**SUPPLEMENTARY MATERIAL**

**Table S1.** Plots sampled for the analysis, grouped per fire chronosequence (TLF) [RB: Recent Burns, 0-4 years; MB: mid-term burns 5-9 years; OB: old-term burns, 10-28 years], site and fire [U= unburned, B = burned (years since it has last burned at the moment of sampling)]. Lat = latitude, Long= longitude, Alt = altitude (m a.s.l), S= slope (degrees), Number of stems < 10 cm DBH, Number of stems > 10 cm DBH, #St Dead: number of standing dead stems, #L= number of lianas, #Sp: number of species, and four main species in the plots (% contribution to plot’s basal area).

**Table S2.** Calculated wood density (WD) values per sampled species along the 48 burned and control plots. Numbers refer to mean ± standard error values

**Table S3** – Wood density for downed woody material on different Desc =decomposition classes (rows, see methods for categories explanations) and Diam = diameter classes (columns, I: 0-0.63 cm; II: 0.64-2.54 cm; III: 2.54-7.62 cm; IV: 7.62-20.32 cm; V > 20.33 cm), corresponding to 1-h, 10h, 100-h, and 1000 h fuel classes. Numbers refer to mean ± standard error values.

**Table S4**: Bulk densities for horizons Oi (n=14),  Oa (n=22),  and Oa (n=22), for the burned and control plots.

**Table S5**. Sorensen’s -based multiple-site dissimilarity (SOR), Simpson-based multiple-site dissimilarity (SIM), Nestedness-resultant multiple site dissimilarity (NES) (Baselga, 2010) across burned and unburned plots, and fire chronosequence.

Table S1

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **TLF** | **SITE** | **Fire** | **Lat** | **Lon** | **Alt** | **S** | **Stems 2.5 - 10 cm** | **Stems >= 10 cm** | **#St Dead** | **#L** | **#Sp** | **Species (%BA)** |
| RB | AHO | U | -72.58 | -13.2 | 2642 | 42.1 | 13 | 47 | 46 | 0 | 18 | *Ocotea sp* (27.2); *Myriocarpa stipitata* (18.2); *Acapypha peruviana* (10.2); *Dendropanax sp* (7.8) |
| B (3) | -72.57 | -13.2 | 2653 | 43.6 | 47 | 7 | 68 | 0 | 7 | *Bocconia integrifolia* (47.9); *Ocotea sp* (24.5); *Sirapuna tormentosa* (13.4); *Meliosma sp* (10.9) |
| ALF | U | -72.46 | -13.05 | 2090 | 31.1 | 105 | 58 | 18 | 1 | 25 | *Clethra revoluta* (14.7); *Mollinedia sp* (12.3); *Alchornea glandulosa* (11.9); *Prunus sp* (10.4); |
| B (1) | -72.46 | -13.05 | 2135 | 28.6 | 9 | 34 | 91 | 2 | 6 | *Clethra revoluta* (72.6*); Clusia sp* (7.3); *Symplocos sp* (6.7), *Myrcia fallax* (4.7) |
| CUSI | U | -72.64 | -13.15 | 2619 | 15.9 | 35 | 51 | 16 | 2 | 26 | *Licaria pucheri* (11.7); *Licaria sp* (9.1); *Podocarpus sp1* (12.1); *Weinmannia laurina* (7.5) |
| B (2) | -72.64 | -13.15 | 2505 | 28.6 | 54 | 52 | 13 | 2 | 32 | *Terminalia oblonga* (8.1); *Nectandra obtusata* (7.7); *Meliosma boliviensis* (6.1); *Lauraceae sp2* (8.9) |
| QORI | U | -72.43 | -13.22 | 2946 | 33.7 | 117 | 38 | 24 | 0 | 19 | *Escallonia resinosa* (33.0); *Vervesina callacatensis* (21.5); *Buddleja incana* (13.6); *Clusia sp* (10.1) |
| B (2) | -72.43 | -13.22 | 2946 | 34.61 | 57 | 30 | 50 | 0 | 9 | *Myrsine manglilla* (59.6); *Escallonia sp* (13.4); *E. resinosa* (11.5); Verbesina callacatensis (6.3) |
| SAC | U | -72.64 | -13.25 | 2570 | 21.93 | 76 | 48 | 11 | 0 | 25 | *Clethra castaneifolia* (40.0); *Myrsine andina* (8.9); *Clusia sp* (7.7); *Freziera sp* (7.5) |
| B (4) | -72.64 | -13.25 | 2603 | 18.85 | 58 | 103 | 23 | 0 | 13 | *Clethra castaneifolia (*76.1); *Stilaginella sp* (10.0) |
| SUNC | U | -71.59 | -13.20 | 3055 | 32.67 | 135 | 156 | 48 | 10 | 10 | *Weinmannia crassifolia* (69.0); *Clusia alata* (15.0) |
| B (1) | -71.59 | -13.20 | 3103 | 27.83 | 106 | 50 | 8 | 1 | 8 | *Weinmannia sp* (68.4); *Symplocaceae sp* (11.1) |
| WAY1 | U | -71.49 | -13.23 | 2433 | 40.36 | 52 | 65 | 4 | 2 | 29 | *Prunus integrifolia* (14.6); *Urera sp* (13.7); *Clusia sp* (11.8); *Alnus acuminata* (10.2) |
| B (2) | -71.48 | -13.23 | 2454 | 39.91 | 72 | 58 | 14 | 7 | 25 | *Prunus integrifolia* (14.7); *Cinchona sp* (10.8); *Clusia sp* (9.3); *Miconia sp* (7.4) |
| WAY2 | U | -71.49 | -13.23 | 2747 | 32.89 | 39 | 86 | 8 | 3 | 23 | *Ilex nervosa* (18.0); *Miconia setulosa* (12.5); *Licaria sp* (9.4); *Ternstroemia sp* (8.8) |
| B (2) | -71.49 | -13.23 | 2641 | 27.5 | 50 | 45 | 2 | 0 | 21 | *Alnus acuminata* (57.6); *Myrsine sp* (18.7); *Ericaceae sp* (7.7) |
| WAY3 | U | -71.48 | -13.23 | 2683 | 29.97 | 156 | 43 | 2 | 2 | 31 | *Morella pubescens* (34.8); *Vallea stipularis* (7.3); *Miconia adiantha* (7.2); *Axinaea sp* (7.2) |
| B (1) | -71.48 | -13.23 | 2750 | 29.91 | 95 | 20 | 16 | 0 | 34 | *Clusia sp* (10.9); *Hedyosmum angustifolium* (7.3); *Rynchotheca sp* (6.3); *Rosaceae sp* (5.9) |
| MB | CHALL | U | -71.63 | -13.19 | 3511 | 21.81 | 102 | 87 | 47 | 3 | 26 | *Weinmannia fagaroides* (15.7); *Miconia sp1* (14.8); *Hesperomeles ferruginea* (12.4); *Morella pubescens* (9.8) |
| B (5) | -71.63 | -13.19 | 3323 | 26.65 | 87 | 74 | 19 | 8 | 13 | *Weinmannia fagaroides* (41.1); *Clethra cuneata (*41.1) |
| JAP | U | -71.03 | -13.45 | 3076 | 30.69 | 24 | 141 | 44 | 0 | 17 | *Clethra castaneifolia* (21.0); *Freziera caloneura* (20.1); *Clusia sp8* (20.5); *Polylepis sericea* (17.4); |
| B (8) | -71.03 | -13.45 | 3105 | 11.32 | 55 | 66 | 41 | 1 | 21 | *Clethra cuneata* (31.1); *Myrsine andina* (16.2); *Miconia alpina* (15.3); *Myrsine sp1* (5.6); |
| LAG | U | -71.63 | -13.17 | 3427 | 8.61 | 53 | 77 | 20 | 14 | 16 | *Clethra cuneata* (35.2); *Weinmannia fagaroides* (17.9); *Symplocos quitensis (*13.9); *Miconia setulosa* (6.9) |
| B (5) | -71.63 | -13.17 | 3435 | 8.49 | 29 | 54 | 58 | 0 | 9 | *Clethra cuneata* (36.5); *Symplocos quitensis* (23.3); *Miconia setulosa* (17.7); *Weinmannia fagaroides* (13.4) |
| PAIT | U | -71.58 | -13.19 | 2878 | 24.69 | 77 | 100 | 21 | 9 | 20 | *Weinmannia crassifolia* (24.1*); Clusia sp8* (17.6); *Bejaria aestuans* (12.2); *Myrsine coriacea* (8.1) |
| B (5) | -71.58 | -13.19 | 2910 | 25.11 | 18 | 43 | 146 | 0 | 14 | *Weinmannia crassifolia* (50.4); *Clethra cuneata* (11.7); *Bejaria aestuans* (6.8); *Clethra castaneifolia* (5.9) |
| PLGRD | U | -71.65 | -13.16 | 3553 | 26.56 | 56 | 48 | 14 | 8 | 20 | *Symplocos reflexa* (30.4); *Weinmannia fagaroides* (26.6); *Polylepis sp* (11.2); *Polylepis pauta* (5.9) |
| B (5) | -71.65 | -13.16 | 3622 | 29.23 | 82 | 82 | 96 | 4 | 17 | *Weinmannia fagaroides* (59.2); *Symplocos reflexa* (10.8); *Polylepis sericea* (10.3) |
| WACH | U | -71.59 | -13.18 | 2936 | 24.49 | 63 | 127 | 18 | 7 | 29 | *Clusia sp7* (20.0); *Weinmannia bangii* (13.2); *Hedyosmum angustifolium* (9.1); *Meliosma peytonii* (8.9) |
| B (8) | -71.59 | -13.18 | 2955 | 31.34 | 136 | 23 | 13 | 0 | 17 | *Morella pubescens (*21.5); *Bejaria aestuans* (16.1); *Clethra castaneifolia* (15.0); *Clethra revoluta* (14.5); |
| WAY2a | U | -71.49 | -13.23 | 2747 | 32.89 | 39 | 86 | 8 | 3 | 23 | *Ilex nervosa* (18.0); *Miconia setulosa* (12.5); *Licaria sp* (9.4); *Ternstroemia sp* (8.8) |
| B (5) | -71.49 | -13.23 | 2645 | 35.56 | 121 | 52 | 11 | 0 | 14 | *Hedyosmum sp* (16.5); *Alnus acuminata* (16.4); *Clusia sp* (13.0); *Myrcianthes sp* (11.4) |
| YASP | U | -72.63 | -13.12 | 2919 | 13.42 | 7 | 47 | 5 | 6 | 18 | *Weinmannia latifolia* (19.8); *Clusia sp5* (13.6), *Lauraceae sp4* (9.3); *Brunellia inermis* (6.8) |
| B (8) | -72.63 | -13.12 | 2899 | 7.61 | 71 | 70 | 15 | 3 | 25 | *Symplocos sp8* (16.9); *Weinmannia crassifolia* (12.0); *Clusia sp5* (10.0); *Clethra castaneifolia* (9.4); |
| OB | ACHI | U | -72.68 | -13.16 | 2665 | 35.61 | 10 | 30 | 5 | 7 | 15 | *Celtis iguanea* (17.8); *Myrcianthes sp* (17.2); *Ocotea sp* (10.6); *Styrax sp* (8.8); *Myrsine sp* (8.6) |
| B (14) | -72.68 | -13.16 | 2642 | 36.85 | 80 | 17 | 14 | 1 | 22 | *Asteraceae sp* (17.3%); *Cecropia sp* (9.4); Iochroma sp (8.2); *Piper acutifolium* (9.1); *Oreopanax sp* (5.7) |
| INKA | U | -72.69 | -13.16 | 2672 | 32.49 | 87 | 33 | 5 | 3 | 22 | *Axinaea sp1* (15.2); *Begonia parviflora* (12.3); *Cornus peruviana* (11.1); *Geodoma undata* (7.8) |
| B (15) | -72.69 | -13.16 | 2752 | 28.05 | 108 | 21 | 17 | 0 | 25 | *Hieronyma sp1* (7.5*); Myrcianthes sp1* (26.4); *Nordenstamia sp* (9.9); *Ocotea sp3* (6.6) |
| QUIPE | U | -72.63 | -13.22 | 2655 | 36.39 | 117 | 68 | 15 | 2 | 20 | *Ocotea sp* (27.4); *Myrsine latifolia* (10.5); *Begonia sp* (9.1); *Alchornea sp* (8.1) |
| B (21) | -72.64 | -13.22 | 2619 | 37.57 | 2 | 12 | 86 | 1 | 7 | *Stilaginella oblonga* (41.7); *Myrsine coriacea* (14.5); *Rubiaceae sp* (13.5); *Ladenbergia oblongifolia* (9.3) |
| ROMPE | U | -72.70 | -13.21 | 2703 | 32.88 | 97 | 72 | 17 | 7 | 23 | *Meliosma sp* (17.4); *Myriocarpa stipitata* (11.3); *Cecropia sp* (8.4); *Stilaginella oblonga* (8.2) |
| B (18) | -72.70 | -13.21 | 2703 | 33.43 | 9 | 25 | 28 | 1 | 13 | *Ocotea sp* (38.0); *Malphighiaceae sp* (13.7); *Bruneallia sp* (6.8); *Clethra sp* (6.6) |
| WINAY | U | -72.54 | -13.19 | 3020 | 40.52 | 49 | 47 | 5 | 0 | 16 | *Myrsine coriacea* (23.3); *Hedyosmum scabrum* (18.1), *Miconia sp* (15.8); *Weinmannia bangii* (12.2) |
| B (28) | -72.54 | -13.19 | 3026 | 38.45 | 6 | 25 | 12 | 0 | 13 | *Gordonia fruticosa* (25.9), *Weinmannia bangii* (20.0), *Pilca sp* (14.6), *Miconia sp* (13.4) |
| YAN | U | -72.65 | -13.18 | 2493 | 31.03 | 19 | 70 | 5 | 7 | 24 | *Ficus castellviana* (14.4); *Ficus sp* (10.0); *Persea americana* (7.1); *Symplocos sp4* (5.8) |
| B (28) | -72.65 | -13.18 | 2662 | 40.77 | 71 | 56 | 4 | 9 | 38 | *Endlicheria sp1* (10.2); *Diogenesia vargasiana* (8.4); *Myrcianthes sp1* (7.0); *Nectandra obtusata* (6.9) |
| YAN1 | U | -72.65 | -13.17 | 2493 | 31.03 | 19 | 70 | 5 | 7 | 24 | *Ficus castellviana* (14.4); *Ficus s*p (10.0); *Persea americana* (7.1*); Cyathea sp* (6.6) |
| B (15) | -72.65 | -13.17 | 2657 | 38.67 | 61 | 46 | 6 | 7 | 34 | *Clusia sp* (11.5); *Myrcianthes sp1* (11.0); *Hedyosmum angustifolium* (8.6); *Symplocos sp1* (7.7) |

Table S2.

|  |  |  |  |
| --- | --- | --- | --- |
| **Species** | WD**(g/cm3)** | **Species** | **WD**  **(g/cm3)** |
| *Acalypha diversifolia* | 0.525 ± 0.031 | *Myriocarpa stipitata* | 0.564 ± 0.038 |
| *Alchornea glandulosa* | 0.521 ± 0.004 | *Myrsine coriacea* | 0.584 ± 0.040 |
| *Alnus acuminata* | 0.482 ± 0.050 | *Myrsine latifolia* | 0.624 ± 0.120 |
| *Aniba sp1* | 0.632 ± 0.031 | *Myrsine sp1* | 0.732 ± 0.060 |
| *Axinaea glandulosa* | 0.472 ± 0.077 | *Nectandra obtusata* | 0.478 ± 0.057 |
| *Axinaea sp1* | 0.533 ± 0.061 | *Ocotea sp1* | 0.574 ± 0.092 |
| *Bejaria aestuans* | 0.805 ± 0.035 | *Ocotea sp2* | 0.641 ± 0.071 |
| *Bocconia integrifolia* | 0.499 ± 0.038 | *Ocotea sp3* | 0.720 ± 0.021 |
| *Brunellia inermis* | 0.495 ± 0.163 | *Oreopanax sp1* | 0.428 ± 0.029 |
| *Cabralea sp1* | 0.544 ± 0.050 | *Oreopanax sp2* | 0.474 ± 0.042 |
| *Cecropia sp Locfl* | 0.396 ± 0.136 | *Persea americana* | 0.489 ± 0.045 |
| *Celtis iguanaea* | 0.535 ± 0.059 | *Persea ferruginea* | 0.603 ± 0.033 |
| *Cinchona sp1* | 0.527 ± 0.001 | *Podocarpus sp1* | 0.579 ± 0.117 |
| *Clethra castaneifolia* | 0.588 ± 0.090 | *Polylepys sericea* | 0.696 ± 0.034 |
| *Clethra cuneata* | 0.534 ± 0.041 | *Prunus integrifolia* | 0.621 ± 0.096 |
| *Clethra revoluta* | 0.604 ± 0.046 | *Prunus sp1* | 0.694 ± 0.083 |
| *Clethra sp* | 0.574 ± 0.019 | *Schefflera sp1* | 0.689 ± 0.046 |
| *Clusia sp1* | 0.617 ± 0.071 | *Schefflera sp2* | 0.498 ± 0.007 |
| *Clusia alata* | 0.653 ± 0.004 | *Siparuna tomentosa* | 0.457 ± 0.014 |
| *Cornus peruviana* | 0.607 ± 0.028 | *Solanum erianthum* | 0.424 ± 0.012 |
| *Endlicheria sp1* | 0.589 ± 0.021 | *Solanum sp1* | 0.722 ± 0.163 |
| *Ericaceae sp2* | 0.758 ± 0.039 | *Stilaginella oblonga* | 0.593 ± 0.054 |
| *Ficus castellviana* | 0.434 ± 0.109 | *Symplocos quitensis* | 0.544 ± 0.064 |
| *Ficus sp1* | 0.356 ± 0.023 | *Symplocos reflexa* | 0.526 ± 0.021 |
| *Freziera sp1* | 0.722 ± 0.052 | *Symplocos sp1* | 0.529 ± 0.080 |
| *Freziera caloneura* | 0.519 ± 0.039 | *Symplocos sp2* | 0.515 ± 0.001 |
| *Hedyosmum angustifolium* | 0.694 ± 0.183 | *Terminalia oblonga* | 0.518 ± 0.020 |
| *Hedyosmum scabrum* | 0.513 ± 0.061 | *Turpinia occidentalis* | 0.396 ± 0.033 |
| *Hesperomeles ferruginea* | 0.780 ± 0.070 | *Urera sp1* | 0.532 ± 0.001 |
| *Hieronyma sp1* | 0.640 ± 0.124 | *Vallea stipularis* | 0.566 ± 0.175 |
| *Ilex nervosa* | 0.729 ± 0.031 | *Viburnum stellato-pilosum* | 0.569 ± 0.053 |
| *Ladenbergia sp1* | 0.548 ± 0.035 | *Viburnum mathewsii* | 0.438 ± 0.012 |
| *Licaria sp1* | 0.633 ± 0.056 | *Weinmannia auriculata* | 0.579 ± 0.013 |
| *Licaria sp2* | 0.582 ± 0.016 | *Weinmannia bangii* | 0.580 ± 0.072 |
| *Meliosma sp1* | 0.589 ± 0.009 | *Weinmannia crassifolia* | 0.645 ± 0.065 |
| *Miconia setulosa* | 0.640 ± 0.028 | *Weinmannia fagaroides* | 0.572 ± 0.045 |
| *Miconia sp1* | 0.547 ± 0.163 | *Weinmannia latifolia* | 0.620 ± 0.028 |
| *Myrcianthes sp1* | 0.835 ± 0.085 | *Weinmannia laurina* | 0.610 ± 0.027 |
| *Myrica pubescens* | 0.609 ± 0.071 | *Weinmannia sp* | 0.628 ± 0.023 |

Table S3.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Desc/Diam** | **I** | **II** | **III** | **IV** | **V** | **WDDesc** |
| **1** | 0.44 ± 0.06 | 0.37 ± 0.07 | 0.46 ± 0.08 | NA | NA | 0.42 ± 0.07 |
| **2** | 0.40 ± 0.03 | 0.36 ± 0.03 | 0.49 ± 0.04 | 0.64 ± 0.02 | NA | 0.47 ± 0.05 |
| **3** | 0.42 ± 0.01 | 0.40 ± 0.01 | 0.45 ± 0.01 | 0.50 ± 0.03 | 0.61 ± 0.07 | 0.48 ± 0.03 |
| **4** | 0.34 ± 0.01 | 0.30 ± 0.01 | 0.36 ± 0.01 | 0.41 ± 0.10 | 0.46 ± 0.05 | 0.38 ± 0.02 |
| **5** | 0.30 ± 0.03 | 0.27 ± 0.01 | 0.29 ± 0.01 | 0.30 ± 0.03 | 0.37 ± 0.16 | 0.31 ± 0.02 |
| **WDDiam** | 0.38 ± 0.03 | 0.34 ± 0.04 | 0.41 ± 0.03 | 0.46 ± 0.03 | 0.48 ± 0.05 | |

Table S4.

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Horizon** | | |
| Soil type | **Oi** | **Oe** | **Oa** |
| **Burned** | 0.497 | 0.462 | 0.397 |
| **Unburned** | 0.470 | 0.453 | 0.367 |
| **Mean** | 0.483 | 0.458 | 0.383 |

Table S5.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **TLF** | **Fire** | **SOR** | **SIM** | **NES** |
| RB | U | 0.930 | 0.916 | 0.014 |
| B | 0.959 | 0.933 | 0.026 |
| MB | U | 0.911 | 0.895 | 0.016 |
| B | 0.923 | 0.906 | 0.017 |
| OB | U | 0.867 | 0.844 | 0.023 |
| B | 0.908 | 0.863 | 0.045 |
| Total | U | 0.961 | 0.954 | 0.007 |
| B | 0.965 | 0.949 | 0.015 |
|  | 0.973 | 0.965 | 0.008 |

Figure S1. Relative frequency of tree size (DBH, cm) distributions in burnt and control plots according to the fire chronosequence. 