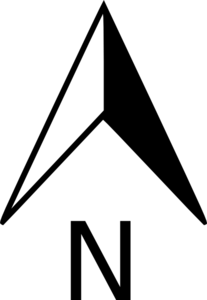
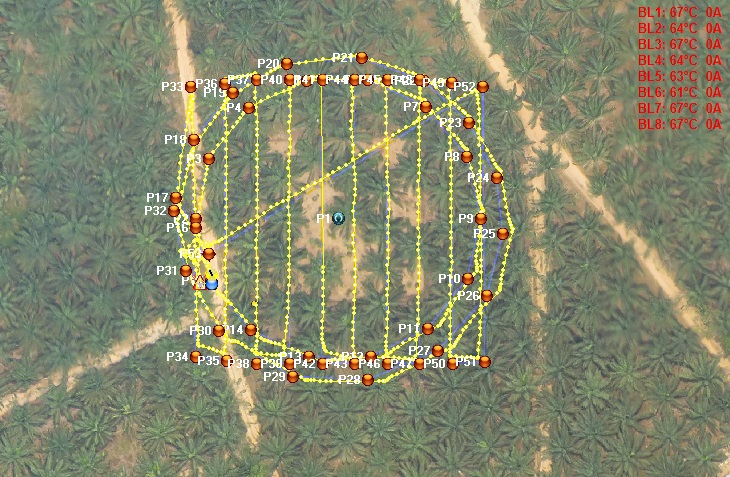
Supplementary Material

Drone-Based Assessment of Canopy Cover for Analyzing Tree Mortality in an Oil Palm Agroforest

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**P2**

**Supplementary Figure 1.** Example flight pattern at plot number 23 (plot size 1600 m2). Two circular flights were conducted with the first circular flight (P2 to P16) at a radius of 35 m from the plot center (P1), and the second circular flight (P17 to P32) at a radius of 40 m. After that, the grid pathway automatically began by flying between P33 and P52.

**Supplementary Table 1.** Summary table of plot information and recorded trees in 2016 and 2017.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Plot ID | Plot size (m2) | Tree diversity level | Remaining oil palms | Thinned oil palms | Height at meristem of remaining oil palm in 2017 | Living trees in 2016 | Living trees in 2017 | Dead trees between 2016 and 2017 |
| 1 | 1600 | 1 | 13 | 7 | 5.20 ± 0.70 | 387 | 378 | 9 |
| 2 | 400 | 3 | 1 | 3 | 4.60 ± 0.00 | 57 | 46 | 11 |
| 3 | 400 | 2 | 2 | 3 | 5.65 ± 0.21 | 49 | 42 | 7 |
| 4 | 100 | 1 | 0 | 1 | not applicable | 11 | 2 | 9 |
| 5 | 1600 | 1 | 12 | 8 | 5.08 ± 0.78 | 376 | 367 | 9 |
| 6 | 25 | 1 | 0 | 0 | not applicable | 6 | 6 | 0 |
| 7 | 1600 | 3 | 11 | 8 | 4.64 ± 0.54 | 279 | 220 | 59 |
| 8 | 25 | 1 | 0 | 0 | not applicable | 1 | 0 | 1 |
| 9 | 100 | 3 | 1 | 1 | 5.70 ± 0.00 | 18 | 18 | 0 |
| 10 | 400 | 0 | 1 | 3 | 4.90 ± 0.00 | 0 | 0 | 0 |
| 11 | 100 | 1 | 0 | 1 | not available | 1 | 1 | 0 |
| 12 | 400 | 1 | 2 | 1 | 4.65 ± 0.78 | 21 | 15 | 6 |
| 13 | 100 | 1 | 0 | 1 | not applicable | 25 | 25 | 0 |
| 14 | 100 | 1 | 0 | 1 | not applicable | 7 | 7 | 0 |
| 15 | 400 | 1 | 2 | 2 | 4.75 ± 0.07 | 100 | 100 | 0 |
| 16 | 25 | 3 | 0 | 0 | not applicable | 3 | 2 | 1 |
| 17 | 400 | 1 | 2 | 3 | 6.00 ± 0.14 | 67 | 40 | 27 |
| 18 | 25 | 2 | 0 | 0 | not applicable | 3 | 3 | 0 |
| 19 | 400 | 6 | 3 | 2 | 3.80 ± 0.61 | 54 | 48 | 6 |
| 20 | 100 | 1 | 1 | 1 | 5.90 ± 0.00 | 23 | 19 | 4 |
| 21 | 100 | 6 | 0 | 1 | not applicable | 18 | 15 | 3 |
| 22 | 25 | 2 | 0 | 0 | not applicable | 3 | 3 | 0 |
| 23 | 1600 | 6 | 12 | 8 | 5.32 ± 0.45 | 254 | 222 | 32 |
| 24 | 1600 | 2 | 11 | 6 | 5.81 ± 1.15 | 215 | 201 | 14 |
| 25 | 25 | 1 | 0 | 0 | not applicable | 6 | 5 | 1 |
| 26 | 1600 | 2 | 12 | 6 | 6.01 ± 0.62 | 45 | 12 | 33 |
| 27 | 100 | 2 | 0 | 1 | not applicable | 24 | 23 | 1 |
| 28 | 25 | 1 | 0 | 0 | not applicable | 6 | 6 | 0 |
| 29 | 1600 | 3 | 20 | 8 | 5.54 ± 0.92 | 184 | 166 | 18 |

**Supplementary Table 1 (Cont.).** Summary table of plot information and recorded trees in 2016 and 2017

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Plot ID | Plot size (m2) | Tree diversity level | Remaining oil palms | Thinned oil palms | Height at meristem of remaining oil palm in 2017 | Living trees in 2016 | Living trees in 2017 | Dead trees between 2016 and 2017 |
| 30 | 400 | 1 | 2 | 2 | 6.10 ± 0.99 | 100 | 100 | 0 |
| 31 | 25 | 1 | 0 | 0 | not applicable | 5 | 4 | 1 |
| 32 | 100 | 2 | 1 | 1 | 5.40 ± 0.00 | 5 | 3 | 2 |
| 33 | 400 | 3 | 4 | 3 | 7.00 ± 0.37 | 68 | 67 | 1 |
| 34 | 100 | 2 | 1 | 1 | 5.30 ± 0.00 | 11 | 11 | 0 |
| 35 | 1600 | 0 | 16 | 5 | 5.25 ± 0.48 | 0 | 0 | 0 |
| 36 | 400 | 2 | 1 | 3 | 5.70 ± 0.00 | 54 | 51 | 3 |
| 37 | 100 | 0 | 1 | 1 | 4.30 ± 0.00 | 0 | 0 | 0 |
| 38 | 400 | 1 | 3 | 4 | 5.93 ± 0.57 | 47 | 44 | 3 |
| 39 | 25 | 2 | 0 | 0 | not applicable | 4 | 3 | 1 |
| 40 | 25 | 0 | 0 | 0 | not applicable | 0 | 0 | 0 |
| 41  42  43 | 100  25  1600 | 1  1  1 | 0  0  11 | 1  0  7 | not applicable  not applicable  5.89 ± 0.78 | 22  5  141 | 22  5  75 | 0  0  66 |
| 44 | 25 | 3 | 0 | 0 | not applicable | 3 | 3 | 0 |
| 45 | 1600 | 1 | 14 | 4 | 4.76 ± 0.85 | 396 | 379 | 17 |
| 46 | 1600 | 2 | 17 | 8 | 4.69 ± 0.95 | 351 | 270 | 81 |
| 47 | 400 | 2 | 5 | 1 | 6.06 ± 0.58 | 96 | 86 | 10 |
| 48 | 100 | 3 | 0 | 1 | not applicable | 18 | 17 | 1 |
| 49 | 1600 | 1 | 15 | 5 | 5.39 ± 0.64 | 136 | 71 | 65 |
| 50 | 25 | 6 | 0 | 0 | not applicable | 5 | 3 | 2 |
| 51 | 400 | 1 | 3 | 2 | 6.50 ± 0.35 | 95 | 94 | 1 |
| 52 | 1600 | 1 | 13 | 7 | 5.59 ± 1.09 | 14 | 12 | 2 |
| 53 | 100 | control | 1 | 0 | 3.60 ± 0.00 | 0 | 0 | 0 |
| 54 | 100 | control | 1 | 0 | 5.90 ± 0.00 | 0 | 0 | 0 |
| 55 | 100 | control | 1 | 0 | 5.80 ± 0.00 | 0 | 0 | 0 |
| 56 | 100 | control | 1 | 0 | 5.60 ± 0.00 | 0 | 0 | 0 |

**Supplementary Table 2.** Summary of drone multi-plot assessment.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Plot ID | Location | Image acquired date | Circular flight radii (m) | Grid flight lines (n) | Number of images | Error of ground control points in XYZ (m) | Point density (points/m2) | CHM (m) | Plot canopy cover (%) | Oil Palm canopy cover (%) | Tree canopy cover (%) | Validated buffer area (m2) | Canopy cover ground- based (%) | Canopy cover drone-based (%) |
| 1 | S 1°56'29.36"  E 103°15'7.70" | 26.09.2016 | 35, 40 | 10 | 999 | 2.06 | 3650 | 3.11 | 70.87 | 45.59 | 23.89 | 2.99 | 77.50 | 72.58 |
| 2 | S 1°56'30.00"  E 103°15'10.99" | 26.09.2016 | 30, 35 | 7 | 764 | 1.42 | 748 | 4.01 | 57.34 | 45.54 | 12.20 | 0.54 | 0.10 | 0.00 |
| 3 | S 1°56'35.79"  E 103°15'6.64" | 01.10.2016 | 30, 35 | 7 | 684 | 0.92 | 4800 | 4.73 | 58.59 | 54.18 | 4.74 | 2.60 | 4.60 | 0.05 |
| 4 | S 1°56'35.38"  E 103°15'11.68" | 02.10.2016 | 27, 32 | 6 | 677 | 0.01 | 1820 | 3.65 | 66.79 | 64.16 | 4.06 | 4.35 | 4.60 | 10.52 |
| 5 | S 1°56'40.91"  E 103°15'7.05" | 04.10.2016 | 35, 40 | 10 | 910 | 3.18 | 3280 | 4.78 | 81.10 | 54.42 | 26.50 | 1.33 | 82.10 | 77.67 |
| 6 | S 1°56'40.51"  E 103°15'11.31" | 04.10.2016 | 26, 31 | 5 | 523 | 0.17 | 3080 | 10.38 | 94.19 | 94.44 | 0.00 | 34.62 | 97.00 | 94.24 |
| 7 | S 1°56'40.19"  E 103°15'19.08" | 04.10.2016 | 35, 40 | 10 | 944 | 0.78 | 1570 | 8.10 | 67.96 | 36.19 | 30.33 | 15.05 | 92.90 | 63.81 |
| 8 | S 1°56'44.99"  E 103°14'56.81" | 05.10.2016 | 26, 31 | 5 | 488 | 0.00 | 2260 | 6.68 | 73.00 | 72.68 | 0.00 | 19.87 | 85.80 | 76.99 |
| 9 | S 1°56'44.69"  E 103°15'2.35" | 05.10.2016 | 27, 32 | 6 | 613 | 0.03 | 1510 | 11.12 | 88.31 | 63.57 | 25.04 | 37.10 | 32.90 | 44.78 |
| 10 | S 1°56'44.95"  E 103°15'6.88" | 04.10.2016 | 30, 35 | 7 | 663 | 0.68 | 1830 | 3.07 | 40.43 | 38.81 | 2.10 | 1.80 | 77.50 | 68.73 |
| 11 | S 1°56'45.28"  E 103°15'11.58" | 06.10.2016 | 37, 32 | 6 | 730 | 0.05 | 1710 | 8.99 | 68.16 | 63.06 | 4.66 | 24.68 | 84.30 | 67.34 |
| 12 | S 1°56'44.87"  E 103°15'15.88" | 06.10.2016 | 30, 35 | 7 | 745 | 1.56 | 1870 | 7.92 | 58.14 | 42.99 | 14.44 | 19.31 | 22.70 | 50.00 |
| 13 | S 1°56'45.22"  E 103°15'21.42" | 06.10.2016 | 27, 32 | 6 | 645 | 0.01 | 2360 | 6.02 | 55.93 | 10.47 | 45.67 | 9.97 | 60.30 | 61.45 |
| 14 | S 1°56'50.01"  E 103°14'57.07" | 06.10.2016 | 27, 32 | 6 | 616 | 0.09 | 2350 | 4.54 | 51.87 | 49.93 | 3.52 | 5.12 | 15.40 | 4.33 |

**Supplementary Table 2 (Cont.).** Summary of drone multi-plot assessment.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Plot ID | Location | Image acquired date | Circular flight radii (m) | Grid flight lines (n) | Number of images | Error of ground control points in XYZ (m) | Point density (points/m2) | CHM (m) | Plot canopy cover (%) | Oil Palm canopy cover (%) | Tree canopy cover (%) | Validated buffer area (m2) | Canopy cover ground- based (%) | Canopy cover drone-based (%) |
| 15 | S 1°56'49.50"  E 103°15'1.85" | 06.10.2016 | 30, 35 | 7 | 655 | 1.31 | 3190 | 3.16 | 74.98 | 46.68 | 27.87 | 1.72 | 88.30 | 85.39 |
| 16 | S 1°56'50.31"  E 103°15'6.91" | 06.10.2016 | 26, 31 | 5 | 599 | 0.00 | 2830 | 7.13 | 69.36 | 54.85 | 14.71 | 27.90 | 79.40 | 75.04 |
| 17 | S 1°56'50.15"  E 103°15'11.64" | 07.10.2016 | 30, 35 | 7 | 681 | 1.01 | 1110 | 4.21 | 68.91 | 49.71 | 20.80 | 5.28 | 83.20 | 80.63 |
| 18 | S 1°56'49.72"  E 103°15'16.30" | 07.10.2016 | 26, 31 | 5 | 454 | 0.00 | 2560 | 3.38 | 80.17 | 80.30 | 0.00 | 6.02 | 91.60 | 83.89 |
| 19 | S 1°56'50.30"  E 103°15'21.31" | 07.10.2016 | 30, 35 | 7 | 722 | 0.35 | 1850 | 7.49 | 63.61 | 27.40 | 34.17 | 16.96 | 77.20 | 73.17 |
| 20 | S 1°56'50.3124"  E 103°15'26.44" | 07.10.2016 | 27, 32 | 6 | 577 | 0.04 | 2950 | 4.09 | 57.08 | 45.85 | 11.43 | 5.88 | 69.50 | 72.21 |
| 21 | S 1°56'54.84"  E 103°14'52.33" | 07.10.2016 | 27, 32 | 6 | 617 | 0.07 | 2570 | 4.21 | 66.72 | 46.48 | 20.67 | 4.70 | 70.10 | 53.95 |
| 22 | S 1°56'55.10"  E 103°14'57.15" | 07.10.2016 | 26, 31 | 5 | 527 | 0.00 | 3420 | 6.59 | 70.66 | 70.33 | 0.00 | 22.12 | 76.10 | 72.50 |
| 23 | S 1°56'55.26"  E 103°15'5.42" | 10.10.2016 | 35, 40 | 10 | 978 | 0.83 | 10000 | 6.13 | 78.09 | 53.55 | 24.01 | 20.78 | 84.40 | 79.72 |
| 24 | S 1°56'53.77"  E 103°15'16.09" | 07.10.2016 | 35, 40 | 10 | 936 | 2.70 | 1900 | 3.61 | 71.61 | 44.68 | 26.95 | 4.10 | 66.80 | 53.96 |
| 25 | S 1°56'55.09"  E 103°15'21.31" | 08.10.2016 | 26, 31 | 5 | 415 | 0.00 | 4020 | 3.07 | 84.04 | 58.04 | 25.98 | 2.88 | 87.50 | 78.69 |
| 26 | S 1°56'53.70"  E 103°15'26.64" | 08.10.2016 | 35, 40 | 10 | 999 | 1.44 | 2640 | 4.68 | 55.79 | 54.50 | 2.24 | 8.58 | 82.00 | 65.32 |
| 27 | S 1°56'59.36"  E 103°14'47.33" | 08.10.2016 | 27, 32 | 6 | 718 | 0.22 | 2750 | 3.79 | 72.16 | 16.75 | 54.82 | 3.15 | 82.90 | 87.93 |
| 28 | S 1°56'59.88"  E 103°14'52.30" | 08.10.2016 | 26, 31 | 5 | 600 | 0.00 | 3140 | 8.28 | 92.85 | 94.33 | 0.00 | 19.64 | 98.80 | 93.86 |
| 29 | S 1°56'59.21"  E 103°14'57.03" | 08.10.2016 | 35, 40 | 10 | 994 | 2.95 | 2190 | 4.76 | 78.33 | 69.10 | 9.56 | 8.07 | 79.40 | 75.92 |

**Supplementary Table 2 (Cont.).** Summary of drone multi-plot assessment.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Plot ID | Location | Image acquired date | Circular flight radii (m) | Grid flight lines (n) | Number of images | Error of ground control points in XYZ (m) | Point density (points/m2) | CHM (m) | Plot canopy cover (%) | Oil Palm canopy cover (%) | Tree canopy cover (%) | Validated buffer area (m2) | Canopy cover ground- based (%) | Canopy cover drone-based (%) |
| 30 | S 1°56'58.91"  E 103°15'11.03" | 08.10.2016 | 30, 35 | 7 | 729 | 1.53 | 3510 | 2.59 | 58.28 | 42.16 | 14.96 | 0.97 | 81.90 | 79.80 |
| 31 | S 1°56'59.77"  E 103°15'16.27" | 09.10.2016 | 26, 31 | 5 | 561 | 0.00 | 2220 | 4.83 | 87.28 | 87.13 | 0.00 | 12.04 | 76.60 | 88.79 |
| 32 | S 1°56'59.83"  E 103°15'21.33" | 09.10.2016 | 27, 32 | 6 | 584 | 0.05 | 4090 | 3.45 | 58.59 | 57.18 | 2.61 | 3.37 | 41.90 | 58.26 |
| 33 | S 1°56'59.66"  E 103°15'26.19" | 09.10.2016 | 30, 35 | 7 | 788 | 1.54 | 1950 | 3.77 | 71.94 | 55.35 | 16.36 | 4.36 | 67.50 | 73.37 |
| 34 | S 1°57'4.90"  E 103°14'42.45" | 11.10.2016 | 27, 32 | 6 | 602 | 0.06 | 2220 | 4.04 | 59.26 | 40.70 | 18.61 | 5.60 | 45.20 | 58.03 |
| 35 | S 1°57'5.65"  E 103°14'47.93" | 09.10.2016 | 35, 40 | 10 | 960 | 0.65 | 2180 | 3.53 | 65.17 | 59.04 | 5.98 | 4.97 | 96.10 | 95.43 |
| 36 | S 1°57'3.34"  E 103°14'52.10" | 10.10.2016 | 30, 35 | 7 | 713 | 2.55 | 2300 | 4.15 | 64.83 | 43.64 | 21.60 | 3.33 | 14.10 | 18.54 |
| 37 | S 1°57'4.15"  E 103°14'55.94" | 10.10.2016 | 27, 32 | 6 | 608 | 0.01 | 2350 | 4.57 | 74.03 | 72.92 | 0.89 | 6.73 | 95.40 | 90.35 |
| 38 | S 1°57'5.74"  E 103°15'1.95" | 10.10.2016 | 30, 35 | 7 | 680 | 1.09 | 2570 | 5.07 | 65.75 | 47.90 | 16.06 | 14.18 | 84.60 | 86.96 |
| 39 | S 1°57'4.19"  E 103°15'6.31" | 10.10.2016 | 26, 31 | 5 | 642 | 0.00 | 2960 | 2.64 | 62.22 | 57.86 | 4.45 | 3.95 | 75.50 | 75.85 |
| 40 | S 1°57'4.83"  E 103°15'25.86" | 09.10.2016 | 26, 31 | 5 | 555 | 0.00 | 2160 | 4.05 | 85.32 | 85.85 | 0.00 | 7.84 | 90.30 | 86.05 |
| 41 | S 1°57'9.55"  E 103°14'37.80" | 11.10.2016 | 27, 32 | 6 | 658 | 0.09 | 2780 | 3.14 | 54.17 | 44.47 | 9.51 | 4.02 | 24.50 | 26.88 |
| 42 | S 1°57'9.85"  E 103°14'42.05" | 11.10.2016 | 26, 31 | 5 | 544 | 0.00 | 2890 | 9.73 | 93.17 | 93.23 | 0.00 | 26.24 | 83.40 | 93.02 |
| 43 | S 1°56'57.77"  E 103°15'31.59" | 09.10.2016 | 35, 40 | 10 | 862 | 1.35 | 2800 | 4.88 | 62.01 | 58.92 | 1.89 | 3.27 | 9.70 | 6.14 |
| 44 | S 1°57'9.53"  E 103°14'52.32" | 11.10.2016 | 26, 31 | 5 | 609 | 0.00 | 2550 | 3.86 | 78.80 | 64.70 | 12.91 | 6.37 | 86.70 | 88.00 |

**Supplementary Table 2 (Cont.).** Summary of drone multi-plot assessment.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Plot ID | Location | Image acquired date | Circular flight radii (m) | Grid flight lines (n) | Number of images | Error of ground control points in XYZ (m) | Point density (points/m2) | CHM (m) | Plot canopy cover (%) | Oil Palm canopy cover (%) | Tree canopy cover (%) | Validated buffer area (m2) | Canopy cover ground- based (%) | Canopy cover drone-based (%) |
| 45 | S 1°57'10.22"  E 103°14'56.02" | 10.10.2016 | 35, 40 | 10 | 955 | 2.58 | 1890 | 3.11 | 67.56 | 42.82 | 24.48 | 5.71 | 76.20 | 72.04 |
| 46 | S 1°57'15.24"  E 103°14'33.37" | 11.10.2016 | 35, 40 | 10 | 853 | 3.92 | 2380 | 3.57 | 73.17 | 60.43 | 12.23 | 3.55 | 14.50 | 34.57 |
| 47 | S 1°57'13.55"  E 103°14'37.77" | 11.10.2016 | 30, 35 | 7 | 659 | 3.99 | 3260 | 4.90 | 81.24 | 72.86 | 8.50 | 3.37 | 14.90 | 42.68 |
| 48 | S 1°57'14.59"  E 103°14'42.84" | 12.10.2016 | 27, 32 | 6 | 601 | 0.04 | 3290 | 4.51 | 77.11 | 65.32 | 11.74 | 6.04 | 30.90 | 56.32 |
| 49 | S 1°57'13.94"  E 103°14'47.77" | 12.10.2016 | 35, 40 | 10 | 960 | 2.25 | 1900 | 3.76 | 55.06 | 46.73 | 8.81 | 1.80 | 5.50 | 10.07 |
| 50 | S 1°57'14.63"  E 103°14'52.34" | 12.10.2016 | 26, 31 | 5 | 581 | 0.00 | 2520 | 4.85 | 87.52 | 72.58 | 13.42 | 8.16 | 95.00 | 90.49 |
| 51 | S 1°57'14.81"  E 103°14'57.24" | 12.10.2016 | 30, 35 | 7 | 661 | 0.68 | 3410 | 4.19 | 79.49 | 54.42 | 25.09 | 2.66 | 77.10 | 83.73 |
| 52 | S 1°57'17.93"  E 103°14'37.07" | 12.10.2016 | 35, 40 | 10 | 982 | 1.39 | 2360 | 4.52 | 62.14 | 55.75 | 6.27 | 11.04 | 76.40 | 80.55 |
| 53 | S 1°56'34.30"  E 103°15'17.54" | 12.10.2016 | 27, 32 | 6 | 613 | 0.00 | 2390 | 3.82 | 79.15 | 79.13 | 0.00 | 5.00 | 88.60 | 76.92 |
| 54 | S 1°57'4.22"  E 103°15'20.82" | 13.10.2016 | 27, 32 | 6 | 531 | 0.00 | 3850 | 5.33 | 87.15 | 87.28 | 0.00 | 9.08 | 75.40 | 87.92 |
| 55 | S 1°57'4.73"  E 103°15'11.85" | 13.10.2016 | 27, 32 | 6 | 637 | 0.00 | 2510 | 5.81 | 73.12 | 74.36 | 0.00 | 9.51 | 58.20 | 60.93 |
| 56 | S 1°57'17.98"  E 103°14'45.83" | 12.10.2016 | 27, 32 | 6 | 613 | 0.00 | 2160 | 4.13 | 70.67 | 71.01 | 0.00 | 4.94 | 11.20 | 22.43 |

**Supplementary Table 3.** Initial number of planted trees in December 2013, number of living trees in January 2016, and mortality of planted trees between January 2016 and January 2017 from field inventory (48 plots).

|  |  |  |  |
| --- | --- | --- | --- |
| **Species** | **Living trees in 2013 (n)** | **Living trees in 2016 (n)** | **Mortality between 2016 and 2017 (% yr-1)** |
| *Archidendron pauciflorum* | 1061 | 990 | 8 |
| *Durio zibethinus* | 1057 | 276 | 39 |
| *Dyera polyphylla* | 1061 | 129 | 7 |
| *Parkia speciosa* | 1057 | 978 | 9 |
| *Peronema canescens* | 1057 | 1031 | 3 |
| *Shorea leprosula* | 1061 | 415 | 47 |

**Supplementary Table 4.** P-values of Fisher’s exact test and number of trees that died and survived between 2016 and 2017. ‘\*’ indicates the probability of mortality during the year of the study dependent on oil palm canopy cover class (two-tailed *p* < 0.05, Fisher's Exact test).

|  |  |  |  |
| --- | --- | --- | --- |
| Species | Fisher’s exact test  (*p-value*) | Dead tree  (N) | Living tree  (N) |
| *Archidendron pauciflorum* | 0.0045\* | 76 | 914 |
| *Durio zibethinus* | 0.0184\* | 109 | 167 |
| *Dyera polyphylla* | 0.8110 | 9 | 120 |
| *Parkia speciosa* | 0.2976 | 84 | 894 |
| *Peronema canescens* | 0.5510 | 26 | 1005 |
| *Shorea leprosula* | 0.0005\* | 194 | 221 |