Data underlying the publication: Identifying and Quantifying the Abundance of Economically Important Palms in Tropical Moist Forest Using UAV Imagery

(Tagle Casapia et al., 2019)

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We surveyed ten 0.5 ha permanent forest plots (50 m × 100 m) that were already established in palm swamps dominated by *Mauritia flexuosa*, locally known as “aguajales”. Plots were established inside protected natural areas and in forests managed by local communities in the region of Loreto, in northeastern Peru (Figure 1). Each plot contains different densities of palm trees. The plots belong to the Amazon Forest Inventory Network (RAINFOR) and were established using a standard protocol. Plot data are managed using the ForestPlots.net online database (Lopez-Gonzalez et al., 2011). For more information about the plots, refer to (Tagle Casapia et al., 2019).

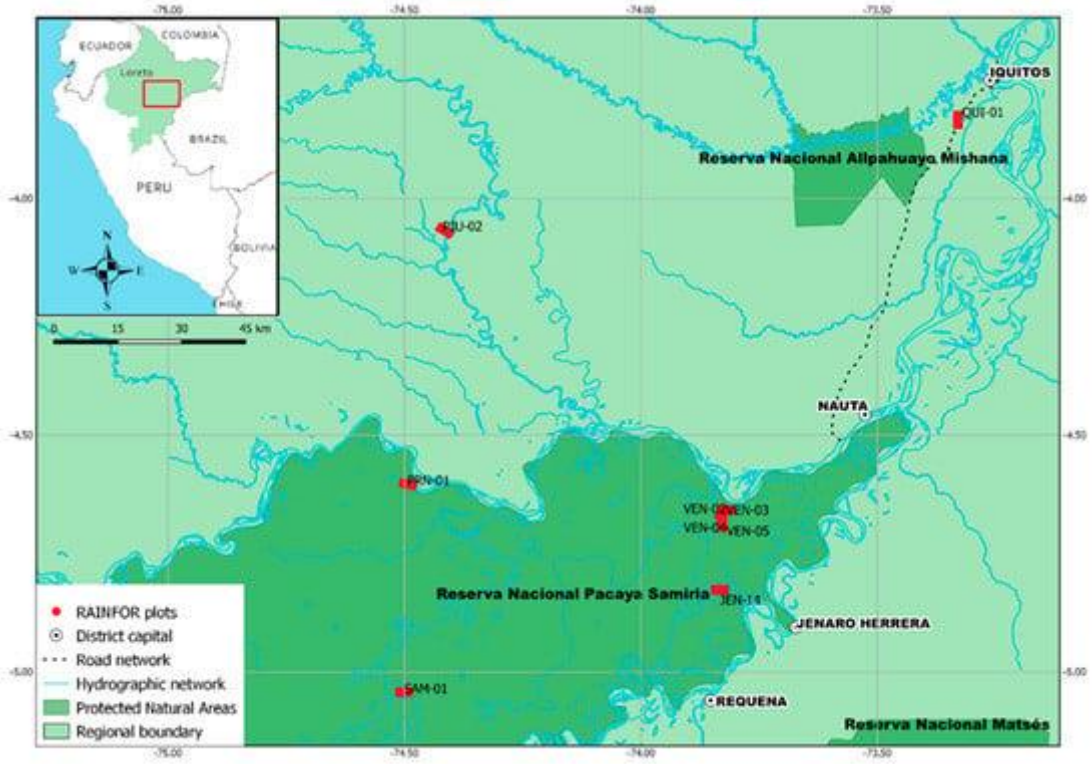

Figure 1. Location of the ten 0.5 ha permanent plots in the region of Loreto, Peru.

Surveys were conducted using the DJI Phantom 4 Pro (PH4 Pro) UAV, with a forward overlap of 88% and a side overlap of 83%. Mission details are provided in Table 1, (A1 in the manuscript).

Table 1. Mission details

Table A1. Information of the UAV missions performed.

Plot	Mission	Flying Height AGL (m)	Flying Height ACL (m)	Area Covered (ha)	No. Total Images	Acquisition Date	Cloud Cover	Solar Elevation (°)	Wind Speed
JEN-14	JEN-14_1	90	70	1.00	24	18-10-17	overcast	31.73	calm
JEN-14	JEN-14_2	50	30	1.05	66	18-10-17	partly cloudy	35.17	calm
JEN-14	JEN-14_3	90	70	1.67	19	18-10-17	overcast	54.12	calm
JEN-14	JEN-14_4	90	70	1.05	24	15-12-17	partly cloudy	56.97	calm
JEN-14	JEN-14_5	65	45	1.33	60	15-12-17	partly cloudy	57.76	> 3 m/s
PIU-02	PIU-02_1	90	70	3.63	95	26-11-17	clear sky	49.59	calm
PIU-02	PIU-02_2	65	45	3.22	95	26-11-17	clear sky	54.57	calm
PRN-01	PRN-01_1	90	70	3.84	86	20-11-17	clear sky	59.70	medium
PRN-01	PRN-01_2	60	40	2.03	92	20-11-17	partly cloudy	65.16	calm
QUI-01	QUI-01_1	90	70	3.35	94	09-12-17	partly cloudy	56.84	calm
QUI-01	QUI-01_2	65	45	2.60	85	09-12-17	clear sky	66.36	calm
SAM-01	SAM-01_1	90	70	1.23	35	18-11-17	clear sky	51.20	calm
SAM-01	SAM-01_2	90	70	1.12	30	18-11-17	clear sky	55.88	calm
SAM-01	SAM-01_3	60	40	1.12	61	18-11-17	clear sky	56.97	calm
VEN-01	VEN-01_1	90	70	0.84	27	06-10-17	partly cloudy	85.39	calm
VEN-01	VEN-01_2	65	45	0.98	50	06-10-17	partly cloudy	86.86	calm
VEN-02	VEN-02_1	90	70	0.69	47	05-10-17	clear sky	29.87	calm
VEN-02	VEN-02_2	60	40	0.69	84	05-10-17	clear sky	27.88	calm
VEN-02	VEN-02_4	65	45	1.76	46	06-10-17	clear sky	40.76	calm
VEN-03	VEN-03_2	90	70	0.79	47	06-10-17	partly cloudy	52.56	calm
VEN-03	VEN-03_3	65	45	0.79	79	06-10-17	partly cloudy	55.30	calm
VEN-04	VEN-04_1	90	70	0.91	46	05-10-17	clear sky	81.38	calm
VEN-04	VEN-04_2	65	45	0.81	69	06-10-17	partly cloudy	41.86	calm
VEN-05	VEN-05_1	90	70	1.29	64	05-10-17	partly cloudy	46.76	calm
VEN-05	VEN-05_2	65	45	0.93	83	05-10-17	partly cloudy	53.23	calm

The mosaics were generated using the commercial software program Pix4D mapper. Table 2 contains processing details.

Table 2. Characteristics of the selected mosaics per RAINFOR permanent plot.

Plot	Flying Height AGL (m)	GSD (cm)	Area Covered (ha)	No. Images Used	2D Keypoints (median per image)	Reproj. Error (pix)	Point Density (points/m2)	Point Density	Interpolation Method
JEN-14	90	1.41	1.84	71	75,496	0.231	5,421,087	Optimal	IDW
PIU-02	90-65	1.9	5.36	191	71,505	0.180	84,420,906	Optimal	IDW
PRN-01	90	1.87	3.58	76	77,853	0.265	34,899,971	high/slow	IDW
QUI-01	90	2.09	5.09	94	75,794	0.239	2,729,608	high/slow	IDW
SAM-01	90-60	1.84	1.73	40	74,923	0.218	13,797,799	Optimal	IDW
VEN-01	90-65	1.28	1.96	73	74,312	0.216	7,362,904	Optimal	Triangulation
VEN-02	90-60	1.22	2.48	188	75,201	0.245	34,667,002	Optimal	IDW
VEN-03	90	2.06	9.27	168	74,250	0.218	5,292,017	Optimal	IDW
VEN-04	65	1.62	1.84	69	78,824	0.207	120,548,930	high/slow	IDW
VEN-05	90	2.06	3.49	60	76,969	0.205	31,389,942	Optimal	IDW