P-086　Estimatingstandparametersofa114- year-old
　　　　Japanese larch plantation using UAV
　　　　photogrammetry

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An old-growth plantation is an iconic site that has
great value. Assessing stand parameters is laborious
and time-consuming in the field. Therefore, this case
study aimed to estimate the stand parameters of a
114-year-old Japanese larch (Larix kaempheri) using
UAV photogrammetry in Northern Japan. First, 3D point
clouds and orthomosaic were generated through SfM
technology from the imagery at two UAV altitudes, 80
m, and 120 m. Then, a canopy height model (CHM) was
generated by subtracting LiDAR DTM from UAV DSM. We
used a Shiny-based R package for individual tree
detection (ITD), tree height (TH) and crown area (CA)
from the CHM. We also used local maxima algorithm for
ITD. Stand density, mean TH, and CA cover were
estimated from ITD, TH and CA. Results of accuracy
were tested using F-Score, R2 and RMSE against field
data and manually delineated CA. The maximum height
of CHM was 43.66 m and 44.21 m at the UAV flight 80
m and 120 m, respectively whereas the field maximum
TH was 42.9 m.