**An invasive shrub (Lantana camara L.) alters the diversity, total ecosystem-level carbon storage and soils in tropical dry deciduous forests of Central India**

**Graphical Abstract**

A diagram of a plant life cycle

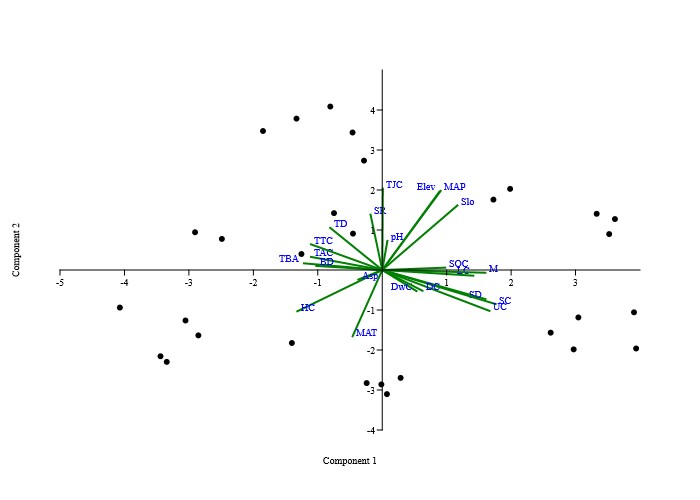
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**Supplementary Figure 1. *Lantana* invasion significantly alters the biodiversity and C pools in tropical dry deciduous forests**



**Supplementary Figure 2. Plot locations in the three study sites of Sagar, Madhya Pradesh, India**



**Supplementary Figure 3.** Principal components analysis of environmental factors {topographic and edaphic variables: elevation (Elev), slope (Slo), aspect (Asp), soil pH, soil organic carbon (SOC), soil moisture (M%), bulk density (BD; g cm-3); climatic variables: mean annual temperature (MAT), mean annual precipitation (MAP)}, diversity attribute {species richness (SR)} and structural attributes {tree density (TD), tree basal area (BA)}, tree juvenile carbon (TJC), tree adult carbon (TAC), total tree carbon (TTC), herb carbon (HC), shrub carbon (SC), understorey carbon (UC), litter carbon (LC), deadwood carbon (DwC) and detritus carbon (DC) against *L. camara* density at plot-level.

**Supplementary Figure 4** Percent allocation of different ecosystem components in uninvaded (UI) and *Lantana*-invaded(LI) sites of tropical dry deciduous forests in Madhya Pradesh, Central India

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**Supplementary Figure 5** Species richness (SR; No. of species), density (D; stems ha-1), basal area (BA; m2 ha-1), Shannon index (Hʹ), Simpson index (Cd), evenness index (E) and Margalef’s index (R) of tree seedlings in uninvaded (UI) and *Lantana*-invaded (LI) sites. Data are presented as the mean value, different letters are significantly different at P<0.05

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**Supplementary Figure 6** Species richness (SR; No. of species), density (D; stems ha-1), basal area (BA; m2 ha-1), Shannon index (Hʹ), Simpson index (Cd), evenness index (E) and Margalef’s index (R) of tree juveniles in uninvaded (UI) and *Lantana*-invaded (LI) sites. Data are presented as the mean value, different letters are significantly different at P<0.05

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**Supplementary Figure 7** Species richness (SR; No. of species), density (D; stems ha-1), basal area (BA; m2 ha-1), Shannon index (Hʹ), Simpson index (Cd), evenness index (E) and Margalef’s index (R) of tree adults in uninvaded (UI) and *Lantana*-invaded (LI) sites. Data are presented as the mean value, different letters are significantly different at P<0.05

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**Supplementary Figure 8** Species richness (SR; No. of species), density (D; stems ha-1), basal area (BA; m2 ha-1), Shannon index (Hʹ), Simpson index (Cd), evenness index (E) and Margalef’s index (R) of herbs in uninvaded (UI) and *Lantana*-invaded (LI) sites. Data are presented as the mean value, different letters are significantly different at P<0.05

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**Supplementary Figure 9** Species richness (SR; No. of species), density (D; stems ha-1), basal area (BA; m2 ha-1), Shannon index (Hʹ), Simpson index (Cd), evenness index (E) and Margalef’s index (R) of total plants (trees, herbs and shrubs) in uninvaded (UI) and *Lantana*-invaded (LI) sites. Data are presented as the mean value, different letters are significantly different at P<0.05

**Supplementary Table 1.** Consolidated details of phytosociological analysis of Uninvaded (UI) and *Lantana*-invaded (LI) sites of tropical dry deciduous forest of Sagar, Madhya Pradesh

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Study sites** | | | | | | | | |
| **Parameter** | **Uninvaded (UI)** | | | | ***Lantana*-invaded (LI)** | | | |
| **Site-I** | **Site-II** | **Site-III** | **Mean** | **Site-I** | **Site-II** | **Site-III** | **Mean** |
| **Species richness** |  |  |  |  |  |  |  |  |
| Tree saplings  (< 3cm DBH) | 8 ± 3ab | 16 ± 2b | 8 ± 2a | 21 ± 5 | 4 ± 1a | 10 ± 2ab | 7 ± 2a | 13 ± 3 |
| Tree juveniles  (3-9.9cm DBH) | 18 ± 2b | 23 ± 3ab | 15 ± 4ab | 33 ± 4 | 19 ± 2ab | 25 ± 3ab | 13 ± 2a | 30 ± 6 |
| Tree adults  ( ≥10cm DBH) | 21 ± 2ab | 30 ± 3b | 17 ± 4ab | 40 ± 7 | 13 ± 2a | 24 ± 2b | 17 ± 4ab | 29 ± 6 |
| Total tree species | 25 ± 3ab | 39 ± 4ab | 20 ± 5a | 47 ± 10 | 20 ± 2ab | 33 ± 2b | 18 ± 4ab | 38 ± 8 |
| Shrub and liana species | 5 ± 0.5a | 9 ± 0.8a | 8 ± 2.3a | 13 ± 2 | 4 ± 0.4a | 5 ± 1.3a | 4 ± 0.4a | 7 ± 0.6 |
| Herb species | 41 ± 3b | 50 ± 4c | 48 ± 6ab | 72 ± 5 | 31 ± 1ab | 34 ± 4ab | 31 ± 3a | 53 ± 2 |
| Total No. of species | 71 ± 3bc | 98 ± 6c | 76 ± 11ab | 132 ± 14 | 55 ± 2ab | 72 ± 3ab | 53 ± 5a | 98 ± 10 |
| Total No. of Genera | 65 ± 2b | 88 ± 6c | 64 ± 9ab | 112 ± 14 | 50 ± 2ab | 66 ± 4b | 48 ± 4a | 88 ± 10 |
| Total No. of families | 32 ± 1ab | 34 ± 4b | 30 ± 3ab | 44 ± 2 | 26 ± 1a | 32 ± 3ab | 27 ± 3a | 39 ± 3 |
| **Density (No. ha-1)** |  |  |  |  |  |  |  |  |
| Tree saplings | 73 ± 62a | 222 ± 54b | 34 ± 8a | 110 ± 95 | 7 ± 6a | 51 ± 40a | 32 ± 10a | 30 ± 28 |
| Tree juveniles | 667 ± 203b | 980 ± 217c | 225 ± 127a | 624 ± 364 | 376 ± 110ab | 546 ± 135b | 201 ± 50a | 374 ± 175 |
| Tree adults | 528 ± 117c | 443 ± 82bc | 400 ± 43abc | 457 ± 97 | 343 ± 61ab | 354 ± 51ab | 300 ± 48a | 332 ± 55 |
| Total tree density | 1268 ± 321.1c | 1645 ± 197.4d | 659 ± 163.5ab | 1191 ± 473.2 | 726 ± 125.6ab | 951 ± 148.2bc | 533 ± 62.1a | 736±206.1 |
| Shrub and liana species | 768 ± 1276a | 3808 ± 2348a | 2544 ± 2176a | 2373 ± 2249 | 16880 ± 4430b | 18720 ± 6632b | 16000 ± 2049b | 17200± 4558 |
| Herbs | 455600 ±  112425bc | 489000 ±  87389.9c | 411000 ±  70862abc | 451867 ± 91224 | 267800 ±  64115a | 321000 ±  36633ab | 264600 ±  69565a | 284467 ± 60476 |
| **Basal area (m2ha-1)** |  |  |  |  |  |  |  |  |
| Tree saplings | 0.039 ± 0.034a | 0.105 ± 0.03b | 0.018 ± 0.004a | 0.05 ± 0.04 | 0.004 ± 0.003a | 0.024 ± 0.019a | 0.015 ± 0.004a | 0.015 ± 0.01 |
| Tree juveniles | 2.01 ± 0.4bc | 2.91 ± 0.8c | 0.76 ± 0.4a | 1.9 ± 1.1 | 1.28 ± 0.3ab | 1.74 ± 0.4b | 0.60 ± 0.2a | 1.2 ± 0.5 |
| Tree adults | 22.54 ± 4.4b | 18.25 ± 6.8ab | 18.26 ± 2.8ab | 19.7 ± 5.1 | 15.19 ± 2.4ab | 12.35 ± 0.7a | 16.53 ± 4.2ab | 14.7 ± 3.1 |
| Total tree basal area | 24.6 ± 4.5b | 21.3 ± 6.7ab | 19.0 ± 2.9ab | 21.7 ± 5.1 | 16.5 ± 2.3a | 14.1 ± 1.0a | 17.1 ± 4.2ab | 15.9 ± 3.0 |
| Shrub and liana | 0.12 ± 0.1a | 0.73 ± 0.8ab | 0.17 ± 0.1a | 0.34 ± 0.5 | 2.64 ± 0.7c | 2.78 ± 1.1c | 1.67 ± 0.6bc | 2.36 ± 0.9 |
| Herbs | 7.78 ± 1.3c | 5.67 ± 1.2abc | 6.74 ± 1.6bc | 6.73 ± 1.6 | 5.89 ± 1.2bc | 3.33 ± 0.5a | 5.05 ± 1.0ab | 4.76 ± 1.4 |
| **Shannon index (Hʹ)** |  |  |  |  |  |  |  |  |
| Tree saplings | 1.79 ± 0.8a | 1.87 ± 0.4a | 1.34 ± 0.8a | 1.68 ± 0.3 | 1.32 ± 0.4a | 1.65 ± 0.6a | 1.42 ± 0.6a | 1.49 ± 0.2 |
| Tree juveniles | 1.89 ± 0.1a | 1.72 ± 0.2a | 1.96 ± 0 .7a | 1.86 ± 0.1 | 2.04 ± 0.3a | 1.53 ± 0.2a | 1.69 ± 0.5a | 1.75 ± 0.3 |
| Tree adults | 0.86 ± 0.2a | 2.23 ± 0.2 c | 2.16 ± 0.6c | 1.75 ± 0.8 | 0.93 ± 0.3ab | 2.03 ± 0.1c | 1.90 ± 0.5bc | 1.62 ± 1.0 |
| Overall trees | 1.61 ± 0.2a | 2.01 ± 0.2a | 2.16 ± 0.7a | 1.93 ± 0.3 | 1.68 ± 0.3a | 1.87 ± 0.2a | 1.90 ± 0.5a | 1.82 ± 0.1 |
| Shrub and liana | 0.86 ± 0.3a | 1.16 ± 0.2a | 1.21 ± 0.7a | 1.07 ± 0.2 | 0.20 ± 0.1a | 0.32 ± 0.2a | 0.40 ± 0.2a | 0.31 ± 0.1 |
| Herbs | 2.86 ± 0.05bc | 2.99 ± 0.2c | 2.56 ± 0.4ab | 2.81 ± 0.2 | 2.79 ± 0.1abc | 2.24 ± 0.3a | 2.22 ± 0.4a | 2.42 ± 0.3 |
| **Dominance index (D)** | | | | | | | | |
| Tree saplings | 0.20 ± 0.4a | 0.21 ± 0.1a | 0.41 ± 0.3a | 0.3 ± 0.1 | 0.26 ± 0.4a | 0.27 ± 0.3a | 0.34 ± 0.3a | 0.29 ± 0.3 |
| Tree juveniles | 0.23 ± 0.04a | 0.28 ± 0.08a | 0.20 ± 0.3a | 0.24 ± 0.03 | 0.19 ± 0.09a | 0.32 ± 0.08a | 0.30 ± 0.2a | 0.27 ± 0.07 |
| Tree adults | 0.69 ± 0.1b | 0.18 ± 0.04a | 0.15 ± 0.2a | 0.34 ± 0.03 | 0.62 ± 0.1b | 0.24 ± 0.02a | 0.24 ± 0.1a | 0.37 ± 0.2 |
| Overall trees | 0.37 ± 0.1a | 0.21 ± 0.05a | 0.16 ± 0.2a | 0.25 ± 0.1 | 0.34 ± 0.1a | 0.26 ± 0.1a | 0.26 ± 0.1a | 0.28 ± 0.04 |
| Shrub and liana | 0.58 ± 0.2a | 0.46 ± 0.1a | 0.39 ± 0.3a | 0.48 ± 0.09 | 0.92 ± 0.1a | 0.87 ± 0.1a | 0.83 ± 0.1a | 0.87 ± 0.04 |
| Herbs | 0.08 ± 0.01a | 0.09 ± 0.04a | 0.14 ± 0.07ab | 0.1 ± 0.03 | 0.09 ± 0.03a | 0.20 ± 0.07b | 0.18 ± 0.04ab | 0.16 ± 0.06 |
| **Simpson index (Cd)** |  |  |  |  |  |  |  |  |
| Tree saplings | 0.80 ± 0.3a | 0.80 ± 0.1a | 0.59 ± 0.4a | 0.73 ± 0.1 | 0.72 ± 0.3a | 0.71 ± 0.3a | 0.67 ± 0.3a | 0.71 ± 0.03 |
| Tree juveniles | 0.77 ± 0.04a | 0.72 ± 0.1a | 0.80 ± 0.3a | 0.76 ± 0.03 | 0.81 ± 0.1a | 0.68 ± 0.1a | 0.70 ± 0.2a | 0.73 ± 0.07 |
| Tree adults | 0.31 ± 0.1a | 0.82 ± 0.04b | 0.85 ± 0.2b | 0.66 ± 0.3 | 0.38 ± 0.1a | 0.76 ± 0.02b | 0.76 ± 0.1b | 0.63 ± 0.2 |
| Overall trees | 0.63 ± 0.1a | 0.79 ± 0.1a | 0.84 ± 0.2a | 0.75 ± 0.1 | 0.66 ± 0.1a | 0.74 ± 0.1a | 0.74 ± 0.1a | 0.71 ± 0.04 |
| Shrub and liana | 0.42 ± 0.2a | 0.54 ± 0.1a | 0.61 ± 0.3a | 0.52 ± 0.09 | 0.08 ± 0.1a | 0.13 ± 0.1a | 0.17 ± 0.1a | 0.13 ± 0.05 |
| Herbs | 0.91 ± 0.01b | 0.91 ± 0.04b | 0.86 ± 0.06ab | 0.89 ± 0.03 | 0.91 ± 0.03b | 0.80 ± 0.1a | 0.82 ± 0.05ab | 0.84 ± 0.06 |
| **Evenness index (E)** |  |  |  |  |  |  |  |  |
| Tree saplings | 0.75 ± 0.1a | 0.41 ± 0.1b | 0.49 ± 0.1ab | 0.55 ± 0.2 | 0.97 ± 0.4a | 0.55 ± 0.2a | 0.60 ± 0.05a | 0.70 ± 0.2 |
| Tree juveniles | 0.37±0.05ab | 0.24 ± 0.1a | 0.47 ± 0.1b | 0.36 ± 0.1 | 0.40 ± 0.1ab | 0.19 ± 0.1a | 0.42 ± 0.1b | 0.34 ± 0 .1 |
| Tree adults | 0.11 ± 0.02a | 0.32 ± 0.1bc | 0.51 ± 0.05c | 0.31 ± 0.2 | 0.19 ± 0.05b | 0.32 ± 0.03bc | 0.39 ± 0.1c | 0.30 ± 0.1 |
| Overall trees | 0.20 ± 0.04a | 0.19 ± 0.1ab | 0.43 ± 0.04c | 0.27 ± 0.1 | 0.27 ± 0.1ab | 0.20 ± 0.05ab | 0.37 ± 0.09bc | 0.28 ± 0.1 |
| Shrub and liana | 0.47 ± 0.2a | 0.35 ± 0.2a | 0.42 ± 0.1a | 0.41 ± 0.06 | 0.31±0.2a | 0.28±0.2a | 0.37±0.2a | 0.32±0.05 |
| Herbs | 0.42 ± 0.1ab | 0.40 ± 0.2ab | 0.27 ± 0.1ab | 0.36 ± 0.1 | 0.53 ± 0.1b | 0.28 ± 0.1a | 0.30 ± 0.1ab | 0.37 ± 0.1 |
| **Margalef index (R)** |  |  |  |  |  |  |  |  |
| Tree saplings | 1.56 ± 0.6a | 2.67 ± 0.4a | 1.87 ± 0.6a | 2.1 ± 0.6 | 1.54 ± 0.3a | 2.29 ± 0.5a | 1.73 ± 0.6a | 1.85 ± 0.4 |
| Tree juveniles | 2.53 ± 0.2a | 3.09 ± 0.4a | 2.48 ± 0.7a | 2.8 ± 0.3 | 3.04 ± 0.3a | 3.81 ± 0.4a | 2.26 ± 0.4a | 3.03 ± 0.8 |
| Tree adults | 3.19 ± 0.3ab | 4.76 ± 0.5b | 2.67 ± 0.7ab | 3.5 ± 1.1 | 2.06 ± 0.4a | 3.92 ± 0.2b | 2.81 ± 0.7ab | 2.93 ± 0.9 |
| Overall trees | 3.26 ± 0.4a | 4.98 ± 0.7a | 2.83 ± 0.9a | 3.69 ± 1.2 | 2.79 ± 0.4ab | 4.52 ± 0.5a | 2.62 ± 0.7b | 3.31 ± 1.0 |
| Shrub and liana | 0.60 ± 0.1a | 0.97 ± 0.1a | 0.89 ± 0.3a | 0.82 ± 0.2 | 0.31 ± 0.04a | 0.41 ± 0.1a | 0.31 ± 0.04a | 0.34 ± 0.06 |
| Herbs | 3.07 ± 0.2ab | 3.74 ± 0.3b | 3.64 ± 0.5a | 3.48 ± 0.4 | 2.40 ± 0.1a | 2.60 ± 0.3a | 2.40 ± 0.3a | 2.47 ± 0.1 |
| **Fisher’s alpha (α)** |  |  |  |  |  |  |  |  |
| Tree saplings | 2.29 ± 0.6a | 3.95 ± 0.5a | 3.29 ± 0.8a | 3.18 ± 0.8 | 3.88 ± 0.4a | 3.72 ± 0.6a | 2.76 ± 0.6a | 3.45 ± 0.6 |
| Tree juveniles | 3.41 ± 0.2a | 4.22 ± 0.5a | 3.62 ± 0.9a | 3.75 ± 0.4 | 4.22 ± 0.5a | 5.41 ± 0.6a | 3.11 ± 0.6a | 4.24 ± 1.2 |
| Tree adults | 4.37 ± 0.4ab | 7.27 ± 0.7b | 3.60 ± 0.9ab | 5.08 ± 1.9 | 2.67 ± 0.5a | 5.82 ± 0.3b | 3.90 ± 0.9ab | 4.13 ± 1.6 |
| Overall trees | 4.22 ± 0.5a | 6.83 ± 1.1a | 3.70 ±. 1.4a | 4.91 ± 1.7 | 3.62 ± 0.6a | 6.30 ± 0.9a | 3.41 ± 1.1a | 4.4 ± 1.6 |
| Shrub and liana | 0.72 ± 0.06a | 1.1 ± 0.1a | 1.02 ± 0.3a | 0.95 ± 0.2 | 0.37 ± 0.03a | 0.47 ± 0.1a | 0.37 ± 0.04a | 0.41 ± 0.06 |
| Herbs | 3.48 ± 0.2ab | 4.29 ± 0.4b | 4.17 ± 0.5a | 3.98 ± 0.4 | 2.69 ± 0.1a | 2.93 ± 0.3a | 2.69 ± 03a | 2.77 ± 0.1 |

**Supplementary Table 2**. Density (No. ha-1), basal area (m2 ha-1) and Importance Value Index (IVI) of different life forms in uninvaded (UI) and *Lantana*-invaded (LI) sites of tropical dry deciduous forests of Sagar, Madhya Pradesh

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Life form** | **Density** | | | | | | **Basal area** | | | | | | **IVI** | | | | | |
| **Uninvaded (UI)** | | | ***Lantana*-invaded (LI)** | | | **Uninvaded (UI)** | | | ***Lantana*-invaded (LI)** | | | **Uninvaded (UI)** | | | ***Lantana*-invaded (LI)** | | |
| **Saplings** | **Site-I** | **Site-II** | **Site-III** | **Site-I** | **Site-II** | **Site-III** | **Site-I** | **Site-II** | **Site-III** | **Site-I** | **Site-II** | **Site-III** | **Site-I** | **Site-II** | **Site-III** | **Site-I** | **Site-II** | **Site-III** |
| *Acacia catechu* (L.f.) Willd. |  |  |  |  | 1 |  |  |  |  |  | 0.0004 |  |  |  |  |  | 3.45 |  |
| *Acacia leucophloea* (Roxb.)Willd. |  | 1 |  |  | 1 |  |  | 0.0004 |  |  | 0.0003 |  |  | 1.25 |  |  | 3.24 |  |
| *Aegle marmelos* (L.) Correa |  | 2 | 1 |  |  |  |  | 0.0010 | 0.0003 |  |  |  |  | 3.53 | 7.81 |  |  |  |
| *Anogeissus latifolia* (DC.) Wallich ex Guill. & Perr. | 6 |  | 1 |  |  |  | 0.0034 |  | 0.0003 |  |  |  | 2.65 |  | 9.44 |  |  |  |
| *Bauhinia racemosa* Lam. |  |  |  |  | 1 |  |  |  |  |  | 0.0005 |  |  |  |  |  | 11.79 |  |
| *Bridelia retusa* (L.) A.Juss. |  | 1 |  |  |  |  |  | 0.0004 |  |  |  |  |  | 1.67 |  |  |  |  |
| *Buchanania lanzan* Spreng |  | 3 |  |  |  |  |  | 0.0014 |  |  |  |  |  | 5.46 |  |  |  |  |
| *Butea monosperma* (Lam.) Taub. | 3 | 1 |  |  | 2 |  | 0.0019 | 0.0003 |  |  | 0.0006 |  | 8.51 | 1.19 |  |  | 6.14 |  |
| *Cassia fistula* L. |  | 5 | 4 |  | 6 | 6 |  | 0.0022 | 0.0014 |  | 0.0026 | 0.0030 |  | 8.48 | 27.25 |  | 8.33 | 72.69 |
| *Dalbergia paniculata* (Roxb) |  | 6 |  |  |  |  |  | 0.0022 |  |  |  |  |  | 9.42 |  |  |  |  |
| *Diospyros melanoxylon* Roxb | 10 | 75 | 2 | 2 | 24 | 1 | 0.0058 | 0.0358 | 0.0010 | 0.0017 | 0.0116 | 0.0003 | 3.90 | 14.13 | 18.78 | 187.95 | 95.63 | 16.86 |
| *Flacourtia indica* (Burm. f.) Merr. |  |  | 2 |  |  |  |  |  | 0.0010 |  |  |  |  |  | 15.13 |  |  |  |
| *Garuga pinnata* Roxb. | 9 |  |  | 2 |  |  | 0.0043 |  |  | 0.0010 |  |  | 81.77 |  |  | 55.93 |  |  |
| *Grewia tiliifolia* Vahl. var. tilifolia |  | 2 |  |  |  |  |  | 0.0007 |  |  |  |  |  | 2.55 |  |  |  |  |
| *Kydia calycina* Roxb*.* |  | 1 |  |  |  |  |  | 0.0005 |  |  |  |  |  | 1.30 |  |  |  |  |
| *Lagerstroemia parviflora* Roxb | 6 | 6 | 2 | 2 |  | 1 | 0.0031 | 0.0030 | 0.0015 | 0.0010 |  | 0.0002 | 12.82 | 11.58 | 16.35 | 36.99 |  |  |
| *Miliusa tomentosa* (Roxb.) J. Sinclair | 12 | 45 |  |  | 3 | 2 | 0.0069 | 0.0222 |  |  | 0.0018 | 0.0012 | 25.37 | 65.66 |  |  | 23.23 | 33.80 |
| *Ougeinia oojeinensis* (Roxb.)Hochr*.* |  | 2 |  |  |  |  |  | 0.0011 |  |  |  |  |  | 4.16 |  |  |  |  |
| *Schleichera oleosa* (Lour.) Oken. |  | 4 |  |  | 1 |  |  | 0.0018 |  |  | 0.0004 |  |  | 6.44 |  |  | 11.27 |  |
| *Semecarpus anacardium* L.f. | 1 |  |  |  |  |  | 0.0004 |  |  |  |  |  | 4.67 |  |  |  |  |  |
| *Syzygium cumini* (L.) Skeel |  | 42 |  |  |  |  |  | 0.0206 |  |  |  |  |  | 36.40 |  |  |  |  |
| *Tectona grandis* L.f. | 26 | 26 | 21 | 1 | 8 | 17 | 0.0131 | 0.0117 | 0.0115 | 0.0006 | 0.0040 | 0.0079 | 115.37 | 37.59 | 199.65 | 19.26 | 38.69 | 127.75 |
| *Terminalia tomentosa* Wight & Arn. |  |  |  |  |  | 2 |  |  |  |  |  | 0.0008 |  |  |  |  |  | 11.87 |
| *Wrightia tinctora*(Roxb) |  |  | 1 |  | 4 | 3 |  |  | 0.0005 |  | 0.0022 | 0.0018 |  |  | 6.00 |  | 26.25 | 37.71 |
| **Juveniles** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| *Acacia catechu* (L.f.) Willd. |  |  | 2 | 2 | 3 |  |  |  | 0.0082 | 0.0102 | 0.0034 |  |  |  | 5.23 | 2.87 | 1.00 |  |
| *Acacia leucophloea* (Roxb.)Willd. | 7 | 3 | 1 | 13 | 3 |  | 0.0249 | 0.0079 | 0.0043 | 0.0446 | 0.0110 |  | 5.43 | 1.73 | 2.40 | 11.75 | 2.98 |  |
| *Aegle marmelos* (L.) Correa |  | 1 | 9 | 2 | 4 | 3 |  | 0.0017 | 0.0302 | 0.0071 | 0.0081 | 0.0205 |  | 0.37 | 13.38 | 1.37 | 3.29 | 6.49 |
| *Annona squamosa* L. |  | 9 |  |  |  |  |  | 0.0195 |  |  |  |  |  | 2.26 |  |  |  |  |
| *Anogeissus latifolia* (DC.) Wallich ex Guill. & Perr. | 24 | 0 | 3 | 23 | 1 |  | 0.0716 |  | 0.0101 | 0.0890 | 0.0006 |  | 13.24 |  | 4.59 | 16.88 | 0.54 |  |
| *Azadirachta indica* A.Juss. |  |  |  | 1 |  |  |  |  |  | 0.0015 |  |  |  |  |  | 0.95 |  |  |
| *Bauhinia racemosa* Lam. | 1 | 8 | 1 | 2 | 3 |  | 0.0024 | 0.0370 | 0.0031 | 0.0060 | 0.0112 |  | 0.58 | 4.30 | 1.14 | 1.29 | 3.34 |  |
| *Bridelia retusa* (L.) A.Juss. | 2 | 2 |  | 2 |  |  | 0.0024 | 0.0122 |  | 0.0118 |  |  | 0.91 | 1.42 |  | 2.72 |  |  |
| *Buchanania lanzan* Spreng | 4 | 17 | 7 | 0 | 7 | 1 | 0.0213 | 0.0665 | 0.0236 |  | 0.0361 | 0.0046 | 2.72 | 7.68 | 7.97 |  | 7.25 | 1.68 |
| *Butea monosperma* (Lam.) Taub. | 94 |  | 11 | 28 | 9 | 10 | 0.2992 |  | 0.0366 | 0.0968 | 0.0316 | 0.0403 | 4.61 |  | 22.85 | 23.78 | 6.49 | 22.29 |
| *Casearia tomentosa*Roxb*.* |  |  |  |  | 1 |  |  |  |  |  | 0.0010 |  |  |  |  |  | 0.55 |  |
| *Cassia fistula L.* | 5 | 19 | 6 | 2 | 7 | 24 | 0.0078 | 0.0658 | 0.0233 | 0.0055 | 0.0248 | 0.0587 | 2.32 | 8.71 | 8.98 | 1.48 | 5.13 | 38.24 |
| *Chloroxylon swietenia* (Roxb.) DC. |  |  |  |  | 2 |  |  |  |  |  | 0.0073 |  |  |  |  |  | 1.43 |  |
| *Cochlospermum religiosum* (L.) Alston |  | 1 |  |  | 1 |  |  | 0.0048 |  |  | 0.0041 |  |  | 0.57 |  |  | 0.74 |  |
| *Cordia myxa* L*.* |  | 2 |  |  |  |  |  | 0.0046 |  |  |  |  |  | 0.65 |  |  |  |  |
| *Dalbergia paniculata* (Roxb) |  | 2 |  |  |  |  |  | 0.0061 |  |  |  |  |  | 0.89 |  |  |  |  |
| *Diospyros melanoxylon* Roxb | 98 | 453 | 60 | 40 | 233 | 22 | 0.2103 | 1.3520 | 0.2482 | 0.1034 | 0.7482 | 0.0913 | 37.95 | 115.52 | 63.49 | 26.87 | 112.74 | 31.54 |
| *Elaedendron Glaucum* (Rottb.) Pers. |  | 1 |  |  |  |  |  | 0.0052 |  |  |  |  |  | 0.47 |  |  |  |  |
| *Ficus glomerata* Roxb. |  | 3 |  |  | 2 |  |  | 0.0139 |  |  | 0.0022 |  |  | 1.24 |  |  | 0.74 |  |
| *Flacourtia indica* (Burm. f.) Merr. |  |  | 18 |  |  | 5 |  |  | 0.0681 |  |  | 0.0199 |  |  | 16.31 |  |  | 7.17 |
| *Garuga pinnata* Roxb. | 22 |  |  | 19 | 3 |  | 0.0284 |  |  | 0.0453 | 0.0097 |  | 8.55 |  |  | 13.85 | 2.10 |  |
| *Grewia tiliifolia* Vahl. var. tilifolia |  |  |  |  | 2 |  |  |  |  |  | 0.0014 |  |  |  |  |  | 0.73 |  |
| *Holoptelea integrifolia* Planch. | 1 |  |  | 1 | 1 |  | 0.0006 |  |  | 0.0016 | 0.0006 |  | 0.65 |  |  | 0.96 | 0.53 |  |
| *Kydia calycina* Roxb. |  | 1 |  |  |  |  |  | 0.0013 |  |  |  |  |  | 0.45 |  |  |  |  |
| *Lagerstroemia parviflora* Roxb. | 42 | 32 | 19 | 74 | 4 | 17 | 0.1055 | 0.0884 | 0.0706 | 0.2519 | 0.0140 | 0.0486 | 25.17 | 12.62 | 17.23 | 67.18 | 2.51 | 24.42 |
| *Lannea coromandelica* (Houtt.)Merr. | 1 |  |  |  | 1 |  | 0.0031 |  |  |  | 0.0059 |  | 0.62 |  |  |  | 0.80 |  |
| *Madhuca indica* J.F.Gmel. | 1 |  |  |  | 1 |  | 0.0024 |  |  |  | 0.0031 |  | 0.42 |  |  |  | 0.66 |  |
| *Miliusa tomentosa* (Roxb.) J. Sinclair | 53 | 144 |  | 20 | 52 | 6 | 0.0916 | 0.4086 |  | 0.0548 | 0.1520 | 0.0116 | 21.17 | 47.92 |  | 12.95 | 24.29 | 6.31 |
| *Ougeinia oojeinensis* (Roxb.)Hochr. |  |  |  |  |  | 2 |  |  |  |  |  | 0.0077 |  |  |  |  |  | 3.00 |
| *Schleichera oleosa* (Lour.) Oken. | 2 | 18 |  | 1 | 2 |  | 0.0046 | 0.0531 |  | 0.0043 | 0.0055 |  | 1.59 | 7.14 |  | 0.81 | 1.32 |  |
| *Semecarpus anacardium* L.f. | 14 | 1 |  | 7 |  |  | 0.0413 | 0.0020 |  | 0.0219 |  |  | 7.43 | 0.46 |  | 4.39 |  |  |
| *Syzygium cumini* (L.) Skeel |  | 84 |  |  |  |  |  | 0.1953 |  |  |  |  |  | 21.90 |  |  |  |  |
| *Tectona grandis* L.f. | 278 | 171 | 75 | 134 | 197 | 102 | 1.0394 | 0.5264 | 0.2020 | 0.5010 | 0.6474 | 0.2751 | 122.56 | 59.35 | 121.33 | 15.44 | 116.51 | 147.74 |
| *Terminalia arjuna* (Roxb.) Wight & Arn. |  | 2 |  |  |  |  |  | 0.0074 |  |  |  |  |  | 1.14 |  |  |  |  |
| *Terminalia tomentosa* Wight & Arn. | 18 | 5 | 2 | 3 | 1 | 2 | 0.0555 | 0.0204 | 0.0056 | 0.0134 | 0.0023 | 0.0051 | 8.66 | 2.67 | 5.68 | 2.88 | 0.64 | 2.48 |
| *Wrightia tinctora* (Roxb.) |  |  | 10 |  | 4 | 6 |  |  | 0.0267 |  | 0.0053 | 0.0180 |  |  | 7.98 |  | 2.37 | 7.49 |
| *Ziziphus jujuba* Mill. |  |  | 1 |  |  |  |  |  | 0.0035 |  |  |  |  |  | 2.50 |  |  |  |
| *Ziziphus xylopyrus* (Retz.) Willd. |  | 1 |  | 2 | 2 | 1 |  | 0.0050 |  | 0.0058 | 0.0069 | 0.0009 |  | 0.58 |  | 2.46 | 1.67 | 1.14 |
| **Adults** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| *Acacia catechu* (L.f.) Willd. | 2 |  | 1 | 2 | 2 |  | 0.0406 |  | 0.0198 | 0.0131 | 0.1006 |  | 1.15 |  | 0.60 | 1.16 | 2.55 |  |
| *Acacia leucophloea* (Roxb.) Willd*.* | 1 | 6 | 2 | 2 | 10 | 2 | 0.0333 | 0.2878 | 0.2420 | 0.0435 | 0.5120 | 0.0987 | 0.88 | 5.31 | 2.71 | 3.27 | 1.54 | 2.78 |
| *Adina cordifolia* (Roxb.) Brandis |  | 1 |  |  |  |  |  | 0.0360 |  |  |  |  |  | 0.72 |  |  |  |  |
| *Aegle marmelos* (L.) Correa | 2 | 1 | 11 |  |  | 18 | 0.0404 | 0.0746 | 0.4550 |  |  | 0.8390 | 2.23 | 1.58 | 8.57 |  |  | 16.36 |
| *Albizia procera* (Roxb.) Benth | 1 |  |  |  | 1 |  | 0.0343 |  |  |  | 0.1178 |  | 0.78 |  |  |  | 1.69 |  |
| *Anogeissus latifolia* (DC.) Wallich ex Guill. & Perr. | 17 | 1 | 20 | 26 | 3 | 2 | 0.3968 | 0.1213 | 0.9170 | 1.0131 | 0.2772 | 0.0488 | 1.44 | 1.22 | 15.64 | 28.11 | 4.49 | 1.16 |
| *Bauhinia racemosa* Lam. | 1 | 13 |  | 1 | 6 |  | 0.0156 | 0.2771 |  | 0.0141 | 0.1747 |  | 0.56 | 7.16 |  | 0.90 | 5.31 |  |
| *Bridelia retusa* (L.) A.Juss. |  | 2 |  |  |  |  |  | 0.1049 |  |  |  |  |  | 1.66 |  |  |  |  |
| *Buchanania lanzan* Spreng | 8 | 44 | 35 |  | 34 | 5 | 0.2773 | 1.1584 | 1.3821 |  | 1.1994 | 0.2218 | 6.80 | 25.31 | 23.48 |  | 27.58 | 5.14 |
| *Butea monosperma* (Lam.) Taub. | 26 | 10 | 74 | 16 | 15 | 50 | 0.7311 | 0.3445 | 4.3461 | 0.2450 | 0.6686 | 3.9106 | 22.59 | 6.72 | 63.19 | 16.46 | 13.93 | 64.18 |
| *Cassia fistula* L. |  | 2 |  |  | 1 | 4 |  | 0.0381 |  |  | 0.0087 | 0.0717 |  | 1.58 |  |  | 0.75 | 3.39 |
| *Chloroxylon swietenia* (Roxb.) DC*.* |  | 1 |  |  |  |  |  | 0.0149 |  |  |  |  |  | 0.76 |  |  |  |  |
| *Cordia myxa* L. |  |  |  |  | 2 |  |  |  |  |  | 0.1154 |  |  |  |  |  | 1.64 |  |
| *Dalbergia paniculata* (Roxb) | 1 |  | 4 |  | 2 |  | 0.2454 |  | 0.4004 |  | 0.1186 |  | 1.44 |  | 4.24 |  | 1.70 |  |
| *Diospyros melanoxylon* Roxb. | 3 | 78 | 56 | 2 | 53 | 17 | 0.0850 | 1.7044 | 1.7453 | 0.0161 | 1.0829 | 0.4331 | 2.57 | 45.48 | 35.83 | 1.96 | 41.62 | 14.37 |
| *Elaedendron Glaucum* (Rottb.) Pers. | 1 |  |  |  |  |  | 0.0097 |  |  |  |  |  | 1.74 |  |  |  |  |  |
| *Feronia elephantum* Corrêa |  | 1 |  |  |  |  |  | 0.0390 |  |  |  |  |  | 0.71 |  |  |  |  |
| *Ficus glomerata* Roxb*.* |  | 5 |  |  |  |  |  | 0.2366 |  |  |  |  |  | 3.23 |  |  |  |  |
| *Ficus religiosa* L. | 1 |  |  |  | 1 | 7 | 1.0329 |  |  |  | 0.0513 | 2.3865 | 4.32 |  |  |  | 0.93 | 14.19 |
| *Flacourtia indica* (Burm. f.) Merr. |  | 1 | 19 |  |  | 7 |  | 0.0336 | 0.3883 |  |  | 0.2280 |  | 0.62 | 1.66 |  |  | 6.70 |
| *Gardenia latifolia* Aiton |  | 1 |  |  | 5 |  |  | 0.0602 |  |  | 0.3101 |  |  | 0.96 |  |  | 5.65 |  |
| *Garuga pinnata* Roxb. | 2 |  |  | 1 | 2 |  | 0.1690 |  |  | 0.0103 | 0.0244 |  | 6.87 |  |  | 0.72 | 1.49 |  |
| *Holoptelea integrifolia* Planch. |  | 1 |  |  |  |  |  | 0.0136 |  |  |  |  |  | 0.56 |  |  |  |  |
| *Lagerstroemia parviflora* Roxb. | 3 | 16 | 46 | 9 | 1 | 41 | 0.0975 | 0.3672 | 1.8021 | 0.1225 | 0.0454 | 2.0322 | 4.51 | 9.96 | 33.28 | 8.55 | 0.88 | 35.89 |
| *Lannea coromandelica* (Houtt.)Merr. | 6 | 2 | 2 | 10 | 10 | 6 | 0.4475 | 0.1658 | 0.1873 | 0.6837 | 0.3668 | 0.4426 | 9.12 | 1.96 | 2.72 | 12.84 | 1.34 | 6.91 |
| *Madhuca indica* J.F.Gmel. |  | 2 |  |  | 8 |  |  | 0.2371 |  |  | 0.7151 |  |  | 3.15 |  |  | 10.00 |  |
| *Mangifera indica* L. |  | 1 |  |  |  |  |  | 0.0302 |  |  |  |  |  | 0.81 |  |  |  |  |
| *Miliusa tomentosa* (Roxb.) J. Sinclair | 2 | 38 |  |  | 15 | 2 | 0.0790 | 0.9851 |  |  | 0.1783 | 0.0332 | 2.37 | 24.72 |  |  | 1.37 | 1.45 |
| *Mitragyna parvifolia* (Roxb.) Korth. |  | 1 |  |  |  |  |  | 0.0450 |  |  |  |  |  | 0.70 |  |  |  |  |
| *Ougeinia oojeinensis* (Roxb.) Hochr. |  |  |  |  |  | 3 |  |  |  |  |  | 0.2074 |  |  |  |  |  | 3.56 |
| *Phyllanthus emblica* L. | 2 |  | 4 |  |  | 1 | 0.0166 |  | 0.3062 |  |  | 0.0588 | 1.60 |  | 3.84 |  |  | 0.93 |
| *Pterocarpus marsupium* Roxb. |  |  | 2 |  | 2 |  |  |  | 0.0889 |  | 0.1142 |  |  |  | 1.34 |  | 2.26 |  |
| *Schleichera oleosa* (Lour.) Oken. | 1 | 11 |  | 1 | 6 |  | 0.0094 | 0.3928 |  | 0.0066 | 0.3262 |  | 0.53 | 7.92 |  | 0.67 | 7.39 |  |
| *Semecarpus anacardium* L.f. | 5 | 4 |  | 4 | 1 |  | 0.1417 | 0.1278 |  | 0.1772 | 0.0902 |  | 3.96 | 3.16 |  | 4.72 | 1.32 |  |
| *Syzygium cumini* (L.) Skeel |  | 10 |  |  |  |  |  | 0.0137 |  |  |  |  |  | 9.63 |  |  |  |  |
| *Sterculia urens* Roxb. |  | 1 |  |  |  |  |  | 0.3702 |  |  |  |  |  | 0.76 |  |  |  |  |
| *Tamarandus indicus* L. |  | 1 |  |  |  |  |  | 0.0067 |  |  |  |  |  | 0.73 |  |  |  |  |
| *Tectona grandis* L.f. | 438 | 156 | 102 | 268 | 157 | 129 | 18.3109 | 5.3130 | 4.3480 | 12.8335 | 4.6086 | 5.0734 | 211.94 | 95.41 | 72.39 | 219.99 | 117.13 | 115.92 |
| *Terminalia arjuna* (Roxb.) Wight & Arn. |  | 22 |  |  | 1 |  |  | 4.8882 |  |  | 0.1011 |  |  | 28.94 |  |  | 1.32 |  |
| *Terminalia tomentosa* Wight & Arn. | 5 | 10 | 19 | 1 | 16 | 2 | 0.3219 | 0.7619 | 1.5898 | 0.0078 | 1.0419 | 0.3821 | 5.75 | 9.55 | 19.41 | 0.68 | 19.52 | 3.78 |
| *Wrightia tinctora* (Roxb) |  |  | 2 |  |  | 4 |  |  | 0.0383 |  |  | 0.0594 |  |  | 1.63 |  |  | 3.66 |
| *Ziziphus xylopyrus* (Retz.)Wild. |  |  | 1 |  |  |  |  |  | 0.0076 |  |  |  |  |  | 0.48 |  |  |  |
| **Shrubs and liana** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| *Adhatoda vasica*Nees |  | 32 |  |  |  |  |  | 0.0015 |  |  |  |  |  | 4.95 |  |  |  |  |
| *Carissa spinarum*var. spinarum |  |  | 64 |  |  |  |  |  | 0.0048 |  |  |  |  |  | 2.52 |  |  |  |
| *Cayratia triflora (*L.*)*Domin |  |  | 48 |  |  | 256 |  |  | 0.0004 |  |  | 0.0017 |  |  | 5.80 |  |  | 9.93 |
| [*Desmodium gangeticum* (L.)DC.](https://indiabiodiversity.org/species/show/229507) |  | 576 | 32 |  |  |  |  | 0.0027 | 0.0002 |  |  |  |  | 4.37 | 7.11 |  |  |  |
| *Helicteres isora* L. |  | 32 |  |  |  |  |  | 0.0064 |  |  |  |  |  | 9.12 |  |  |  |  |
| *Hemidesmus indicus* (L.)R. Br. | 576 | 2480 | 1328 | 496 | 624 | 704 | 0.0146 | 0.0556 | 0.0362 | 0.0075 | 0.0138 | 0.0186 | 45.94 | 97.33 | 59.19 | 9.97 | 16.22 | 15.48 |
| *Ichnocarpus frutescens* (L.)W. T. Aiton (C ) |  |  |  |  | 416 | 496 |  |  |  |  | 0.0101 | 0.0166 |  |  |  |  | 8.91 | 12.64 |
| *Lantana camara*L. | 96 | 112 | 128 | 16176 | 17440 | 14512 | 0.0090 | 0.0138 | 0.0437 | 2.6001 | 2.5138 | 1.6221 | 142.16 | 21.11 | 29.10 | 275.30 | 253.74 | 258.31 |
| *Maytenus emarginata* (Willd.) | 32 | 400 |  | 32 | 224 | 32 | 0.0068 | 0.5265 |  | 0.0033 | 0.2272 | 0.0103 | 14.96 | 89.17 |  | 3.66 | 19.37 | 3.64 |
| *Phyllodium pulchellum* (L.) |  | 144 |  |  |  |  |  | 0.0077 |  |  |  |  |  | 19.23 |  |  |  |  |
| *Solanum anguivi* Lam*.* |  |  | 864 |  |  |  |  |  | 0.0772 |  |  |  |  |  | 156.99 |  |  |  |
| [*Ventilago calyculata*Tul*.*](http://www.theplantlist.org/tpl/record/kew-2451795) | 16 | 16 | 32 |  | 16 |  | 0.0771 | 0.0974 | 0.0033 |  | 0.0125 |  | 6.00 | 7.13 | 8.29 |  | 2.77 |  |
| *Xanthium strumarium*L. | 48 |  | 48 | 176 |  |  | 0.0086 |  | 0.0081 | 0.0340 |  |  | 37.84 |  | 13.12 | 11.37 |  |  |
| *Ziziphus oenoplia* (L.)Miller |  | 16 |  |  |  |  |  | 0.0199 |  |  |  |  |  | 11.65 |  |  |  |  |
| **Herbs** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| *Acanthospermum hispidum* DC. |  |  |  | 400 |  |  |  |  |  | 0.0040 |  |  |  |  |  | 0.83 |  |  |
| *Achyranthes aspera* L. | 200 | 1000 | 2800 |  | 200 | 2400 | 0.0088 | 0.0728 | 0.1944 |  | 0.0160 | 0.1464 | 0.39 | 2.33 | 5.36 |  | 0.76 | 4.74 |
| *Ageratum conyzoides* L. | 30800 | 10800 | 19600 | 7800 | 10000 | 4600 | 0.3592 | 0.2480 | 0.3440 | 0.1296 | 0.2432 | 0.0840 | 19.34 | 8.41 | 16.57 | 9.66 | 16.59 | 5.82 |
| *Alternanthera sessilis* (L.) R. Br. ex DC. | 2600 | 12400 |  | 1600 | 11800 |  | 0.0960 | 0.3280 |  | 0.0176 | 0.3376 |  | 2.73 | 12.27 |  | 1.53 | 2.52 |  |
| *Alysicarpus longifolius* Sensu Span., non Wight & Arn. | 4800 | 18400 |  | 400 | 3800 |  | 0.0360 | 0.1664 |  | 0.0024 | 0.0416 |  | 3.12 | 11.44 |  | 0.84 | 5.64 |  |
| *Alysicarpus monilifer* (L.) DC. | 5800 | 4200 |  | 2400 | 1200 | 1000 | 0.0464 | 0.0360 |  | 0.0360 | 0.0112 | 0.0072 | 4.28 | 3.26 |  | 2.34 | 1.76 | 0.78 |
| *Andrographis echioides (*L.*)*Nees |  | 3800 |  |  | 200 |  |  | 0.0216 |  |  | 0.0016 |  |  | 4.25 |  |  | 0.38 |  |
| *Anisochilus carnosus* (L.f.) Wall. | 800 |  | 400 |  |  |  | 0.0160 |  | 0.0024 |  |  |  | 1.19 |  | 0.59 |  |  |  |
| *Apluda mutica*L. |  | 11400 |  | 14600 | 1000 |  |  | 0.0424 |  | 0.0488 | 0.0056 |  |  | 5.19 |  | 9.78 | 0.73 |  |
| *Aristida depressa* Retz. |  | 11600 |  |  |  |  |  | 0.0256 |  |  |  |  |  | 4.84 |  |  |  |  |
| *Aristolochia indica*L*.* |  |  | 200 |  |  |  |  |  | 0.0104 |  |  |  |  |  | 0.59 |  |  |  |
| *Axonopus compressus* (Sw.) P.Beauv. | 1000 |  |  |  |  |  | 0.0088 |  |  |  |  |  | 0.82 |  |  |  |  |  |
| *Bidens biternata* (Lour.)Merr.*&*Sherff | 6200 | 800 |  | 7800 |  |  | 0.3448 | 0.0432 |  | 0.4984 |  |  | 8.15 | 1.28 |  | 17.15 |  |  |
| *Biophytum sensitivum* (L.) DC. var. sesbanioides | 5600 | 10000 |  | 1600 |  |  | 0.1576 | 0.3712 |  | 0.0728 |  |  | 5.90 | 11.85 |  | 3.49 |  |  |
| *Blumea lacera* (Burm.f.) DC. |  | 10200 |  | 400 |  |  |  | 0.3320 |  | 0.0160 |  |  |  | 11.52 |  | 1.16 |  |  |
| *Cajanus scarabaeoides* (L.) Thouars | 3400 |  |  |  |  |  | 0.0360 |  |  |  |  |  | 3.11 |  |  |  |  |  |
| *Cassia pumila*Lam. | 18000 | 8800 | 600 | 3200 | 600 | 1200 | 0.4592 | 0.1008 | 0.0112 | 0.0336 | 0.0128 | 0.0104 | 16.80 | 7.16 | 1.12 | 4.66 | 1.96 | 2.56 |
| *Cassia tora*L. | 30000 | 4000 | 36800 | 18800 |  | 32800 | 1.6424 | 0.1752 | 2.2440 | 1.0200 |  | 1.5312 | 33.27 | 5.37 | 53.12 | 32.35 |  | 54.50 |
| *Centella asiatica* (L.) Urb. | 600 |  |  |  |  |  | 0.0008 |  |  |  |  |  | 0.57 |  |  |  |  |  |
| *Cissampelos pareira*L | 1000 | 5200 | 400 |  | 2000 | 1200 | 0.0056 | 0.0472 | 0.0048 |  | 0.0272 | 0.0112 | 1.27 | 3.69 | 0.82 |  | 4.21 | 1.92 |
| *Cocculus hirsutus* (L.)Diels |  | 1200 |  |  |  |  |  | 0.0112 |  |  |  |  |  | 1.50 |  |  |  |  |
| *Commelina benghalensis*L. | 200 | 1200 | 600 | 200 |  |  | 0.0008 | 0.0104 | 0.0064 | 0.0024 |  |  | 0.42 | 1.32 | 0.94 | 0.47 |  |  |
| *Conyza canadensis* (L.) Cronquist |  |  | 200 |  |  |  |  | 0.0000 | 0.0008 |  |  |  |  |  | 0.36 |  |  |  |
| *Corchorus trilocularis*L. | 5000 | 4800 | 1200 |  | 1000 | 1000 | 0.1616 | 0.1384 | 0.0416 |  | 0.0328 | 0.0224 | 5.46 | 5.52 | 1.75 |  | 1.81 | 2.14 |
| *Crotolaria juncea* L. |  |  | 200 |  |  |  |  |  | 0.0128 |  |  |  |  |  | 0.44 |  |  |  |
| *Curculigo orchioides*Gaertn |  | 6200 | 1200 |  |  | 1000 |  | 0.1760 | 0.0344 |  |  | 0.0280 |  | 6.84 | 2.13 |  |  | 2.67 |
| *Cynodon dactylon* (L.)Pers. | 32200 | 20600 |  | 5000 | 8000 |  | 0.1296 | 0.0936 |  | 0.0320 | 0.0432 |  | 1.71 | 7.97 |  | 4.81 | 5.69 |  |
| *Cynoglossum furcatum* Wall. | 400 |  |  |  |  |  | 0.0096 |  |  |  |  |  | 0.62 |  |  |  |  |  |
| *Cyperus rotundus* L. | 2000 | 1800 | 1200 | 2000 |  | 200 | 0.0168 | 0.0136 | 0.0096 | 0.0168 |  | 0.0032 | 1.77 | 1.71 | 1.15 | 3.88 |  | 0.46 |
| *Dactyloctenium aegyptium* (L.)Willd. |  |  | 2200 |  |  | 600 |  |  | 0.0152 |  |  | 0.0032 |  |  | 2.48 |  |  | 0.61 |
| *Desmodium triflorum* (L.) DC. | 72000 | 93000 | 15200 | 34600 | 37000 | 4200 | 0.2912 | 0.4056 | 0.0664 | 0.1384 | 0.1624 | 0.0224 | 26.25 | 31.38 | 8.19 | 23.34 | 23.45 | 3.68 |
| *Dichanthium annulatum* (Forssk.) Stapf. | 1400 | 1000 | 800 | 2400 |  | 600 | 0.0048 | 0.0072 | 0.0040 | 0.0136 |  | 0.0032 | 1.40 | 0.51 | 0.47 | 1.69 |  | 0.79 |
| *Digitaria sanguinalis* (L.) Scop. |  | 600 | 2000 |  |  |  |  | 0.0024 | 0.0248 |  |  |  |  | 0.35 | 1.17 |  |  |  |
| *Elephantopus scaber* Auct. non L. | 400 | 3200 | 5800 |  | 4600 | 4400 | 0.0152 | 0.1400 | 0.2816 |  | 0.2000 | 0.1944 | 0.95 | 5.35 | 8.83 |  | 11.93 | 9.65 |
| *Eleusine indica* (L.) Gaertn. | 5600 | 1000 | 1400 | 1600 |  |  | 0.0216 | 0.0048 | 0.0112 | 0.0072 |  |  | 3.70 | 0.54 | 0.96 | 1.42 |  |  |
| *Emilia sonchifolia* (L.) DC. ex Wight |  |  | 2200 |  | 200 |  |  |  | 0.0080 |  | 0.0008 |  |  |  | 1.91 |  | 0.36 |  |
| *Eragrostis unioloides* (Retz.) Nees ex Steud |  | 2000 | 2200 |  |  | 1000 |  | 0.0064 | 0.0040 |  |  | 0.0016 |  | 1.54 | 1.88 |  |  | 0.72 |
| *Euphorbia hirta*L. | 10800 | 3600 | 2800 | 9000 | 1000 | 1200 | 0.2208 | 0.0768 | 0.0552 | 0.1656 | 0.0168 | 0.0096 | 9.64 | 3.93 | 3.30 | 12.57 | 1.35 | 1.59 |
| *Euphorbia hypericifolia*L. |  |  | 1400 |  |  |  |  |  | 0.0160 |  |  |  |  |  | 1.22 |  |  |  |
| *Evolvulus alsinoides* (L.) |  |  | 400 |  |  |  |  |  | 0.0024 |  |  |  |  |  | 0.36 |  |  |  |
| *Evolvulus nummularius* (L.) |  |  | 71200 |  | 1600 | 35200 |  |  | 0.1712 |  | 0.0088 | 0.0928 |  |  | 31.40 |  | 1.70 | 23.48 |
| *Heteropogon contortus (*L.*)*P.Beauv.*ex*Roem.*&*Schult. | 12000 | 19200 |  | 7400 | 15800 |  | 0.1112 | 0.1480 |  | 0.0448 | 0.1208 |  | 5.87 | 9.17 |  | 4.29 | 12.39 |  |
| *Hibiscus lobatus* (Murray) Kuntze | 1800 |  | 400 |  | 200 | 200 | 0.0456 |  | 0.0160 |  | 0.0016 | 0.0024 | 1.97 |  | 1.14 |  | 0.44 | 0.55 |
| *Hyptis suaveolens* (L.) Poit. |  | 600 | 1600 | 6000 |  |  |  | 0.0288 | 0.0776 | 0.2680 |  |  |  | 1.21 | 2.87 | 9.48 |  |  |
| *Indigofera cordifolia*Roth |  | 600 |  |  |  |  |  | 0.0088 |  |  |  |  |  | 0.96 |  |  |  |  |
| [*Ionidium suffruticosum* (L.) Ging. in DC.](https://indiabiodiversity.org/species/show/252226) |  |  |  |  | 400 |  |  |  |  |  | 0.0048 |  |  |  |  |  | 0.53 |  |
| *Ipomoea cairica* (L.) Sweet |  |  |  |  | 600 | 600 |  |  |  |  | 0.0040 | 0.0056 |  |  |  |  | 1.36 | 1.38 |
| *Justicia quinqueangularis* Koen. ex Roxb. | 16000 | 7400 |  | 4800 | 1000 |  | 0.1368 | 0.0624 |  | 0.0480 | 0.0096 |  | 1.60 | 5.68 |  | 6.53 | 1.99 |  |
| *Lindernia ciliata*(Colsm.)Pennell |  |  | 2200 |  |  |  |  |  | 0.1152 |  |  |  |  |  | 2.53 |  |  |  |
| *Lindernia crustacea*(L.) F. Muell. |  |  | 8600 |  |  |  |  |  | 0.0568 |  |  |  |  |  | 3.57 |  |  |  |
| *Melothria heterophylla*(Lour.) *Cogn.* | 400 |  |  |  |  |  | 0.0024 |  |  |  |  |  | 0.49 |  |  |  |  |  |
| *Merremia emarginata* (Burm. fil.)Hall*.*fil. | 400 |  |  |  |  |  | 0.0008 |  |  |  |  |  | 0.47 |  |  |  |  |  |
| *Mollugo oppositifolia*L. |  |  | 400 |  | 200 |  |  |  | 0.0056 |  | 0.0024 |  |  |  | 0.77 |  | 0.42 |  |
| *Oldenlandia herbacea* (L.) |  | 1200 |  |  |  |  |  | 0.0024 |  |  |  |  |  | 0.65 |  |  |  |  |
| *Oplismenus burmannii* (Retz.) P.Beauv. | 79600 | 85400 | 120400 | 58800 | 129600 | 95400 | 0.2152 | 0.2048 | 0.3048 | 0.1296 | 0.3296 | 0.2208 | 25.31 | 29.22 | 46.54 | 28.31 | 64.46 | 54.14 |
| *Parthenium hysterophorus*L. |  |  | 10200 |  |  | 5000 |  |  | 0.6856 |  |  | 0.5120 |  |  | 12.89 |  |  | 13.34 |
| *Peristrophe paniculata* (Forssk.) R.K. Brummitt |  | 1000 |  |  |  |  |  | 0.0088 |  |  |  |  |  | 0.60 |  |  |  |  |
| *Phyllanthus fraternus*G.L.Webster |  | 800 | 200 |  |  |  |  | 0.0136 | 0.0040 |  |  |  |  | 0.89 | 0.33 |  |  |  |
| *Phyllanthus niruri*L. |  | 200 | 1600 |  |  |  |  | 0.0160 | 0.0808 |  |  |  |  | 0.55 | 2.85 |  |  |  |
| *Phyllanthus urinaria*L. | 800 | 1200 | 3000 |  |  | 1000 | 0.0088 | 0.0216 | 0.0192 |  |  | 0.0056 | 1.21 | 1.24 | 1.86 |  |  | 1.43 |
| *Phyllanthus* *simplex* Retz. | 1200 | 1200 | 6000 |  | 200 | 1200 | 0.0144 | 0.0152 | 0.0824 |  | 0.0024 | 0.0160 | 0.86 | 1.13 | 5.46 |  | 0.41 | 1.85 |
| *Physalis minima*L. |  | 400 | 400 |  |  |  |  | 0.0256 | 0.0104 |  |  |  |  | 1.78 | 0.45 |  |  |  |
| *Polygala chinensis* L. |  | 1000 |  |  |  |  |  | 0.0048 |  |  |  |  |  | 0.93 |  |  |  |  |
| *Ruellia tuberosa*L*.* | 1600 | 11400 | 8400 |  | 19000 | 6000 | 0.0360 | 0.2032 | 0.1960 |  | 0.3408 | 0.1608 | 1.50 | 1.73 | 8.55 |  | 25.36 | 1.48 |
| *Rungia pectinata* (L.) | 17800 | 46800 | 23000 | 9600 | 30200 | 15600 | 0.1432 | 0.4624 | 0.2536 | 0.1008 | 0.3240 | 0.1576 | 11.95 | 25.41 | 16.32 | 1.16 | 29.45 | 17.68 |
| *Setaria viridis* (L.) P.Beauv*.* | 400 | 2000 | 1200 | 1200 |  |  | 0.0024 | 0.0112 | 0.0088 | 0.0048 |  |  | 0.54 | 1.28 | 0.63 | 1.36 |  |  |
| *Sida acuta*Burm. f. |  |  |  | 7800 | 6400 | 8600 |  |  |  | 0.4400 | 0.3152 | 0.4464 |  |  |  | 15.73 | 18.61 | 19.20 |
| *Sida cordifolia*L. | 26400 | 23600 | 29600 | 20200 | 21000 | 31400 | 1.0152 | 0.5696 | 1.1200 | 0.8640 | 0.5576 | 1.1544 | 26.67 | 21.99 | 34.52 | 31.39 | 33.16 | 49.26 |
| *Sida rhombifolia*L. |  |  |  |  |  | 2600 |  |  |  |  |  | 0.1192 |  |  |  |  |  | 7.55 |
| *Spermacoce hispida* Linn |  | 200 | 2400 |  |  |  |  | 0.0024 | 0.0152 |  |  |  |  | 0.30 | 2.48 |  |  |  |
| *Spigelia anthelmia* L. |  |  | 1400 |  |  | 200 |  |  | 0.0112 |  |  | 0.0016 |  |  | 1.83 |  |  | 0.43 |
| *Sporobolus diander* (Retz.)Beauv. | 1600 | 3200 | 13000 | 2600 | 3400 | 2000 | 0.0024 | 0.0056 | 0.0184 | 0.0040 | 0.0064 | 0.0032 | 0.59 | 1.19 | 4.89 | 1.17 | 1.94 | 1.44 |
| *Themeda triandra*Forssk. | 12600 | 11200 |  | 3400 | 3200 |  | 0.0640 | 0.0504 |  | 0.0208 | 0.0112 |  | 4.96 | 4.88 |  | 2.92 | 2.14 |  |
| *Tridax procumbens* L. | 15000 | 5200 | 800 | 13400 | 3800 | 800 | 0.4792 | 0.2000 | 0.0184 | 0.3712 | 0.0952 | 0.0280 | 14.73 | 7.33 | 0.89 | 2.25 | 7.10 | 2.52 |
| *Triumfetta rhomboidea*Jacq. | 26000 | 9000 | 400 | 17000 | 800 | 1400 | 1.3856 | 0.4912 | 0.0160 | 0.8824 | 0.0288 | 0.0480 | 3.99 | 1.85 | 0.54 | 29.86 | 1.58 | 3.34 |
| *Urena lobata*L. |  |  |  | 1800 |  |  |  |  |  | 0.4576 |  |  |  |  |  | 8.18 |  |  |
| *Vernonia cinera* (L.) | 1200 |  | 2400 |  | 600 |  | 0.0304 |  | 0.0472 |  | 0.0104 |  | 1.12 |  | 2.69 |  | 0.74 |  |
| *Zornia diphylla* (L.)Pers. |  | 3400 | 400 |  | 400 |  |  | 0.0160 | 0.0016 |  | 0.0032 |  |  | 2.30 | 0.35 |  | 0.49 |  |

**Supplementary Table 3**. Family-wise contribution of genera (G), species (S) and density (D; No. ha-1) in uninvaded (UI) and *Lantana*-inavded (LI) sites in tropical dry deciduous forests of Sagar, Madhya Pradesh, India

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Uninvaded (UI)** | | | | | | | | | **Lantan-invaded (LI)** | | | | | | | | |
|  | **Site-I** | | | **Site-II** | | | **Site-III** | | | **Site-I** | | | **Site-II** | | | **Site-III** | | |
| **Families** | **G** | **S** | **D** | **G** | **S** | **D** | **G** | **S** | **D** | **G** | **S** | **D** | **G** | **S** | **D** | **G** | **S** | **D** |
| Acanthaceae | 3 | 3 | 35400 | 6 | 6 | 70432 | 2 | 2 | 31400 | 2 | 2 | 14400 | 4 | 4 | 50400 | 2 | 2 | 21600 |
| Amaranthaceae | 2 | 2 | 2800 | 2 | 2 | 13400 | 1 | 1 | 2800 | 1 | 1 | 1600 | 2 | 2 | 12000 | 1 | 1 | 2400 |
| Anacardiaceae | 3 | 3 | 39 | 4 | 4 | 72 | 2 | 2 | 44 | 2 | 2 | 21 | 3 | 3 | 53 | 2 | 2 | 12 |
| Annonaceae | 1 | 1 | 67 | 2 | 2 | 236 |  |  |  | 1 | 1 | 20 | 1 | 1 | 70 | 1 | 1 | 10 |
| Apiaceae | 1 | 1 | 600 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Apocynaceae | 1 | 1 | 576 | 1 | 1 | 2480 | 3 | 3 | 1405 | 1 | 1 | 496 | 3 | 3 | 1048 | 3 | 3 | 1213 |
| Aristolochiaceae |  |  |  |  |  |  | 1 | 1 | 200 |  |  |  |  |  |  |  |  |  |
| Asteraceae | 6 | 6 | 53648 | 5 | 5 | 30200 | 8 | 8 | 41248 | 6 | 6 | 29976 | 5 | 5 | 19200 | 4 | 4 | 14800 |
| Boraginaceae | 1 | 1 | 400 | 1 | 1 | 2 |  |  |  |  |  |  | 1 | 1 | 2 |  |  |  |
| Burseraceae | 1 | 1 | 33 |  |  |  |  |  |  | 1 | 1 | 22 | 1 | 1 | 5 |  |  |  |
| Celastraceae | 2 | 2 | 33 | 2 | 2 | 401 |  |  |  | 1 | 1 | 32 | 1 | 1 | 224 | 1 | 1 |  |
| Cochlospermaceae |  |  |  | 1 | 1 | 1 |  |  |  |  |  |  | 1 | 1 | 1 |  |  |  |
| Combretaceae | 2 | 2 | 70 | 2 | 3 | 40 | 2 | 2 | 45 | 2 | 2 | 53 | 2 | 3 | 22 | 2 | 2 | 8 |
| Commelinaceae | 1 | 1 | 200 | 1 | 1 | 1200 | 1 | 1 | 600 | 1 | 1 | 200 |  |  |  |  |  |  |
| Convolvulaceae | 1 | 1 | 400 |  |  |  | 1 | 2 | 71600 |  |  |  | 2 | 2 | 2200 | 2 | 2 | 35800 |
| Cucurbitaceae | 1 | 1 | 400 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Cyperaceae | 1 | 1 | 2000 | 1 | 1 | 1800 | 1 | 1 | 1200 | 1 | 1 | 2000 |  |  |  | 1 | 1 | 200 |
| Ebenaceae | 1 | 1 | 111 | 1 | 1 | 606 | 1 | 1 | 118 | 1 | 1 | 44 | 1 | 1 | 310 | 1 | 1 | 40 |
| Euphorbiaceae | 1 | 1 | 10800 | 1 | 1 | 3600 | 1 | 2 | 4200 | 1 | 1 | 9000 | 1 | 1 | 1000 | 1 | 1 | 1200 |
| Fabaceae | 9 | 13 | 134142 | 12 | 17 | 133200 | 9 | 13 | 53340 | 6 | 10 | 59468 | 10 | 13 | 43075 | 6 | 8 | 39301 |
| Hypoxidaceae |  |  |  | 1 | 1 | 6200 | 1 | 1 | 1200 |  |  |  |  |  |  | 1 | 1 | 1000 |
| Lamiaceae | 2 | 2 | 1542 | 2 | 2 | 953 | 3 | 3 | 2198 | 2 | 2 | 6403 | 1 | 1 | 362 | 1 | 1 | 248 |
| Lythraceae | 1 | 1 | 51 | 1 | 1 | 54 | 1 | 1 | 67 | 1 | 1 | 85 | 1 | 1 | 5 | 1 | 1 | 59 |
| Malvaceae | 4 | 4 | 59200 | 7 | 7 | 37436 | 4 | 4 | 31600 | 3 | 4 | 46800 | 5 | 6 | 29402 | 4 | 6 | 45200 |
| Meliaceae |  |  |  |  |  |  |  |  |  | 1 | 1 | 1 |  |  |  |  |  |  |
| Menispermaceae | 1 | 1 | 1000 | 2 | 2 | 6400 | 1 | 1 | 400 |  |  |  | 1 | 1 | 2000 | 1 | 1 | 1200 |
| Molluginaceae |  |  |  |  |  |  | 1 | 1 | 400 |  |  |  | 1 | 1 | 200 |  |  |  |
| Moraceae | 1 | 1 | 1 | 1 | 1 | 8 |  |  |  |  |  |  | 1 | 2 | 3 | 1 | 1 | 7 |
| Myrtaceae |  |  |  | 1 | 1 | 136 |  |  |  |  |  |  |  |  |  |  |  |  |
| Oxalidaceae | 1 | 1 | 5600 | 1 | 1 | 10000 |  |  |  | 1 | 1 | 1600 |  |  |  |  |  |  |
| Phylanthaceae | 2 | 4 | 2004 | 2 | 5 | 3405 | 1 | 5 | 10804 | 1 | 1 | 2 | 1 | 1 | 200 | 1 | 3 | 2201 |
| Poaceae | 9 | 9 | 146400 | 12 | 12 | 169200 | 8 | 8 | 143200 | 9 | 9 | 97000 | 6 | 6 | 161000 | 5 | 5 | 99600 |
| Polygalaceae |  |  |  | 1 | 1 | 1000 |  |  |  |  |  |  |  |  |  |  |  |  |
| Rhamnaceae | 1 | 1 | 16 | 2 | 3 | 33 | 2 | 3 | 34 | 1 | 1 | 2 | 2 | 2 | 18 | 1 | 1 | 1 |
| Rubiaceae |  |  |  | 5 | 5 | 1403 | 1 | 1 | 2400 |  |  |  | 1 | 1 | 5 |  |  |  |
| Rutaceae | 1 | 1 | 2 | 3 | 3 | 6 | 1 | 1 | 21 | 1 | 1 | 2 | 2 | 2 | 6 | 1 | 1 | 21 |
| Salicaceae |  |  |  |  |  | 1 | 1 | 1 | 39 |  |  |  | 1 | 1 | 1 | 1 | 1 | 12 |
| Sapindaceae | 1 | 1 | 3 | 1 | 1 | 33 |  |  |  | 1 | 1 | 2 | 1 | 1 | 9 |  |  |  |
| Sapotaceae | 1 | 1 | 1 | 1 | 1 | 2 |  |  |  |  |  |  | 1 | 1 | 9 |  |  |  |
| Scrophulariaceae |  |  |  |  |  |  | 1 | 2 | 10800 |  |  |  |  |  |  |  |  |  |
| Solanaceae |  |  |  | 1 | 1 | 400 | 2 | 2 | 1264 |  |  |  |  |  |  |  |  |  |
| Spigeliaceae |  |  |  |  |  |  | 1 | 1 | 1400 |  |  |  |  |  |  | 1 | 1 | 200 |
| Ulmaceae | 1 | 1 | 1 | 1 | 1 | 1 |  |  |  | 1 | 1 | 1 | 1 | 1 | 1 |  |  |  |
| Verbenaceae | 1 | 1 | 96 | 1 | 1 | 112 | 1 | 1 | 128 | 1 | 1 | 16176 | 1 | 1 | 17440 | 1 | 1 | 14512 |
| Violaceae |  |  |  |  |  |  |  |  |  |  |  |  | 1 | 1 | 400 |  |  |  |
| Vitaceae |  |  |  |  |  |  | 1 | 1 | 48 |  |  |  |  |  |  | 1 | 1 | 256 |

**Supplementary Table 4.** Carbon stocks (Mg C ha-1) of tree juveniles, adults, understorey, detritus, soil, and total ecosystem carbon in uninvaded (UI) and *Lantana*-invaded(LI) sites of tropical dry deciduous forests in Madhya Pradesh, Central India

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Component** | **Uninvaded (UI)** | | | | ***Lantana*-invaded (LI)** | | | |
| **Site-I** | **Site-II** | **Site-III** | **Mean ± SE** | **Site-I** | **Site-II** | **Site-III** | **Mean ± SE** |
| Aboveground C of juveniles | 4.4 ± 0.4c | 7.1 ± 0.9d | 1.8 ± 0.5ab | 4.4 ± 0.7 | 2.9 ±0.3abc | 4.0 ± 0.3bc | 1.4 ± 0.2a | 2.8 ± 0.3 |
| Aboveground C of adults | 67.8 ± 5.7a | 61.3 ± 13.6a | 57.6 ± 3.1a | 62.3 ± 4.8 | 47.7 ± 3.8a | 39.0 ± 1.2a | 49.2 ± 4.5a | 45.3 ± 2.2 |
| Total aboveground tree C | 72.2 ± 5.6b | 68.4±13.4ab | 59.4±3.4ab | 66.7 ± 4.8 | 50.6±3.6ab | 43.1± 1.4a | 50.5 ± 4.6ab | 48.1 ± 3.6 |
| Belowground C of juveniles | 1.5 ± 0.1c | 2.3 ± 0.3d | 0.6 ± 0.2ab | 1.5 ± 0.2 | 0.9 ±0.1abc | 1.3 ± 0.1bc | 0.5 ± 0.1a | 0.9 ± 0.1 |
| Belowground C of adults | 15.5 ± 1.2b | 13.1± 2.1ab | 13.1±0.6ab | 13.9 ± 0.8 | 10.8±0.6ab | 8.9 ± 0.1a | 10.8 ± 0.8ab | 10.2 ± 0.4 |
| Total belowground tree C | 17.0 ± 1.2c | 15.4±2.05bc | 13.± 0.7abc | 15.3±0.85 | 11.7±0.5ab | 10.3 ± 0.2a | 11.3 ± 0.8ab | 11.1± 0.3 |
| Total tree C | 89.2 ± 6.9b | 83.8±15.5ab | 73.1±4.1ab | 82.0 ± 5.7 | 62.3±4.2ab | 53.3 ±1.6a | 61.9 ± 5.4ab | 59.2 ± 2.4 |
| Shrub C | 0.001± 0.0a | 0.01 ± 0.0a | 0.003±0.0a | 0.007±0.0 | 2.2±0.194c | 1.83±0.2bc | 1.47±0.101b | 1.87 ± 0.1 |
| Herb C | 0.07± 0.01a | 0.13 ± 0.01a | 0.4 ± 0.03c | 0.20±0.04 | 0.07 ±0.01a | 0.09± 0.02a | 0.24 ± 0.01b | 0.13±0.02 |
| Understorey C | 0.08± 0.01a | 0.15 ± 0.01a | 0.4 ± 0.03a | 0.21±0.04 | 2.3 ± 0.19c | 1.9± 0.22bc | 1.71 ± 0.09b | 2.0 ± 0.1 |
| Litter C | 1.7± 0.1abc | 1.5 ± 0.1ab | 1.3 ± 0.1b | 1.5 ± 0.1 | 2.0 ± 0.1c | 1.7 ± 0.1bc | 1.6 ± 0.03ab | 1.8 ± 0.1 |
| Deadwood C | 6.2 ± 1.8a | 4.1 ± 0.7a | 4.0 ± 0.8a | 4.7 ± 0.7 | 9.6 ± 3.4a | 3.7 ± 0.63a | 5.5 ± 1.04a | 6.3 ± 1.3 |
| Detritus C | 7.8 ± 1.9a | 5.6 ± 0.8a | 5.2 ± 0.4a | 6.2 ± 0.7 | 11.7 ± 3.5a | 5.4 ± 0.6a | 7.1 ± 1.0a | 8.1 ± 1.3 |
| Total biomass C | 97.1 ± 7.2b | 89.6± 15.8ab | 78.8± 4.3ab | 88.5 ± 5.9 | 76.4±6.7ab | 60.7 ± 1.5a | 70.7 ± 5.1ab | 69.2 ± 3.4 |
| SOC (0-50 cm) | 76.1± 3.4bc | 64.0 ± 2.1ab | 55.7 ± 3.7a | 65.2 ± 2.8 | 84.1 ± 3.2c | 70.6 ±2.0b | 64.6 ±3.2ab | 73.1 ± 2.7 |
| Total ecosystem C | 173.2±10.4a | 153.6±17.8a | 134.5±7.4a | 153.7±8.1 | 160.5±8.3a | 131.3±3.1a | 135.3 ± 8.2a | 142.3±5.1 |

The values represent mean ± standard error. Different letter(s) in the same row indicates significant differences at P<0.05.

**Supplementary Table 5**: Pearson correlation matrix between *Lantana camera* density with other descriptor variables (LD=*Lantana* density, TJC = tree juvenile carbon, TAC = tree adult carbon, TTC = total tree carbon, SC = shrub carbon, HC = herbaceous carbon, UC= understorey carbon (shrub+herb), LC = litter carbon, DwC = deadwood carbon, DC = detritus carbon, SOC = soil organic carbon and TEC = total ecosystem carbon)

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  | **LD** | **TJC** | **TAC** | **TTC** | **SC** | **HC** | **UC** | **LC** | **DwC** | **DC** | **SOC** | **TEC** |
| **LD** | Pearson Correlation | **1** | -0.475**\*** | -0.116 | -0.293 | 0.645**\*** | -0.384**\*** | -0.686**\*** | 0.425**\*** | 0.394 | 0.413 | 0.890**\*** | -0.208**\*** |
|  | Sig. |  | 0.05 | 0.20 | 0.32 | 0.04 | 0.035 | 0.04 | 0.04 | 0.31 | 0.37 | 0.04 | 0.05 |
|  | N |  | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 |
| **TJC** |  |  | **1** | -0.168 | -0.112 | 0.187 | -0.280 | -0.233 | 0.216 | 0.123 | 0.169 | 0.245 | -0.051 |
|  |  |  |  | 0.55 | 0.62 | 0.313 | 0.713 | 0.51 | 0.438 | 0.281 | 0.36 | 0.112 | 0.815 |
|  |  |  |  | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 |
| **TAC** |  |  |  | **1** | -0.570**\*** | -0.390 | 0.191 | -0.295 | 0.374 | 0.365 | 0.375 | 0.514 | 0.548**\*** |
|  |  |  |  |  | 0.027 | 0.150 | 0.496 | 0.286 | 0.169 | 0.181 | 0.169 | 0.050 | 0.034 |
|  |  |  |  |  | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 |
| **TTC** |  |  |  |  | **1** | -0.382 | 0.182 | -0.295 | 0.374 | 0.379 | 0.376 | 0.583 | 0.419**\*** |
|  |  |  |  |  |  | 0.148 | 0.423 | 0.282 | 0.169 | 0.201 | 0.185 | 0.101 | 0.041 |
|  |  |  |  |  |  | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 |
| **SC** |  |  |  |  |  | **1** | -0.302 | 0.856**\*\*** | 0.019 | -0.064 | -0.063 | -0.194 | -0.177 |
|  |  |  |  |  |  |  | 0.275 | 0.002 | 0.946 | 0.821 | 0.823 | 0.487 | 0.592 |
|  |  |  |  |  |  |  |  | 30 | 30 | 30 | 30 | 30 | 30 |
| **HC** |  |  |  |  |  |  | **1** | 0.234 | 0.141 | -0.08 | -0.08 | -0.606**\*** | -0.217 |
|  |  |  |  |  |  |  |  | 0.401 | 0.616 | 0.754 | 0.764 | 0.017 | 0.438 |
|  |  |  |  |  |  |  |  |  | 30 | 30 | 30 | 30 | 30 |
| **UC** |  |  |  |  |  |  |  | **1** | 0.096 | -0.113 | -0.110 | -0.527**\*** | -0.298 |
|  |  |  |  |  |  |  |  |  | 0.73 | 0.689 | 0.69 | 0.044 | 0.281 |
|  |  |  |  |  |  |  |  |  |  | 30 | 30 | 30 | 30 |
| **LC** |  |  |  |  |  |  |  |  | **1** | 0.020 | 0.046 | -0.048 | 0.152 |
|  |  |  |  |  |  |  |  |  |  | 0.94 | 0.87 | 0.86 | 0.58 |
|  |  |  |  |  |  |  |  |  |  |  | 30 | 30 | 30 |
| **DwC** |  |  |  |  |  |  |  |  |  | **1** | 1.000 | 0.272 | 0.182 |
|  |  |  |  |  |  |  |  |  |  |  | 0.00 | 0.32 | 0.51 |
|  |  |  |  |  |  |  |  |  |  |  |  | 30 | 30 |
| **DC** |  |  |  |  |  |  |  |  |  |  | **1** | 0.271 | 0.185 |
|  |  |  |  |  |  |  |  |  |  |  |  | 0.32 | 0.50 |
|  |  |  |  |  |  |  |  |  |  |  |  |  | 30 |
| **SOC** |  |  |  |  |  |  |  |  |  |  |  | **1** | 0.416 |
|  |  |  |  |  |  |  |  |  |  |  |  |  | 0.12 |
|  |  |  |  |  |  |  |  |  |  |  |  |  | 30 |
| **TEC** |  |  |  |  |  |  |  |  |  |  |  |  | **1** |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  | 30 |

|  |
| --- |
| **\*\***. Correlation is significant at the 0.01 level. |
| **\***. Correlation is significant at the 0.05 level. |