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DATA PAPER

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Allometric and growth data of an evergreen oak, *Quercus glauca*, in a secondary broadleaved forest

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Abstract The evergreen oak *Quercus glauca* often dominates secondary broadleaved forests in Western Japan. It is regarded as a mid-successional species, whose diameter and height growth fall between those of early- and late-successional species. Despite the ecological importance of this evergreen oak in the secondary succession of the evergreen broadleaved forest zone in Japan, tree-felling data that allow estimations of tree mass and leaf area from non-destructive measurements are lacking. This paper provides stem growth data, read from tree rings on disks sampled from 13 *Q. glauca* stems, and their allometric data. The samples were collected in 1994 from the Ginkakuji-san National Forest, Kyoto City, Japan. Allometric data comprised data on stem age, diameter at breast height, diameter at 10% height, tree height, height of the lowest living branch, height of the lowest living leaf in the crown, volume of the main stem, squared stem diameter just below the lowest living branch, total leaf area of the stem, dry weight of the total leaves, dry weight of all branches, dry weight of the main stem, total aboveground dry weight, mean relative photosynthetic photon flux density (PPFD) above the crown, mean relative PPFD below the crown, crown projection area, and specific leaf area. These data can be helpful for estimating the biomass and leaf area index of a *Q. glauca* stand by enabling the derivation of allometric relationships between non-destructive measurements (such as stem diameter at breast height, and tree height) and tree mass or leaf area. Diameters (including bark thickness) at ground height and above (at 0.5- or 1-m intervals) for each stem are also provided. Stem growth data were based on tree-ring reads from disks taken from heights of 0.0 and 0.3 m, and at 0.5-m (stem height < 7 m) or 1.0-m (stem height ≥ 7 m) intervals above that. Stem volume growth derived from these tree-ring data can be converted into stem mass growth if combined with an analysis of the allometric data, which may serve as a useful resource for the estimation of carbon fixation by evergreen oaks in relation to global climate change.

Keywords Allometry · Diameter growth · Evergreen oak · Height growth · Leaf area · Leaf weight · Light conditions above the crown · Pipe model · Stem analysis · Tree ring

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