

Appendix. Detail information of each plot.

For definition of forest age classifications (OG, OS, S), see the metadata (8. A.). Forest age or maximum tree age is the age in 2010 unless specified.

Soil types followed the Classification of Forest Soil in Japan (Forest Soil Division 1976). P: podzolic soil; P_w: wet podzolic soil; P_{w(i)}: wet iron podzolic soil; P_{w(h)}: wet humus podzolic soil; P_D: dry podzolic soil; B: brown forest soil; BA: dry brown forest soil (loose granular structure type); BB: dry brown forest soil (granular and nutty structure type); BC: weakly dried brown forest soil; BD: moderately moist brown forest soil; BD_(d): moderately moist brown forest soil (drier subtype); BE: slightly wetted brown forest soil; BF: wet brown forest soil; yB: yellowish brown forest soil; Bl: black soil; lBl: light colored black soil; G: gley; YC: weakly dried yellow soil; YD: moderately moist yellow soil.

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. B (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).

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

Maximum canopy height. 28 m (Yoshida T. unpublished data).

Remarks. A 0.5-ha part of the plot was established in 1991, followed by censuses with 5-year intervals (regarding trees with dbh \geq 10cm).

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. B, according to the Unified Soil Classification System of Japan; Bl, according to the Classification of Forest Soil in Japan; Cambisols, according to the World Reference Base for Soil Resources (Shibata H. personal observation).

Soil pH.

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 Tuff layer, sandstone, shale (Ashoro Research Forest, Kyushu University unpublished data).

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

Sasa (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).

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. B, according to the Unified Soil Classification System of Japan; *Bl*, according to the Classification of Forest Soil in Japan; Cambisols, according to the World Reference Base for Soil Resources (Shibata H. personal observation).

Soil pH. 5.3–6.0 (Ashoro Research Forest, Kyushu University unpublished data).

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 Tuff layer, sandstone, shale (Ashoro Research Forest, Kyushu University unpublished data).

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

Sasa (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).

AS-DB3

Forest age. S. The forest is estimated to be about 30 years old (Tashiro N. personal observation).

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

Soil type. B, according to the Unified Soil Classification System of Japan; *Bl*, according to the Classification of Forest Soil in Japan; Cambisols, according to the World Reference Base for Soil Resources (Shibata H. personal observation).

Soil pH.

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

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

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

Maximum canopy height. 15 m (Tashiro N. personal observation).

NP-DB1

Forest age. OG.

Disturbance. A light selective cutting occurred in the past (Namikawa K. personal communication).

Soil type. B (Ishikawa et al. 1986).

Soil pH.

Bedrock. Konopporo geologic formation composed of an alternation of clay, silt and sand layers covered by thin Shikotsu volcanic ejecta (Akamatsu and Yamada 1980; Ishikawa et al. 1986).

Snow depth. 1 m (Masuda 1983).

Sasa (dwarf bamboo) as understory vegetation. Understory is dominated by 1.2 m high dwarf bamboo (Namikawa K. unpublished data).

Maximum canopy height. 30 m (Namikawa K. unpublished data).

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. 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*).

Sasa (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).

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. 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).

Sasa (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).

Remarks. Only trees with gbh \geq 30 cm were measured.

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. 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).

Sasa (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).

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. 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*).

Sasa (dwarf bamboo) as understory vegetation. None.

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

Remarks. Position of each tree within grid cell was not recorded.

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

NB-EC1

Forest age. OG. 270-year-old tree was recorded when Tohoku Regional Forest Office (2001*) conducted their study.

Disturbance. No record of human disturbance. Typhoon Mireille (the 19th typhoon in 1991) caused the heavy damage on this forest. (Tohoku Regional Forest Office 2001*).

Soil type. Mainly Bd (Tohoku Regional Forest Office 2001*).

Soil pH. 4.9-5.5 (Takashi Sato *et al.* unpublished data*).

Bedrock. Alternate layers of sandstone and mudstone of the Pleistocene period, a partially intercalated a thin tuff bed. (Tohoku Regional Forest Office 2001*).

Snow depth. About 1 m. (Tohoku Regional Forest Office 2001*).

Sasa (dwarf bamboo) as understory vegetation. *Sasa kurilensis* and *S. palmate* are sparsely distributed (Tohoku Regional Forest Office 2001*).

Maximum canopy height. 52 m (Tohoku Regional Forest Office 2001).

Remarks. Belt transect from valley to ridge, including the disturbed area by the large typhoon in 1991.

Acknowledgements. We thank Yuuki Abe and other members of Laboratory of Forest Science, Akita Prefectural University.

OZ-DB1

Forest age. OG. 150-year-old tree that fell in 1991 by strong wind was recorded (Sugita and Shimomoto 1997*).

Disturbance. Remains of charcoal making were found around the plot and the forest was estimated to be regenerated after a large human disturbance in the late 19th century (Sugita and Shimomoto 1997*). Large canopy gaps were formed since 1973, in 1981 and 1991 by strong typhoons and in 1998 and 1999 by heavy snowfalls.

Soil type. BD(d), BD (Sugita H. personal observation).

Soil pH.

Bedrock. Tuff (Tada 1976).

Snow depth. 1.5–2 m (Sugita H. personal observation).

Sasa (dwarf bamboo) as understory vegetation. None.

Maximum canopy height. 30 m (Sugita H. unpublished data).

HY-EC1

Forest age. OG. About several hundred years old. From pollen analysis, tree community with present species composition has been established since past 1000 years (Ikeda 2005).

Disturbance.

Soil type. Probably Pw^(h) (Sugita H. personal observation).

Soil pH.

Bedrock. Granitic rocks (Ehiro et al. 1986).

Snow depth. 1.5-2.2 m (1.73 m on average between 1998 and 2010) (Sugita H, unpublished data).

Sasa (dwarf bamboo) as understory vegetation. 1.5 m high *Sasa kurilensis* distributes patchily (Sugita H. personal observation).

Maximum canopy height. About 17 m (Sugita H. personal observation).

Remarks. The size of grid cells of (X = 0–70, Y = 120) were 10×5m (Fig. 1). The census was conducted from September to November of 2005, which is indicated by the values of “20050900” in s_date05.

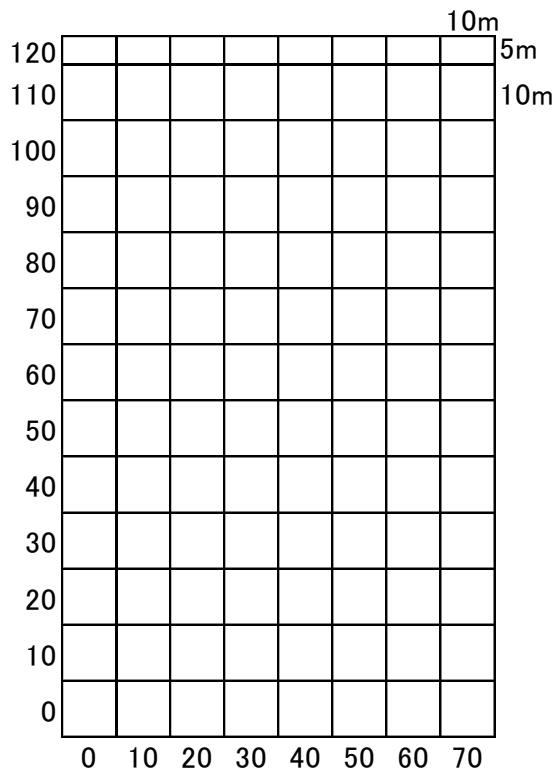


Fig. 1. Layout of grid cells in the 80×125-m permanent forest plot at HY-EC1.

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. Gravel (large and sandy), B (Masaki et al. 1999*).

Soil pH.

Bedrock. Igneous rock (green tuff and others).

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

Sasa (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*, *Dyopteris* and *Arachniodes*) dominate the understory layer (Hoshizaki et al. 1997*).

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

Remarks. Data of 1993 is available from Forest Dynamics Database

(<http://fddb.ffpri-108.affrc.go.jp/>), which includes larger dataset from 4.71-ha area.

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AO-EC1

Forest age. OG.

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

Soil type.

Soil pH.

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

Snow depth.

Sasa (dwarf bamboo) as understory vegetation.

Maximum canopy height.

OS-EC1

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

Disturbance.

Soil type. PD, PW⁽ⁱ⁾ (Nakata 1994).

Soil pH. 4.0–4.9 (Nakata 1994).

Bedrock. Andesite (Nakata 1994).

Snow depth. 3.5–3.9 m (Nakata 1994).

Sasa (dwarf bamboo) as understory vegetation. None (Homma K. personal observation).

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

KK-DB1

Forest age. OG. Maximum tree age was about 200 years old when Cao and Ohkubo (1999*)

conducted their study.

Disturbance. The forest experienced human disturbances such as selective cutting in the past (Ohkubo T. personal communication).

Soil type. B (Cao and Ohkubo 1999*).

Soil pH.

Bedrock. Loam (Cao and Ohkubo 1999*).

Snow depth. 2–3 m (Cao and Ohkubo 1999*).

Sasa (dwarf bamboo) as understory vegetation. None (Ohkubo T. personal observation).

Maximum canopy height. 40 m (Cao and Ohkubo 1999*).

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 ambrosia beetle *Platypus quercivorus* have been occurred since 1990s and 2000s, respectively (Homma K. personal communication).

Soil type.

Soil pH.

Bedrock.

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

Sasa (dwarf bamboo) as understory vegetation. None (Homma K. personal observation).

Maximum canopy height.

Remarks. Although tree census was conducted since 2004, the data of 2004 was excluded because of low data quality.

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. B partly B1 or G (Masaki et al. 1999*).

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

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

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

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

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

Remarks. Position of each tree within grid cell was not recorded. Data of 1987, 1989, 1991, and 1993 are available from Forest Dynamics Database (<http://fddb.ffpri-108.affrc.go.jp/>), which includes larger dataset from 6-ha area (see Nakashizuka and Matsumoto 2002).

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KY-DB1

Forest age. OG.

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

Soil type. B (Ida H. personal observation).

Soil pH.

Bedrock. Plateau originated from lava flow (Ida et al. 2004).

Snow depth. 3–4 m (Ida et al. 2004).

Sasa (dwarf bamboo) as understory vegetation. Understory is dominated by 1.5 m high *Sasa kurilensis* and *Sasa senanensis* (Peters 1992; Ida et al. 2004).

Maximum canopy height. 25 m (Watanabe 1994).

OT-EC1

Forest age. OG.

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

Soil type. PW^(h) partly PD, BD (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. 3 m (Ida H. unpublished data).

Sasa (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*).

Remarks. Although tree census was conducted since 2005, the data of 2005 was excluded because of low data quality. Trees in grid cells of Y = 60–90 were unmeasured until 2006 and measured since 2007.

TB-DB1

Forest age. OG. Maximum tree age is about 300 years old (Tanaka N. unpublished data).

Disturbance. The forest is owned by Tsukubasan Shrine and logging has not been conducted.

Cryptomeria japonica trees were planted partly.

Soil type. B, clay-loam (Tanaka. N personal observation).

Soil pH.

Bedrock. Gabbro (Tanaka. N personal communication).

Snow depth. 0 m.

Sasa (dwarf bamboo) as understory vegetation. *Sasamorpha borealis* is dominant understory vegetation and *Pleioblastus chino* covers partly (Tanaka N. personal observation).

Maximum canopy height. 24 m (Tanaka N. unpublished data).

Remarks. Census was conducted from November 2007 to October 2008 intermittently.

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. Sand, gravel, rock (Sakio 1997*).

Soil pH.

Bedrock. Greywacke, sandstone (Sakio 1997*).

Snow depth. 0.3 m (Sakio 1997*).

Sasa (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).

Remarks. The plot was established in a riparian forest dominated by *Fraxinus platypoda*, *Pterocarya rhoifolia*, and *Cercidiphyllum japonicum* (Sakio et al. 2002). Position of each tree within grid cell was not recorded.

Acknowledgements. We thank Drs. Motohiro Kawanishi, Masako Kubo, Motoki Higa 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 (1916).

Soil type. BD (University Forest in Chichibu 2000).

Soil pH.

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

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

Sasa (dwarf bamboo) as understory vegetation. None.

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

Remarks. Although this plot was subdivided into sixteen 25×25 m grid cells, xy-coordinates of the grid cells were not included in the data of this Data Paper. Position of each tree within the plot was not recorded.

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. BD, BE (University Forest of Chichibu 2000).

Soil pH.

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

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

Sasa (dwarf bamboo) as understory vegetation. Almost none.

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

Remarks. Position of each tree within grid cell was not recorded.

CC-DB3

Forest age. S. 47 years old in 2000 (University Forest in Chichibu 2000).

Disturbance. Regenerated naturally after a clear cutting event.

Soil type. BD, BE (University Forest in Chichibu 2000).

Soil pH.

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

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

Sasa (dwarf bamboo) as understory vegetation. Almost none.

Maximum canopy height. 22.0 m (University Forest in Chichibu unpublished data).

Remarks. The shape of the plot is not a rectangular. Position of each tree within the plot was not recorded.

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 ambrosia beetle *Platypus quercivorus* has occurred since 2002.

Soil type. B (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).

Sasa (dwarf bamboo) as understory vegetation. None since before severe herbivory by Sika deer occurred (Sakimoto M. personal observation).

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

AU-DB1

Forest age. OG. About 150-year-old tree was recorded in 1966 (Ogino 1977).

Disturbance. Since the establishment of Ashiu Experimental Forest in 1924, no human disturbance occurred (Yamanaka et al. 1993*). Mass mortality of Fagaceae trees by ambrosia beetle *Platypus quercivorus* has occurred since 2002.

Soil type. B (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*).

Sasa (dwarf bamboo) as understory vegetation. *Sasa plamata* disappeared from understory because of herbivory by Sika deer (Tanaka et al. 2008).

Maximum canopy height. 30 m (Kawanabe et al. 1994).

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. In 2007, oak trees near the plot were killed by ambrosia beetle *Platypus quercivorus*.

Soil type. BD (Moroto et al. 1987).

Soil pH. 4.5–5.1 (Moroto et al. 1987).

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

Snow depth. 10.1 cm on average between 1966 and 1999 (University Forest in Aichi, The University of Tokyo unpublished data).

Sasa (dwarf bamboo) as understory vegetation. None.

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

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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. BA (Tokuchi et al. 2002*).

Soil pH.

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/>).

Sasa (dwarf bamboo) as understory vegetation. None (Sakimoto M. personal observation).

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

GR-DB1

Forest age. OG.

Disturbance. Few cut stumps were found (Ida and Nakagoshi 1998*). Disturbed by a typhoon in 1991 (Ida and Nakagoshi 1998*; Ida 2000*).

Soil type. Bl, B (Hukushima and Okazaki 1995).

Soil pH.

Bedrock. Rhyolite (Takamura 1989).

Snow depth. 2 m (Ida 2000*).

Sasa (dwarf bamboo) as understory vegetation. Almost none (Ida 2000*).

Maximum canopy height. 24 m (Ida and Nakagoshi 1998*).

Remarks. In 2007, only trees in grid cells of (X = 0–10, Y = 0–90) and (X = 20, Y = 0–30) were measured. All the trees in the plot were measured in 2008.

KA-EB1

Forest age. OG. More than 1100 years old (Koshimizu et al. 1971).

Disturbance. Protected from logging since 841 as a divine forest (Koshimizu et al. 1971).

Soil type. B (Nakane 1975).

Soil pH. 3.8–4.6 (Nakane 1975).

Bedrock. Ryoke metamorphic complex (Kokawa 1954).

Snow depth. 0 m (Itoh A. personal observation).

Sasa (dwarf bamboo) as understory vegetation. None (Itoh A. personal observation)

Maximum canopy height. 25 m (Naka 1982).

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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. BD (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/>).

Sasa (dwarf bamboo) as understory vegetation. None (Sakimoto M. personal observation).

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

KJ-EB1

Forest age. OS. 140 years old (Inoue et al. 2008*)

Disturbance. *Cryptomeria japonica* trees were planted 140 years ago. Broadleaf tree species regenerated naturally and coexist with *C. japonica* (Inoue et al. 2008*).

Soil type. B (Enoki T. personal observation).

Soil pH.

Bedrock. Amphibolites (Hatsushima 1934).

Snow depth. 0 m (Enoki T. personal observation).

Sasa (dwarf bamboo) as understory vegetation. None (Enoki T. personal observation).

Maximum canopy height. 27 m (Enoki T. unpublished data).

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. BD, BD(d), BC, PD (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).

Sasa (dwarf bamboo) as understory vegetation. None (Sakai T. personal observation).

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

Remarks. A 0.05-ha area (X = 90, Y = 40-80) of the 100 × 100 m plot was excluded from the measurement because of technical problems due to the steep local topography.

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SD-EB1

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

Disturbance.

Soil type. BC, BD(d) (Kochi Regional Forest Office, 1964).

Soil pH.

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

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

Sasa (dwarf bamboo) as understory vegetation. None (Kuramoto S. personal observation).

Maximum canopy height.

Remarks. A 0.02 ha area of the 100 m × 100 m plot was excluded from the measurement because the area was on a private land and the measurement was not allowed there.

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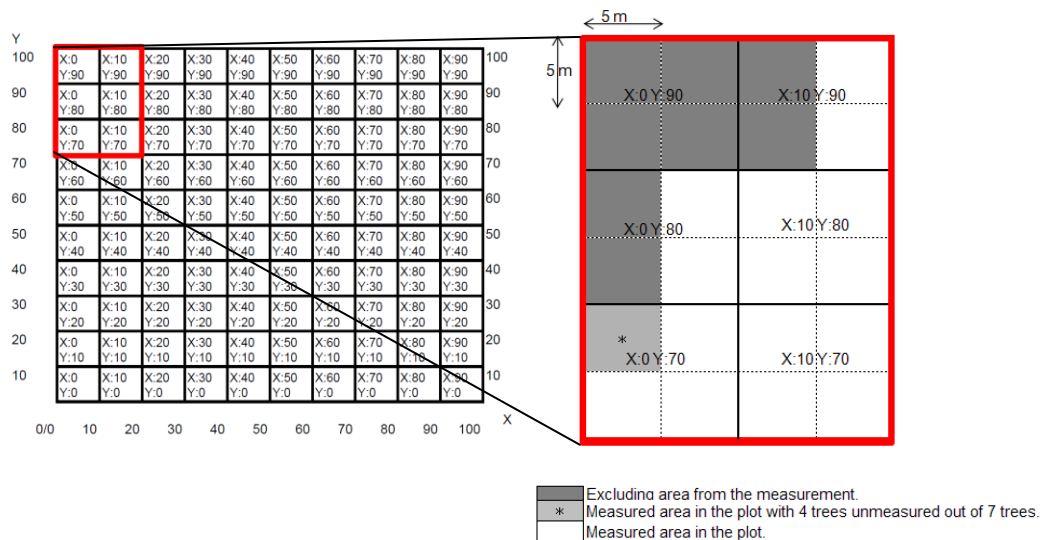


Fig. 2 Grid cells where the unmeasured trees were located in SD-EB1.

SI-DB1

Forest age. OS.

Disturbance. No record of logging since the establishment of University Forest at about 70 years ago.

No cut stump can be found although large trees are scarce (Enoki T. personal observation).

Soil type. B (Enoki T. personal observation).

Soil pH. 4.97–5.29 (Shibata H. unpublished data).

Bedrock. Granite (Hatsushima S. 1970).

Snow depth. 0.2 m (Enoki T. unpublished data).

Sasa (dwarf bamboo) as understory vegetation. *Sasamorpha borealis* dominates (Murata et al. 2009; Saruki et al. 2004).

Maximum canopy height. 27 m for *Abies firma* and 24 m for *Fagus crenata* (Enoki T. unpublished data).

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. BB, BD, BD(d) (Sato et al. 1999*).

Soil pH.

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*).

Sasa (dwarf bamboo) as understory vegetation. None (Saito S. personal observation).

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

TN-EB1

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

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

Soil type. BD(d) (Takagi M. unpublished data).

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

Bedrock. Shale (Endo 1958).

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

Sasa (dwarf bamboo) as understory vegetation. None (Takagi M personal observation).

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

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

YK-EB1

Forest age. OG. Probably several hundred years old (Niiyama K. personal observation).

Disturbance. Human disturbance such as selective cutting occurred in the past (Niiyama 2007*).

Soil type. From immature soil to B depending on the topology (Niiyama K. personal observation).

Soil pH.

Bedrock. Granite (Niiyama K. personal observation).

Snow depth. 0 m (Niiyama K. personal observation).

Sasa (dwarf bamboo) as understory vegetation. None (Niiyama K. personal observation).

Maximum canopy height. About 20–25 m (Niiyama K. personal observation).

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. YC, YD at the valley (Ishida K. personal observation)

Soil pH.

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

Snow depth. None (Ishida K. personal observation)

Sasa (dwarf bamboo) as understory vegetation. None (Ishida K. personal observation)

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

YN-EB1

Forest age. OS.

Disturbance. Human disturbance such as selective cutting occurred until 1950s (Enoki 2003*; Saito Kazuhiko. unpublished data).

Soil type. YC, YD (Yamamori et al. 1986).

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

Bedrock. Sandstone and slate (Enoki 2003*).

Snow depth. 0 m.

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

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

Remarks. Although the values of s_date05 were assigned as “20060111” for all trees, exact census date were between 11 Jan. and 17 Jan. in 2006.

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

OW-EB1

Forest age. OG. Maximum tree age is estimated to be about 100 years old (Tanaka N. unpublished data)

Disturbance. *Morus boninensis* trees were cut selectively before 1945.

Soil type. Clay soil (Tanaka N. personal observation)

Soil pH. 6–7 (Tanaka N. personal observation)

Bedrock. Limestone, andesite (Tanaka N. personal observation)

Snow depth. 0 m (Tanaka N. personal observation)

Sasa (dwarf bamboo) as understory vegetation. None (Tanaka N. personal observation)

Maximum canopy height. 22 m (Tanaka N. personal observation)

Remarks. Census was conducted from February 2006 to April 2007 intermittently.