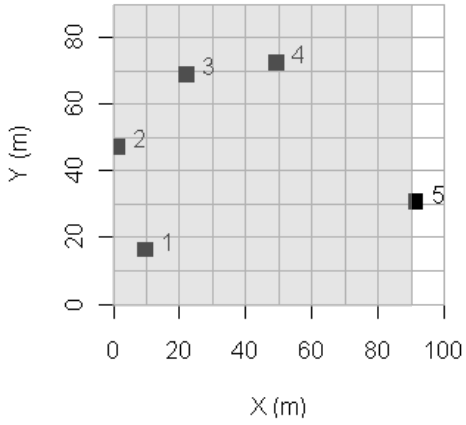
Bedrock: Volcanic ejecta of 1−2 m depth (Igarashi 1987).

Snow depth: 0.5 m (Hiura et al. 1998).

Dwarf bamboo as understory vegetation: The understory is scarcely covered by 30−50 cm high *Sasa nipponica* (Suzuki S. N. personal observation).

Maximum canopy height: 13 m (Suzuki S. N. personal observation).

Plot & Subplots: The shape of plot is 90×90 m.



Grayed area indicates the permanent plot for tree census of which data were published in Ishihara et al. (2011).

Remarks: An expressway and urban area are 100 m and 350 m south of the plot, respectively.

Acknowledgements: We thank the staff of Tomakomai Experimental Forests of Hokkaido University for the field work.

TM-DB4

Forest age: S. 28 years old.

Disturbance: The forest regenerated naturally after the clear cutting of a *Larix kaempferi* artificial stand which was damaged by a typhoon in 1981. Vegetation and soil surface were removed after the clear cutting.

Soil type FAO: (Andic) Rhegosols.

Soil type Forest Soil Division: Shallow top soil (Hiura et al. 1998*).

Soil pH: 5.3−6.2 (Shibata et al. 1998).

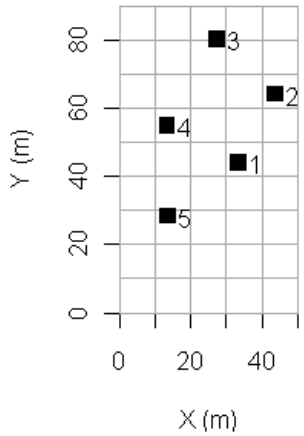
Bedrock: Volcanic ejecta of 1−2 m depth (Igarashi 1987).

Snow depth: 0.5 m (Hiura et al. 1998).

Dwarf bamboo as understory vegetation: None.

Maximum canopy height: 13 m (Ishihara M. personal observation).

Plot & Subplots: The shape of plot is 50×90 m.



Remarks: Grasslands (clear-cut stands) are 150 m northwest and 300 m southeast of the plot.

Acknowledgements: We thank the staff of Tomakomai Experimental Forests of Hokkaido University for the field work.

TM-AT1

Forest age: P. 68 years old.

Disturbance: The forest was artificially regenerated in 1942 after the clear cutting of a deciduous broadleaf stand in 1940.

Soil type FAO: (Andic) Rhegosols.

Soil type Forest Soil Division: Shallow top soil (Hiura et al. 1998*).

Soil pH: 5.3−6.2 (Shibata et al. 1998).

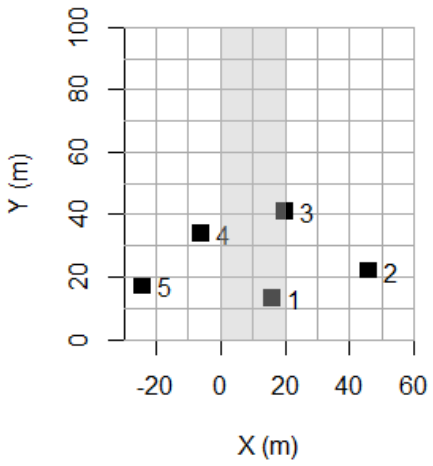
Bedrock: Volcanic ejecta of 1−2 m depth (Igarashi 1987).

Snow depth: 0.5 m (Hiura et al. 1998).

Dwarf bamboo as understory vegetation: None.

Maximum canopy height: 20 m (Ishihara M. personal observation).

Plot & Subplots: The shape of plot is 20×100 m.



Grayed area indicates the permanent plot for tree census.

Remarks: The plot was established in a uniform artificial forest of *Picea glehnii* planted in 1942.

Acknowledgements: We thank the staff of Tomakomai Experimental Forests of Hokkaido University for the field work.

TM-AT2

Forest age: P. 58 years old.

Disturbance: The forest was artificially regenerated in 1952 after the clear cutting of a *Larix kaempferi* stand in 1944.

Soil type FAO: (Andic) Rhegosols.

Soil type Forest Soil Division: Shallow top soil (Hiura et al. 1998*).

Soil pH: 5.3−6.2 (Shibata et al. 1998).

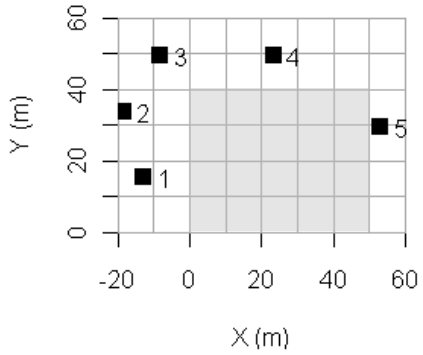
Bedrock: Volcanic ejecta of 1−2 m depth (Igarashi 1987).

Snow depth: 0.5 m (Hiura et al. 1998).

Dwarf bamboo as understory vegetation: None.

Maximum canopy height: 16 m (Ishihara M. personal observation).

Plot & Subplots: The shape of plot is 50×40 m.



Grayed area indicates the permanent plot for tree census.

Remarks: The plot was established in a uniform artificial forest of *Larix kaempferi* planted in 1952. A water treatment plant and a road are 300 m east and 300 m southwest of the plot, respectively.

Acknowledgements: We thank the staff of Tomakomai Experimental Forests of Hokkaido University for the field work.

TM-AT3

Forest age: P. 45 years old.

Disturbance: The forest was artificially regenerated in 1965 after the clear cutting of a deciduous broadleaf stand in 1964.

Soil type FAO: (Andic) Rhegosols.

Soil type Forest Soil Division: Shallow top soil (Hiura et al. 1998*).

Soil pH: 5.3−6.2 (Shibata et al. 1998).

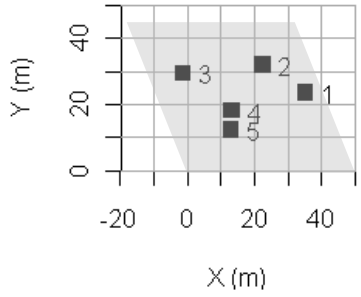
Bedrock: Volcanic ejecta of 1−2 m depth (Igarashi 1987).

Snow depth: 0.5 m (Hiura et al. 1998).

Dwarf bamboo as understory vegetation: None.

Maximum canopy height: 20 m (Ishihara M. personal observation).

Plot & Subplots: The shape of plot is 50×45 m.



Grayed area indicates the permanent plot for tree census.

Remarks: The plot was established in 2004 in a uniform artificial forest of *Abies sachalinensis*

planted in 1966, and then moved to a similar stand planted in 1965 about 500 m away after the census in 2004 because the original plot had severely disturbed by a typhoon in the autumn of 2004. A grassland (clear-cut stand) is 150 m northeast of the plot.

Acknowledgements: We thank the staff of Tomakomai Experimental Forests of Hokkaido University for the field work.

KM-DB1

Forest age: OG. Maximum tree age is about 1000 years old according to Suzuki et al. (2002*).

Disturbance: Canopy gaps and more infrequent, debris flows. No sign of human disturbance although selective cuttings were conducted at surrounding forests until 20−30 years ago (Masaki et al. 1999*; Suzuki et al. 2002*).

Soil type FAO: Residual Regosols.

Soil type Forest Soil Division: Gravel (large and sandy), brown forest soil (Masaki et al. 1999*).

Soil pH: NA.

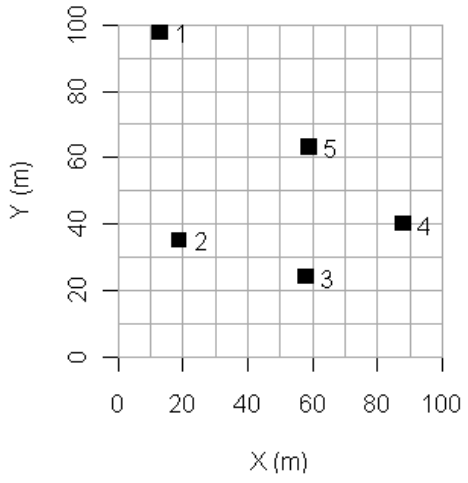
Bedrock: Igneous rock (green tuff and others).

Snow depth: 1.8 m (Suzuki et al. 2002*).

Dwarf bamboo as understory vegetation: *S. kurilensis* and *S. palmata* are distributed widely but dominant only patchily. Instead, evergreen shrub (*Camellia japonica* var. *decumbens*), tall herbs (e.g. genera *Laportea, Elatostema and Petasites*) and ferns (genera *Polystichum*, *Dyropteris* and *Arachniodes*) dominate the understory layer (Hoshizaki et al. 1997*).

Maximum canopy height: 30 m (Suzuki et al. 2002*).

Plot & Subplots: The 1-ha plot is a part of a 4.71-ha permanent plot. The direction of Y-axis is 11° east from true north.



Remarks: A stream flows in the plot. A road is 50 m east and 100 m northwest of the plot. Rivers are 250 m southeast and 400 m southwest of the plot. Data of beetle, organic layer and mineral soil in the latest 3 years are not available in this dataset.

Acknowledgements: We thank Wajirou Suzuki, Katsuhiro Osumi and Kazunori Takahashi for early setup of the plot.

KM-DB2

Forest age: OG.

Disturbance: NA.

Soil type FAO: Residual Regosols.

Soil type Forest Soil Division: Gravel (large and sandy), brown forest soil (Masaki et al. 1999*).

Soil pH: NA.

Bedrock: Igneous rock (green tuff and others).

Snow depth: NA.

Dwarf bamboo as understory vegetation: NA.

Maximum canopy height: NA.

Plot & Subplots: NA.

Remarks: The plot was established in a deciduous broadleaf forest dominated by *Fagus crenata* on a terrace adjacent to KM-DB1. A stream flows nearby the plot. A road is 100 m northeast and 150 m northwest of the plot. Rivers are 200 m southeast and 250 m south of the plot.

Acknowledgements: We thank Wajirou Suzuki, Katsuhiro Osumi and Kazunori Takahashi for early setup of the plot.

AO-BC1

Forest age: OG.

Disturbance: Human usage of the forest has been restricted for the past 400 years (Suzuki Mitsuo personal communication).

Soil type FAO: Humic Cambisols.

Soil type Forest Soil Division: Brown forest soil (Scale 1:50,000 Fundamental Land Classification Survey in Miyagi, Sendai, 1976).

Soil pH: NA.

Bedrock: Aobayama formation on tuff (http://www.biology.tohoku.ac.jp/garden/geology.htm).

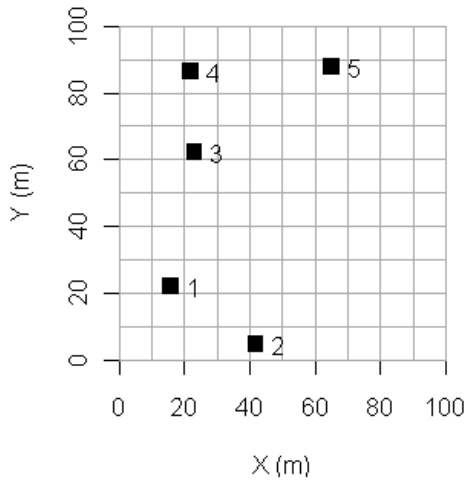
Snow depth: 0.1 m.

Dwarf bamboo as understory vegetation: Patchy distribution of *Sasa borealis* (Kobayashi K.

personal observation).

Maximum canopy height: 20 m (Kobayashi K. personal observation).

Plot & Subplots: The direction of Y-axis is 18° west from true north.



Remarks: Grasslands and urban areas are 150 m north and southeast of the plot.

OS-EC1

Forest age: OG. About 500 years old (Homma K. personal communication).

Disturbance: NA.

Soil type FAO: Humic Cambisols.

Soil type Forest Soil Division: Dry podzolic soil, Wet iron podzolic soil (Nakata 1994).

Soil pH: 4.0−4.9 (Nakata 1994).

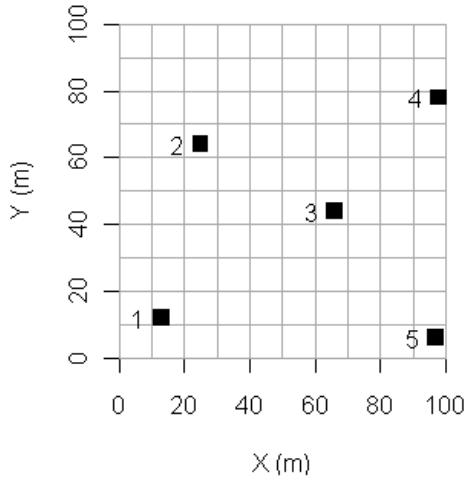
Bedrock: Andesite (Nakata 1994).

Snow depth: 3.5−3.9 m (Nakata 1994).

Dwarf bamboo as understory vegetation: None (Homma K. personal observation).

Maximum canopy height: About 15−20 m (Nakata 1994).

Plot & Subplots: The direction of Y-axis is 79° east from true north.



KS-DB1

Forest age: S.

Disturbance: The forest was used as a coppice forest and abandoned in 1970s. Mass mortalities of pine trees by Pine wilt disease and of Fagaceae trees by Japanese oak wilt have occurred since 1990s and 2000s, respectively (Homma K. personal communication).

Soil type FAO: Humic Cambisols.

Soil type Forest Soil Division: NA.

Soil pH: NA.

Bedrock: NA.

Snow depth: 0.5 m (Homma K. personal observation).

Dwarf bamboo as understory vegetation: None (Homma K. personal observation).

Maximum canopy height: NA.

Plot & Subplots: The shape of plot is 50×50 m. The direction of Y-axis is 67° west from true north. All subplots are outside of the plot.

Remarks: Grasslands, croplands and roads are 300 m northeast, 50 m north, 250 m southwest, 300 m south of the plot. A road and a coast is 250 m southeast of the plot.

KS-DB2

Forest age: S.

Disturbance: NA.

Soil type FAO: Humic Cambisols.

Soil type Forest Soil Division: NA.

Soil pH: NA.

Bedrock: NA.

Snow depth: NA.

Dwarf bamboo as understory vegetation: NA.

Maximum canopy height: NA.

Plot & Subplots: NA.

Remarks: Grasslands (abandoned paddy fields) and a pasture are 150 m east and 600 m southwest of the plot, respectively. Water reservoirs are 150 m west and 400 m south of the plot.

OG-DB1

Forest age: OG.

Disturbance: Although the forest is an old-growth forest, human disturbances such as fire, grazing, and selective cutting took place until 1930s at surrounding forests. Remains of charcoal making were found around the plot (Masaki et al. 1999*, Suzuki 2002*).

Soil type FAO: Ochric Cambisols.

Soil type Forest Soil Division: Brown forest soil partly black or gley soil (Masaki et al. 1999*).

Soil pH: 4.7−6.2 (Yoshinaga et al. 2002*).

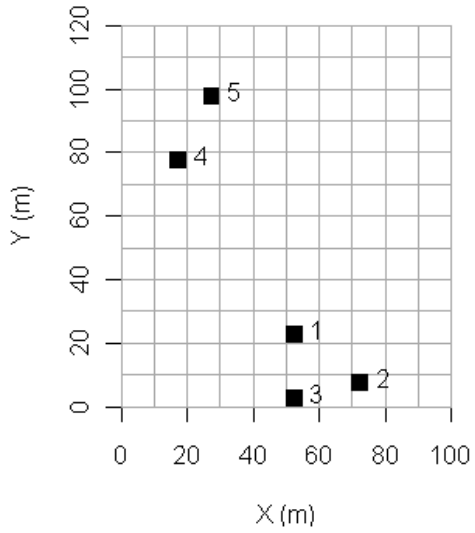
Bedrock: Metamorphic rock, volcanic ejacta (Yoshinaga et al. 2002*).

Snow depth: 0.5 m (Masaki et al. 1999*).

Dwarf bamboo as understory vegetation: Patchy distribution of *Sasamorpha borealis* and *Sasa nipponica* (Suzuki 2002*).

Maximum canopy height: About 35 m (Nakashizuka 2002*).

Plot & Subplots: The 1.2-ha (100×120 m) plot is a part of a 6-ha permanent plot (see Nakashizuka and Matsumoto 2002). The direction of Y-axis is 100° west from true north.



Remarks: Grasslands and croplands are 400 m north and 500 m southwest of the plot.

Acknowledgements: Grants in support came from the Ministry of Agriculture, Forestry and Fishery, and the Ministry of Education, Science, Sports and Culture.

KY-DB1

Forest age: OG.

Disturbance: A light selective cutting probably occurred because remains of charcoal making were found around the plot (Watanabe 1993; Ida 2013).

Soil type FAO: Humic Cambisols.

Soil type Forest Soil Division: Brown forest soil (Ida H. personal observation).

Soil pH: NA.

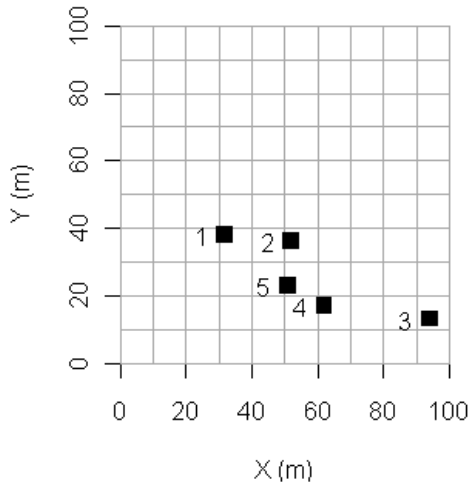
Bedrock: Plateau originated from lava flow (Ida 2013).

Snow depth: 3−4 m (Ida 2013).

Dwarf bamboo as understory vegetation: Understory is dominated by 1.5 m high *Sasa kurilensis* and *Sasa senanensis* (Peters et al. 1992; Ida 2013).

Maximum canopy height: 25 m (Watanabe 1994).

Plot & Subplots: The direction of Y-axis is 97° west from true north. Subplots were slightly moved after the census in 2006.



Remarks: Grasslands and pastures are 100 m west and 350 m south of the plot.

OT-EC1

Forest age: OG.

Disturbance: No record of human disturbance (Ida H. personal observation).

Soil type FAO: Humo-Ferric (Gleyic) Podzols.

Soil type Forest Soil Division: Wet humus podzolic partly dry podzolic or moderately moist brown forest soil (Takai et al. 1976).

Soil pH: 3.8–4.5 (Takai et al. 1976).

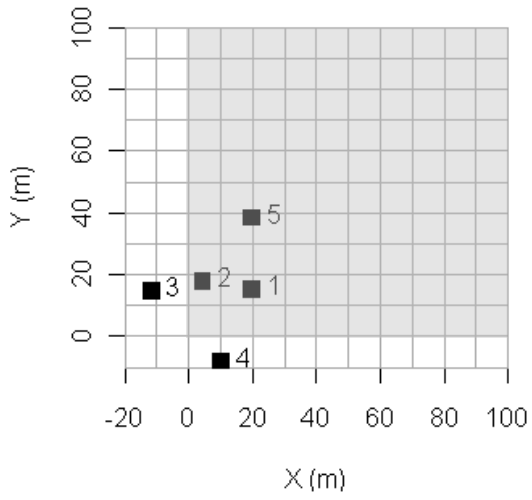
Bedrock: Deposition of andesite and volcanic mudflow (Takai et al. 1976).

Snow depth: 2 m (Ida H. personal observation).

Dwarf bamboo as understory vegetation: Understory is dominated by 1 m high *Sasa kurilensis* (Kuroiwa and Watanabe 1997*).

Maximum canopy height: 22 m (Kuroiwa and Watanabe 1997*).

Plot & Subplots: The direction of Y-axis is 3° west from true north.



Grayed area indicates the permanent plot for tree census of which data were published in Ishihara et al. (2011).

Remarks: Grasslands, wetlands, ski slopes and a road are 600 m west to southwest of the plot.

OY-DB1

Forest age: OG. 254-year-old tree was recorded in 1988 (Sakio 1997*).

Disturbance: *Fraxinus platypoda* established after a land slide caused by an earthquake in 1770 to 1790 (Sakio 1997*). No record of logging (Kubo et al. 2005*).

Soil type FAO: Humo-Ferric Podzols.

Soil type Forest Soil Division: Sand, gravel, rock (Sakio 1997*).

Soil pH: NA.

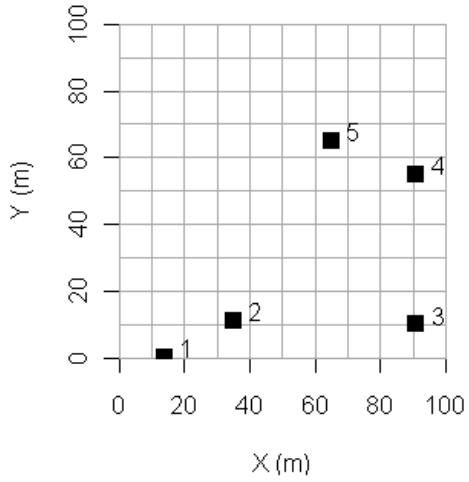
Bedrock: Greywacke, sandstone (Sakio 1997*).

Snow depth: 0.3 m (Sakio 1997*).

Dwarf bamboo as understory vegetation: 2 m height *Sasamorpha borealis* dominates at slope (Sakio H. personal observation).

Maximum canopy height: 35 m (Sakio H. unpublished data).

Plot & Subplots: The direction of Y-axis is 116° west from true north.



Remarks: The plot includes a stream and was established in a riparian forest dominated by *Fraxinus platypoda*, *Pterocarya rhoifolia*, and *Cercidiphyllum japonicum* (Sakio et al. 2002*).

Acknowledgements: We thank Drs. Masako Kubo and Naoko Sashimura for the field works of the research site. Thanks are also due to the members of Mori to Mizu no Genryu Bunkajuku for their various assistances.

CC-DB1

Forest age: OG.

Disturbance: No record of logging since the University forest was established in 1916.

Soil type FAO: Humic Cambisols.

Soil type Forest Soil Division: Moderately moist brown forest soil (University Forest in Chichibu 2000).

Soil pH: NA.

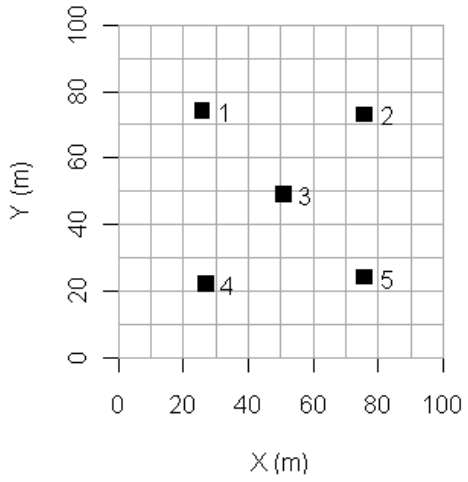
Bedrock: Sedimentary rock (University Forest in Chichibu 2000).

Snow depth: 0.2−0.3 m (Sawada et al. 2005*).

Dwarf bamboo as understory vegetation: None.

Maximum canopy height: 29 m (University Forest in Chichibu unpublished data).

Plot & Subplots: The direction of Y-axis is true north.



Remarks: A river flows 350 m southwest of the plot.

CC-DB2

Forest age: S. 65 years old in 2000 (University Forest in Chichibu 2000).

Disturbance: Regenerated naturally after a clear cutting event.

Soil type FAO: Humic Cambisols.

Soil type Forest Soil Division: Moderately moist to slightly wetted brown forest soil (University Forest of Chichibu 2000).

Soil pH: NA.

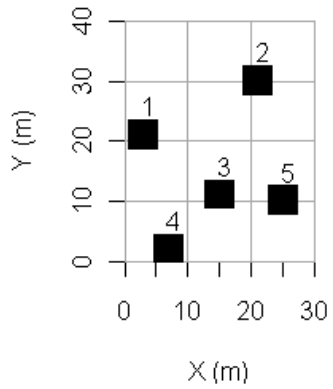
Bedrock: Sedimentary rock (University Forest in Chichibu 2000).

Snow depth: 0.2−0.3 m (Sawada et al. 2005).

Dwarf bamboo as understory vegetation: Almost none.

Maximum canopy height: 22.8 m (University Forest in Chichibu unpublished data).

Plot & Subplots: The shape of plot is 30×40 m. The direction of Y-axis is 142° west from true north.



Remarks: Grasslands are 50 m north and 500 m southwest of the plot. Roads are 100 m northeast and 500m south of the plot.

AU-EC1

Forest age: OG. 230-year-old tree was recorded in 1980 (Tamai and Tempo 1990).

Disturbance: Since the establishment of Ashiu Experimental Forest in 1924, no human disturbance occurred (Yamanaka et al. 1993). Mass mortality of Fagaceae trees by Japanese oak wilt has occurred since 2002.

Soil type FAO: Humic Cambisols.

Soil type Forest Soil Division: Brown forest soil (Ueda et al. 1993).

Soil pH: 4.5 (Ueda et al. 1993).

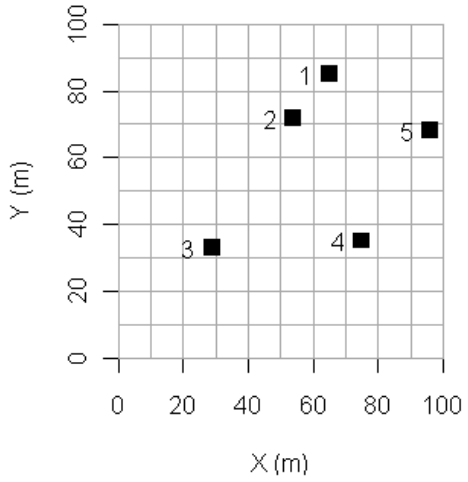
Bedrock: Sandstone, slate, mudstone, shale, chert (Ueda et al. 1993; Yamanaka et al. 1993).

Snow depth: 2–3 m (Yamanaka et al. 1993).

Dwarf bamboo as understory vegetation: None since before sever herbivory by Sika deer occurred (Sakimoto M. personal observation).

Maximum canopy height: 25 m (Kawanabe et al. 1994; Sakimoto M. personal observation).

Plot & Subplots: The direction of Y-axis is 69° west from true north.



AI-BC1

Forest age: S. Less than 100 years old (Shibano 2000*).

Disturbance: The forest established on the previously bare land due to fuel wood consumption (Shibano 2000*). *Chamaecyparis obtusa* trees were planted in 1917−1918 to prevent soil erosion. At present, the forest is composed of pine tree and broadleaf tree species that have naturally established. Mass mortality of pine trees by Pine wilt disease occurred in 1980s and late 2000s. In 2010 and 2011, many oak trees were attacked by ambrosia beetle *Platypus quercivorus*, which transport the pathogenic fungi *Raffaelea quercivora* causing Japanese oak wilt.

Soil type FAO: Humic Cambisols.

Soil type Forest Soil Division: Moderately moist brown forest soil (Moroto et al. 1987).

Soil pH: 4.5−5.1 (Moroto et al. 1987).

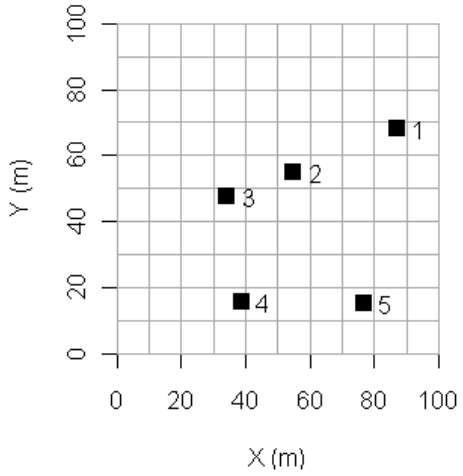
Bedrock: Deeply weathered granite (Moroto et al. 1987).

Snow depth: 0.101 m on average between 1966 and 1999 (University Forest in Aichi, the University of Tokyo unpublished data).

Dwarf bamboo as understory vegetation: None.

Maximum canopy height: 20 m (Ariyakanon et al. 2000).

Plot & Subplots: The direction of Y-axis is true north. All subplots were relocated from outside to inside the plot after the census in 2004. Subplot 1, 3, 4 and 5 were moved several meters after the census in 2009.



Remarks: Roads are 100 m south and 200 m north of the plot. Open lands and some buildings are 200 m west of the plot.

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KG-EC1

Forest age: S. About 90 years old (Sakimoto et al. 2009b*).

Disturbance: After mass mortality of dominant pine trees by Pine wilt disease in 1970s, *Chamaecyparis obtusa* that formed the middle and lower layers have become dominant (Sakimoto M. unpublished data).

Soil type FAO: Gleysols.

Soil type Forest Soil Division: Dry brown forest soil (Tokuchi et al. 2002*).

Soil pH: NA.

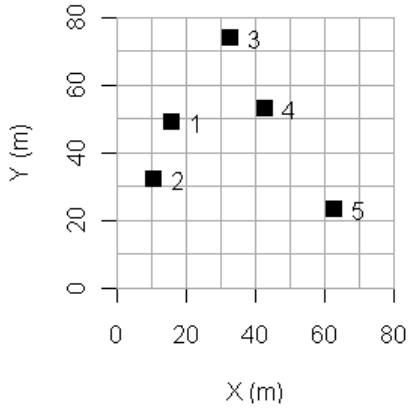
Bedrock: Bedded chert with siliceous shale (Kimura et al. 1998).

Snow depth: Few cm (Kamigamo Experimental Station, Kyoto University http://fserc.kyoto-u.ac.jp/kami/).

Dwarf bamboo as understory vegetation: None (Sakimoto M. personal observation).

Maximum canopy height: 20 m (Sakimoto M. personal observation).

Plot & Subplots: The shape of plot is 80×80 m. The direction of Y-axis is 180° east from true north.



Remarks: A grassland and a golf course are 50 m south and 500 m southwest of the plot, respectively. Urban areas are 150 m north, east and south of the plot.

WK-EC1

Forest age: OS. About 100 years old (Sakimoto et al. 2009a*).

Disturbance: Cut stumps created in 1920–1922 were found and the forest was used until the establishment of the University Forest in 1926 (Furuno et al. 1986).

Soil type FAO: Humic Cambisols.

Soil type Forest Soil Division: Moderately moist brown forest soil (Ueda et al. 1994).

Soil pH: 4.8–4.9 (Ueda et al. 1994).

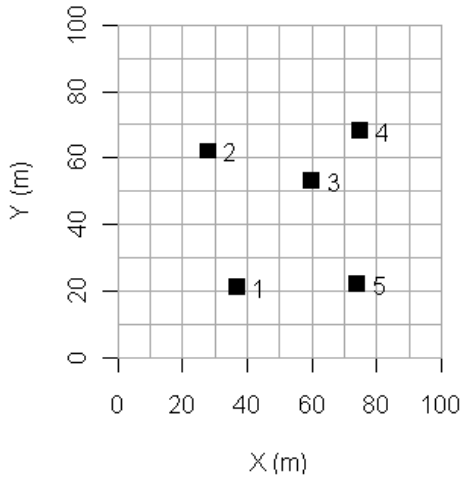
Bedrock: Sandstone, shale (Toda et al. 2000).

Snow depth: 0.3 m (Wakayama Forest Research Station, Kyoto University http://fserc.kyoto-u.ac.jp/waka/).

Dwarf bamboo as understory vegetation: None (Sakimoto M. personal observation).

Maximum canopy height: 25–30 m (Sakimoto M. personal observation).

Plot & Subplots: The directionof Y-axis is 30° east from true north.



IC-BC1

Forest age: OG. Maximum tree age is about 300 years old (Sakai T. unpublished data).

Disturbance: *Chamaecyparis obtusa* trees were cut selectively in 1985–1986 at the ridge (Sakai et al. 2006*. Sakai T. personal communication).

Soil type FAO: Humic Cambisols.

Soil type Forest Soil Division: Moderately moist to weakly dried brown forest soil, dry podzolic soil (Hirai et al. 2007*).

Soil pH: 3.6–5.1 (Hirai et al. 2007*).

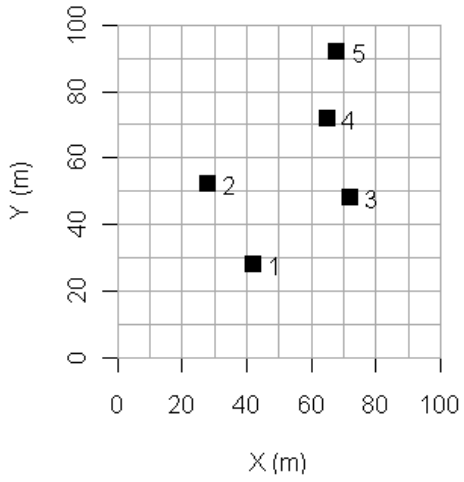
Bedrock: Sandstone, mudstone (Sakai et al. 2006*).

Snow depth: 0.15 m (Sakai T. personal observation).

Dwarf bamboo as understory vegetation: None (Sakai T. personal observation).

Maximum canopy height: 41 m (Sakai et al. 2006*).

Plot & Subplots: The direction of Y-axis is 142° west from true north.



Remarks: A road is 450 m east of the plot.

Acknowledgements: We thank Tatsuro Kawasaki, Ryuichi Tabuchi and Atsushi Sakai for setup and maintenance of the research site. Thanks are also due to the members of Shikoku Research Center, Forestry and Forest Products Research Institute for their various assistances.

SD-EB1

Forest age: OG. Probably >150 years old (Kuramoto and Okuda 2005*).

Disturbance: NA.

Soil type FAO: Humic Cambisols.

Soil type Forest Soil Division: Moderately moist to weakly dried brown forest soil (Kochi Regional Forestry Office, 1964).

Soil pH: NA.

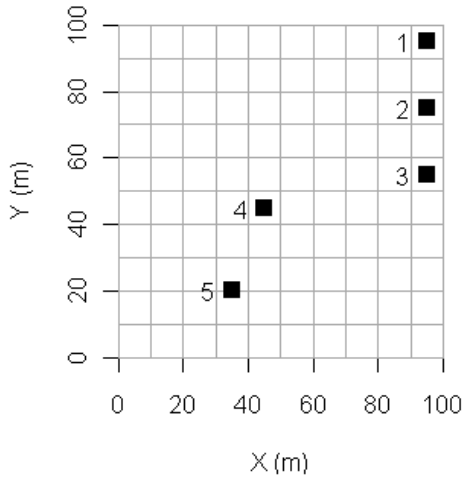
Bedrock: Plutonic rock (Kuramoto and Okuda 2005*).

Snow depth: 0 m (Kuramoto S. personal observation).

Dwarf bamboo as understory vegetation: None (Kuramoto S. personal observation).

Maximum canopy height. NA.

Plot & Subplots:



Remarks: A road is 250 m west of the plot. Coasts are 1100 m southwest and 1300 m east of the plot.

Acknowledgements: We thank Shiro Okuda, and the staffs of Shikoku Research Center, Forestry and Forest Products Research Institute for their various assistances. Thanks are also due to foresters of Tosashimizu Forest Cooperative, and Tosashimizu National Forest Office for their assistance in the plot installation and the tree census.

AY-EB1

Forest age: OG.

Disturbance: No record of human disturbance (Tanouchi and Yamamoto 1995*). The forest experienced typhoon disturbance in 1993, 2004 and 2005 (Saito and Sato 2007*).

Soil type FAO: Humic Cambisols.

Soil type Forest Soil Division: Dry, moderately moist, or moderately moist drier subtype brown forest soil (Sato et al. 1999*).

Soil pH: NA.

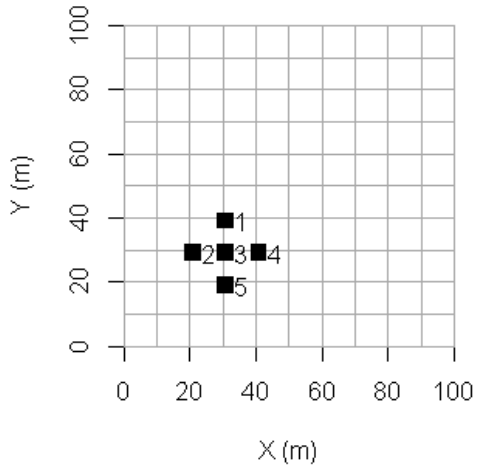
Bedrock: Shale, sandstone, partly covered by pumice stone from volcanic eruption (Ohnuki et al. 1998*; Sato et al. 1999*).

Snow depth: 0 m (Masaki et al. 1999*).

Dwarf bamboo as understory vegetation: None (Saito S. personal observation).

Maximum canopy height: 30 m (Saito and Sato 2007*).

Plot & Subplots: The 1-ha plot is a part of a 4-ha permanent plot. The direction of Y-axis is 166° west from true north.



Remarks: A road and a river are 450 m northeast of the plot.

TN-EB1

Forest age: S. 87 years old (Kubota and Takagi 2007*).

Disturbance: The forest regenerated in 1924 (Kubota and Takagi 2007*).

Soil type FAO: Andosols.

Soil type Forest Soil Division: Moderately moist brown soil (Takagi M. unpublished data).

Soil pH: 5.7 (Takagi M. unpublished data).

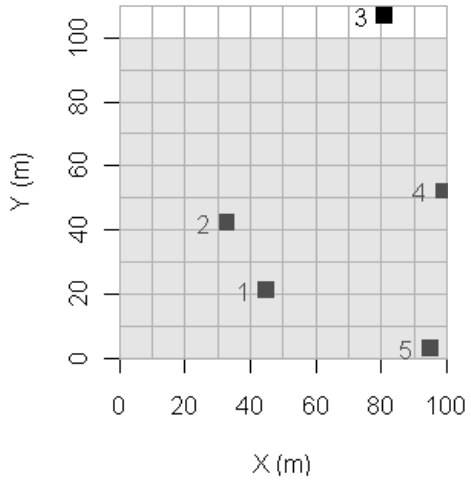
Bedrock: Shale (Endo 1958).

Snow depth: 0 m (Takagi M. personal observation).

Dwarf bamboo as understory vegetation: None (Takagi M personal observation).

Maximum canopy height: 25 m (Takagi M unpublished data).

Plot & Subplots: The direction of Y-axis is 6° east from true north.



Grayed area indicates the permanent plot for tree census of which data were published in Ishihara et al. (2011).

Acknowledgements: We thank the staff of University of Miyazaki Tano Forest Science Station for the field work.

TN-EB2

Forest age: S.

Disturbance: NA.

Soil type FAO: Residual Regosols.

Soil type Forest Soil Division: NA.

Soil pH: NA.

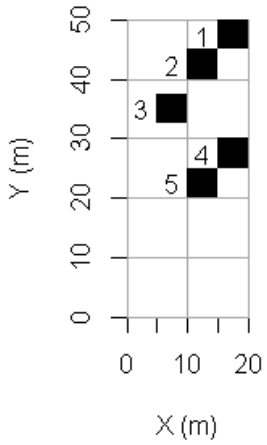
Bedrock: Sandstone (Miyazaki Prefecture 1992).

Snow depth: 0 m (Kubota K. personal observation).

Dwarf bamboo as understory vegetation: None (Kubota K. personal observation).

Maximum canopy height: 9 m (Kubota K. personal observation).

Plot & Subplots: The shape of plot is 20×50 m.



Remarks: The plot was established in a coastal scrub forest dominated by *Litsea japonica*, *Ardisia sieboldii*, *Daphniphyllum teijsmannii* and *Rhaphiolepis indica*. A coast is 50 m south of the plot.

Acknowledgements: We thank the staff of University of Miyazaki Tano Forest Science Station for the field work.

AM-EB1

Forest age: OS. About 140 years old.

Disturbance: Remains of charcoal making were found in the plot. Protected from human disturbance for 100 years as a reserve (Ishida et al. 2008).

Soil type FAO: Humic Cambisols.

*Soil type Forest Soil Divisio*n: Weakly dried to moderately moist yellow soil at the valley (Ishida K. personal observation).

Soil pH: NA.

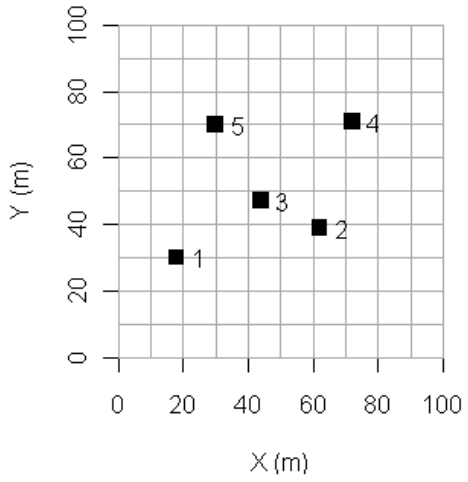
Bedrock: Shale partly sandstone (Ishida K. personal observation).

Snow depth: None (Ishida K. personal observation).

Dwarf bamboo as understory vegetation: None (Ishida K. personal observation).

Maximum canopy height: 20 m (Kumamoto Forest Office and Japan Forest Technology Association 1997).

Plot & Subplots: The direction of Y-axis is 175° east from true north. Subplots were slightly moved after the first pitfall trapping in 2005.



YN-EB1

Forest age: OS.

Disturbance: Human disturbance such as selective cutting occurred until 1950s (Enoki 2003*; Saito 2011).

Soil type FAO: Helvic Acrisols.

Soil type Forest Soil Division: Weakly dried to moderately moist yellow soil (Yamamori et al. 1986).

Soil pH: 4.1–4.3 (Yamamori et al. 1986).

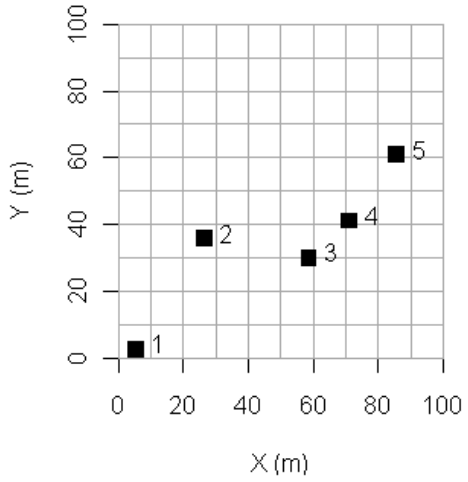
Bedrock: Sandstone and slate (Enoki 2003*).

Snow depth: 0 m.

Dwarf bamboo as understory vegetation: *Pleioblastus linearis* distributed at ridges (Takashima A. personal observation).

Maximum canopy height: 20 m (Shinzato et al. 1986).

Plot & Subplots: The direction of Y-axis is 40° west from true north.



Remarks: The census was conducted in additional subplots numbered 6-8 in 2007. The subplot numbers were changed after the census in 2007: subplot 1, 3, 5, 6 and 7 in 2007 correspond to subplot 1, 2, 3, 4 and 5 since 2008, respectively. Data of beetle, organic layer and mineral soil in the latest 3 years are not available in this dataset.

Acknowledgements: We thank the staff of Yona field, Subtropical Field Science Center, Faculty of Agriculture, University of the Ryukyus.

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