

Quantifying branch architecture of tropical trees using terrestrial LiDAR and 3D modelling

Alvaro Lau^{1,2,*}, Lisa Patrick Bentley³, Christopher Martius², Alexander Shenkin⁴, Harm Bartholomeus¹, Pasi Raunonen⁵, Yadvinder Malhi⁴, Tobias Jackson⁴, and Martin Herold¹

¹Wageningen University & Research, Laboratory of Geo-Information Science and Remote Sensing, Droevendaalsesteeg 3, 6708 PB Wageningen, the Netherlands.

*corresponding author: alvaro.lausarmiento@wur.nl

²Center for International Forestry Research (CIFOR). Situ Gede, Sindang Barang, Bogor 16680, Indonesia.

³Department of Biology, Sonoma State University, 1801 East Cotati Avenue, Rohnert Park, CA 94928, USA.

⁴Environmental Change Institute, School of Geography and the Environment, South Parks Road, University of Oxford OX1 3QY, UK

⁵Laboratory of Mathematics, Tampere University of Technology Korkeakoulunkatu 10, 33720 Tampere, Finland

Online Resource 5: Confusion Matrix for branching order

Table OR5.1: Confusion matrix branching order for paired branches. Our analysis is based on the QSM branches paired with a manually measured branch only. Row titles depict branching order from our measured reference dataset and column titles depict the paired branches from our branching order method. Values in cells indicate the instances a branch was assigned to the same branching order as our measured dataset ($N = 1143$) and not ($N = 6$). Our method had an overall accuracy of 99% and an overall kappa coefficient of 0.99.

	from measured branches							
	1	2	3	4	5	6	7	8
from QSMs branches								
1	63	0	0	0	0	0	0	0
2	0	144	0	0	0	0	0	0
3	0	0	265	0	0	0	0	0
4	0	0	0	305	0	0	0	0
5	0	0	0	0	208	0	0	0
6	0	0	1	0	3	107	0	0
7	0	0	1	0	0	1	41	0
8	0	0	0	0	0	0	0	10