The details of the sample plots.

The data from China and other country are listed in the first eleven rows in Table 3. Two plots of Beijing experiment are located in *Jiulongshan* of the western Beijing and *Yiheyuanhou* of the north-western Beijing respectively. *Jiulongshan* experiment (39°57′N, 116°05′E) is a *platycladus orientalis* plantation which was planted in the mid-1960s and tending thinning due to pests and diseases in 2003. (Zhang, et al.,2015). There are some natural regenerated tree species expect *platycladus orientalis*, such as *Ailanthus altissima* (Mill.) Swingle, *Broussonetia papyrifera* (L.)Vent, *Ulmus pumila* L., et al. Yiheyuanhou plot (40°00′N, 116°24′E) is a *Pinus bungeana* plantation which was planted in the 1928 and there have no record of management. Inner Mongolia experiments are located in *Pinus sylvestris* var. *mongolica* national nature reserve of *Honghuerji* and they were natural pure forest (48°28′N, 120°02′E). *Jilin* experiment represents a selectively logged temperate forest (43°58′N, 127°45′E). The vegetation primarily consists of *Juglans mandshurica* Maxim., *Fraxinus mandshurica* Rupr. *Pinus koraiensis* Sieb. et Zucc., Acer mono Maxim., *Phellodendron amurense* Rupr., and so on (Li, et al., 2012;2014). The three Gansu experiments are located in *Xiaolongshan* forest region (33°31'~34°41'N, 104°23'~106°43'E) and they represent broad-leaved deciduous forest in the warm temperate to the northern subtropics. Among them, the plot *Xiaolongshan* (1) has been classified as "close to a virgin state" which have no management record over one hundred years. Both the experiment *Xiaolongshan* (2) and *Xiaolongshan* (3) (34°20'N,106°.26'E) were selective logged in 1970s. The vegetation of the broad-leaved deciduous forest primarily consists of *Quercus aliena var. acuteserrata* Maxim., *Pinus armandii*, *Pinus tabulaeformis*, *Populus davidiana*, *Rhus verniciflus*, *Carpinus* and *Ulmus glabra*, and so on (Zhao et al., 2015). The Hainan experiment is located in *Jianfengling* nature reserve and it is a typical virgin tropical forest (18°48'N, 108°52'E). The tree species are abundance in the plot and mainly consists of *Cryptocarya chinensis* (Hance) Hemsl., Poacynum hendersonii（Hook. f.）Woods., Mallotus hookerianus (Seem.) Muell. Arg, Schima superba Gardn. et Champ., et al. (Zhang, et al., 1999).

The research plot *Lensahn* is located in a forest near *Lensahn* in northern Germany (54°14'N, 10°53'E). The forest was established from natural regeneration and includes 13 different tree species, including *Fagus sylvatica, Fraxinus excelsior, Acer spp., Betula pendual and Carpinus betulus*(Gadow et al.,2005). *Manderscheid* is a temperate, deciduous forest located in the West German state Rhineland-Palatinate（50°11'N, 6°08'E). Tree species within the plot are sessile oak (*Quercus petraea* Matt.) and beech (*Fagus sylvatica* L.). This stand has been managed to produce high quality oak. Beech is a by-product whilst improving the quality of

oak timber (Uria-Diez & Pommerening, 2017). The Walsdorf data are from a management demonstration site in the German state of Rhineland-Palatinate（50°17'N, 6°42'E). The two main species favoured in forest management are beech (*Fagus sylvatica* L.) and Norway spruce (*Picea abies* (L.) Karst.).

The *Knysna* research plot is part of the "French Volume Curve" (FVC) experimental area in the evergreen forests of the Southern Cape Region of South Africa (32°02'S, 23°02'E). The main tree species are *Ilex mitis, Olea capensis ssp. Macrocarpa, Canthium obovatum, Ocotea bullata, Rapanea melanophloeos, Pterocelastrus tricuspidatus* and *Podocarpus falcatus*(Kempka and Gadow,1998).

The *Bialowieza* forest stretches from eastern Poland across the border to western Belorussia（50°43′N, 23°50′E). Data are taken from outside the strict reserve of the Polish part of *Bialowieza* National Park. The overstory consists of pedunculate oak (*Quercus robur* L.) mingled with (*Pinus sylvestris* L.) and an understory of Norway spruce (*Picea abies* (L.) Karst.), hornbeam (*Carpinus betulus* L.) and silver birch (*Betula pendula* Roth) (Uria-Diez & Pommerening, 2017). The stand is managed according to the principles of continuous cover forestry (Pommerening & Murphy, 2004).

The *Sinthwat* research forest, which is situated near the village *Sinthwat* in the Paunglaung watershed of Myanmar (approximately 19°N, 97°E) has been classified as a tropical mixed deciduous forest (Zin, 2005). The vegetation primarily consists of *Pterocarpus macrocarpus, Dalbergia oliveri, Mitragyna rotundifolia, Adina cordifolia, Albizzia odoratissima, Cedrala multijuga,* and so on.