

The urban forest as a mirror of inequality: plant diversity, ecosystem services, and social valuation in Xalapa, Mexico

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Appendix A. Importance Value Index (IVI) of the recorded trees species, showing absolute and relative values of abundance, basal area, and frequency.

Family	Scientific name	Native (N)	Abundance		Basal area		Frequency		IVI
		Non-native (NN)	Absolute	Relative	Absolute	Relative	Absolute	Relative	
Rosaceae	<i>Eriobotrya japonica</i> (Thunb.) Lindl.	NN	36	5.255	0.443	8.312	11	3.846	17.413
Betulaceae	<i>Carpinus tropicalis</i> (Donn.Sm.) Lundell	N	31	4.526	1.743	7.157	5	1.748	13.431
Malvaceae	<i>Heliocarpus appendiculatus</i> Turcz.	N	26	3.796	0.571	6.003	9	3.147	12.945
Lauraceae	<i>Persea americana</i> Mill.	N	21	3.066	0.845	4.848	11	3.846	11.760
Celastraceae	<i>Zinowiewia integerrima</i> (Turcz.) Turcz.	N	25	3.650	2.116	5.772	5	1.748	11.170
Meliaceae	<i>Trichilia havanensis</i> Jacq.	N	22	3.212	0.511	5.079	8	2.797	11.088
Araliaceae	<i>Dendropanax arboreus</i> (L.) Decne. & Planch.	N	19	2.774	0.709	4.387	7	2.448	9.608
Fabaceae	<i>Inga inicuil</i> Schltdl.	N	19	2.774	2.530	4.387	6	2.098	9.258
Cupressaceae	<i>Hesperocyparis lusitanica</i> (Mill.) Bartel	N	18	2.628	1.461	4.156	7	2.448	9.231
Myrtaceae	<i>Psidium guajava</i> L.	N	17	2.482	0.276	3.925	8	2.797	9.204
Euphorbiaceae	<i>Croton draco</i> Schltdl.	N	20	2.920	1.017	4.618	4	1.399	8.936
Cannabaceae	<i>Trema micranthum</i> (L.) Blume	N	17	2.482	1.791	3.925	7	2.448	8.854

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Fagaceae	<i>Quercus germana</i> Schltdl. & Cham.	N	18	2.628	4.466	4.156	5	1.748	8.532
Altingiaceae	<i>Liquidambar styraciflua</i> L.	N	16	2.336	2.596	3.694	6	2.098	8.128
Proteaceae	<i>Grevillea robusta</i> A.Cunn. ex R.Br.	NN	16	2.336	2.061	3.694	5	1.748	7.778
Rutaceae	<i>Citrus x aurantium</i> L.	NN	14	2.044	0.147	3.232	6	2.098	7.374
Asparagaceae	<i>Yucca gigantea</i> Lem.	N	13	1.898	0.581	3.001	7	2.448	7.347
Oleaceae	<i>Ligustrum lucidum</i> W.T.Aiton	NN	16	2.336	1.089	3.694	3	1.049	7.079
Fagaceae	<i>Quercus paxtalensis</i> C.H.Mull.	N	14	2.044	3.634	3.232	2	0.699	5.975
Fabaceae	<i>Leucaena diversifolia</i> (Schltdl.) Benth.	N	12	1.752	1.109	2.771	3	1.049	5.571
Oleaceae	<i>Fraxinus uhdei</i> (Wenz.) Lingelsh.	N	11	1.606	2.158	2.540	3	1.049	5.194
Myricaceae	<i>Myrsine coriacea</i> (Sw.) R.Br. ex Roem. & Schult.	N	11	1.606	0.530	2.540	3	1.049	5.194
Bignoniaceae	<i>Tabebuia rosea</i> (Bertol.) DC.	N	11	1.606	0.325	2.540	3	1.049	5.194
Fabaceae	<i>Inga vera</i> Willd.	N	9	1.314	0.291	2.078	4	1.399	4.790
Platanaceae	<i>Platanus mexicana</i> Moric.	N	9	1.314	2.632	2.078	4	1.399	4.790
Asteraceae	<i>Tithonia diversifolia</i> (Hemsl.) A.Gray	N	10	1.460	0.218	2.309	2	0.699	4.468
Anacardiaceae	<i>Mangifera indica</i> L.	NN	8	1.168	1.053	1.847	4	1.399	4.414
Rosaceae	<i>Prunus persica</i> (L.) Batsch	NN	8	1.168	0.060	1.847	4	1.399	4.414

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Fabaceae	<i>Vachellia pennatula</i> (Schltdl. & Cham.) Seigler & Ebinger	N	8	1.168	0.454	1.847	4	1.399	4.414
Araliaceae	<i>Oreopanax echinops</i> (Schltdl. & Cham.) Decne. & Planch.	N	8	1.168	0.310	1.847	3	1.049	4.064
Proteaceae	<i>Macadamia integrifolia</i> Maiden & Bethe	NN	7	1.022	0.134	1.616	4	1.399	4.037
Piperaceae	<i>Piper amalago</i> L.	N	7	1.022	0.093	1.616	4	1.399	4.037
Verbenaceae	<i>Citharexylum caudatum</i> L.	N	9	1.314	0.066	2.078	1	0.350	3.741
Burseraceae	<i>Bursera simaruba</i> (L.) Sarg.	N	5	0.730	0.323	1.154	5	1.748	3.633
Fabaceae	<i>Bauhinia variegata</i> L.	NN	8	1.168	0.500	1.847	1	0.350	3.365
Clethraceae	<i>Clethra mexicana</i> DC.	N	6	0.876	0.904	1.385	3	1.049	3.310
Ehretiaceae	<i>Ehretia tinifolia</i> L.	N	6	0.876	1.364	1.385	3	1.049	3.310
Bignoniaceae	<i>Jacaranda mimosifolia</i> D.Don	NN	6	0.876	1.847	1.385	3	1.049	3.310
Fagaceae	<i>Quercus lancifolia</i> Schltdl. & Cham.	N	6	0.876	1.395	1.385	2	0.699	2.960
Arecaceae	<i>Syagrus romanzoffiana</i> (Cham.) Glassman	NN	5	0.730	0.305	1.154	3	1.049	2.933
Rhamnaceae	<i>Frangula capreifolia</i> (Schltdl.) Grubov	N	4	0.584	0.049	0.924	4	1.399	2.906
Aquifoliaceae	<i>Ilex</i> sp. 1	N	6	0.876	1.035	1.385	1	0.350	2.611

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Fagaceae	<i>Quercus xalapensis</i> Bonpl.	N	5	0.730	0.397	1.154	2	0.699	2.584
Moraceae	<i>Ficus benjamina</i> L.	NN	4	0.584	0.550	0.924	3	1.049	2.556
Rutaceae	<i>Citrus x limon</i> (L.) Osbeck	NN	4	0.584	0.099	0.924	2	0.699	2.207
Fabaceae	<i>Erythrina americana</i> Mill.	N	3	0.438	0.581	0.693	3	1.049	2.180
Lauraceae	<i>Persea americana</i> Mill. cv.	N	4	0.584	0.578	0.924	1	0.350	1.857
Annonaceae	<i>Annona muricata</i> L.	N	3	0.438	0.052	0.693	2	0.699	1.830
Casuarinaceae	<i>Casuarina equisetifolia</i> L.	NN	3	0.438	2.870	0.693	2	0.699	1.830
Meliaceae	<i>Cedrela odorata</i> L.	N	3	0.438	1.031	0.693	2	0.699	1.830
Fabaceae	<i>Diphysa floribunda</i> Peyr.	N	3	0.438	0.073	0.693	2	0.699	1.830
Meliaceae	<i>Melia azedarach</i> L.	NN	3	0.438	0.159	0.693	2	0.699	1.830
Sabiaceae	<i>Meliosma alba</i> (Schltdl.) Walp.	N	3	0.438	0.569	0.693	2	0.699	1.830
Lauraceae	<i>Persea longipes</i> (Schltdl.) Meisn.	N	3	0.438	0.087	0.693	2	0.699	1.830
Aquifoliaceae	<i>Ilex</i> sp. 2	N	3	0.438	0.222	0.693	1	0.350	1.480
Lauraceae	<i>Persea schiedeana</i> Nees	N	3	0.438	0.055	0.693	1	0.350	1.480
Fagaceae	<i>Quercus meavei</i> Valencia-A, Sabas & O.J.Soto	N	3	0.438	0.075	0.693	1	0.350	1.480
Lauraceae	<i>Cinnamomum verum</i> J.Presl	NN	2	0.292	0.011	0.462	2	0.699	1.453
Rutaceae	<i>Citrus reticulata</i> Blanco	NN	2	0.292	0.016	0.462	2	0.699	1.453

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Fabaceae	<i>Delonix regia</i> (Bojer ex Hook.) Raf.	NN	2	0.292	0.240	0.462	2	0.699	1.453
Rutaceae	<i>Diospyros digyna</i> Jacq.	N	2	0.292	0.134	0.462	2	0.699	1.453
Moraceae	<i>Ficus aurea</i> Nutt.	N	2	0.292	0.045	0.462	2	0.699	1.453
Moraceae	<i>Ficus cotinifolia</i> Kunth	N	2	0.292	2.159	0.462	2	0.699	1.453
Myrtaceae	<i>Syzygium jambos</i> (L.) Alston	NN	2	0.292	0.091	0.462	2	0.699	1.453
Sapindaceae	<i>Cupania</i> c.f. <i>rufescens</i> Triana & Planch.	N	2	0.292	0.006	0.462	1	0.350	1.103
Moraceae	<i>Ficus pertusa</i> L.f.	N	2	0.292	0.099	0.462	1	0.350	1.103
Fabaceae	<i>Inga</i> sp. 1	N	2	0.292	0.079	0.462	1	0.350	1.103
Fabaceae	<i>Inga</i> sp. 2	N	2	0.292	0.461	0.462	1	0.350	1.103
Fabaceae	<i>Leucaena leucocephala</i> (Lam.) de Wit	N	2	0.292	0.018	0.462	1	0.350	1.103
Oleaceae	<i>Ligustrum</i> sp.	NN	2	0.292	0.054	0.462	1	0.350	1.103
Verbenaceae	<i>Lippia myriocephala</i> Schltdl. & Cham.	N	2	0.292	0.017	0.462	1	0.350	1.103
Myrtaceae	<i>Melaleuca citrina</i> (Curtis) Dum.Cours.	NN	2	0.292	0.032	0.462	1	0.350	1.103
Solanaceae	<i>Solanum erianthum</i> D.Don	N	2	0.292	0.024	0.462	1	0.350	1.103
Solanaceae	<i>Solanum schlechtendalianum</i> Walp.	N	2	0.292	0.019	0.462	1	0.350	1.103
Myrtaceae	<i>Syzygium paniculatum</i> Gaertn.	NN	2	0.292	0.013	0.462	1	0.350	1.103
Asteraceae	<i>Vernonanthura patens</i> (Kunth) H.Rob.	N	2	0.292	0.034	0.462	1	0.350	1.103

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Lauraceae	<i>Aiouea effusa</i> (Meisn.) R.Rohde & Rohwer	N	1	0.146	0.008	0.231	1	0.350	0.727
Euphorbiaceae	<i>Alchornea latifolia</i> Sw.	N	1	0.146	0.039	0.231	1	0.350	0.727
Annonaceae	<i>Annona cherimola</i> Mill.	N	1	0.146	0.289	0.231	1	0.350	0.727
Verbenaceae	<i>Bocconia frutescens</i> L.	N	1	0.146	0.002	0.231	1	0.350	0.727
Myrtaceae	<i>Calyptanthus schiedeana</i> O.Berg	N	1	0.146	0.011	0.231	1	0.350	0.727
Theaceae	<i>Camellia japonica</i> L.	NN	1	0.146	0.013	0.231	1	0.350	0.727
Rutaceae	<i>Casimiroa edulis</i> La Llave	N	1	0.146	0.068	0.231	1	0.350	0.727
Rutaceae	<i>Citrus aurantiifolia</i> (Christm.) Swingle	NN	1	0.146	0.007	0.231	1	0.350	0.727
Verbenaceae	<i>Duranta erecta</i> L.	N	1	0.146	0.019	0.231	1	0.350	0.727
Arecaceae	<i>Elaeis guineensis</i> Jacq.	NN	1	0.146	0.071	0.231	1	0.350	0.727
Myrtaceae	<i>Eucalyptus camaldulensis</i> Dehnh.	NN	1	0.146	0.396	0.231	1	0.350	0.727
Myrtaceae	<i>Eucalyptus cinerea</i> F.Muell. ex Benth.	NN	1	0.146	0.385	0.231	1	0.350	0.727
Euphorbiaceae	<i>Euphorbia cotinifolia</i> L.	NN	1	0.146	0.013	0.231	1	0.350	0.727
Moraceae	<i>Ficus</i> aff. <i>insipida</i> Willd.	N	1	0.146	3.056	0.231	1	0.350	0.727
Fabaceae	<i>Gliricidia sepium</i> (Jacq.) Kunth	N	1	0.146	0.007	0.231	1	0.350	0.727
Malvaceae	<i>Hibiscus tiliaceus</i> L.	NN	1	0.146	0.027	0.231	1	0.350	0.727
Aquifoliaceae	<i>Ilex</i> sp. 3	N	1	0.146	0.173	0.231	1	0.350	0.727

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Magnoliaceae	<i>Magnolia schiedeana</i> Schltdl.	N	1	0.146	0.102	0.231	1	0.350	0.727
Sapotaceae	<i>Manilkara zapota</i> (L.) P.Royen	N	1	0.146	0.042	0.231	1	0.350	0.727
Moraceae	<i>Morus celtidifolia</i> Kunth	N	1	0.146	0.096	0.231	1	0.350	0.727
Myrtaceae	<i>Pimenta dioica</i> (L.) Merr.	N	1	0.146	0.006	0.231	1	0.350	0.727
Pinaceae	<i>Pinus patula</i> Schiede ex Schltdl. & Cham.	N	1	0.146	0.320	0.231	1	0.350	0.727
Apocynaceae	<i>Plumeria rubra</i> L.	N	1	0.146	0.024	0.231	1	0.350	0.727
Sapotaceae	<i>Pouteria sapota</i> (Jacq.) H.E.Moore & Stearn	N	1	0.146	0.286	0.231	1	0.350	0.727
Lythraceae	<i>Punica granatum</i> L.	NN	1	0.146	0.013	0.231	1	0.350	0.727
Fagaceae	<i>Quercus</i> c.f. <i>furfuracea</i> Liebm.	N	1	0.146	0.005	0.231	1	0.350	0.727
Fagaceae	<i>Quercus</i> cf. <i>trinitatis</i> Trel.	N	1	0.146	0.181	0.231	1	0.350	0.727
Fagaceae	<i>Quercus pinnativenulosa</i> C.H.Mull.	N	1	0.146	0.283	0.231	1	0.350	0.727
Fagaceae	<i>Quercus</i> sp.	N	1	0.146	0.283	0.231	1	0.350	0.727
Viburnaceae	<i>Sambucus nigra</i> L.	N	1	0.146	0.003	0.231	1	0.350	0.727
Euphorbiaceae	<i>Sapium</i> sp.	N	1	0.146	0.010	0.231	1	0.350	0.727
Actinidaceae	<i>Saurauia pedunculata</i> Hook.	N	1	0.146	0.148	0.231	1	0.350	0.727

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Fabaceae	<i>Senna septemtrionalis</i> (Viv.) H.S.Irwin & Barneby	N	1	0.146	0.003	0.231	1	0.350	0.727
Solanaceae	<i>Solanum umbellatum</i> Mill.	N	1	0.146	0.004	0.231	1	0.350	0.727
Anacardiaceae	<i>Spondias purpurea</i> L.	N	1	0.146	0.090	0.231	1	0.350	0.727
Bignoniaceae	<i>Tecoma stans</i> (L.) Juss.	N	1	0.146	0.008	0.231	1	0.350	0.727
Heliotropiaceae	<i>Tournefortia glabra</i> L.	N	1	0.146	0.014	0.231	1	0.350	0.727
Asteraceae	<i>Verbesina turbacensis</i> Kunth	N	1	0.146	0.006	0.231	1	0.350	0.727
Salicaceae	<i>Xylosma flexuosa</i> (Kunth) Hemsl.	N	1	0.146	0.028	0.231	1	0.350	0.727

Note: Species are listed in descending order of their Importance Value Index.

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Appendix B. Vascular epiphyte richness, frequency in trees and sites, and marginalization category of sites in an urban forest.

Social marginalization categories: VL = Very low, L = Low, M = Medium, VH = Very high.

Family	Scientific name	No of trees (N=685)	No of sites (N=20)	Tree frequency ^a (%)	Site frequency ^b (%)	Social marginalization categories
Bromeliaceae	<i>Tillandsia juncea</i> (Ruiz & Pav.) Poir.	97	17	14.161	85	VL, L, M
Polypodiaceae	<i>Pleopeltis crassinervata</i> T.Moore	85	15	12.409	75	VL, L, M
Polypodiaceae	<i>Pleopeltis furfuracea</i> (Schltdl. & Cham.) A.R.Sm. & Tejero	81	19	11.825	95	VL, L, M, VH
Bromeliaceae	<i>Tillandsia recurvata</i> (L.) L.	80	13	11.679	65	VL, L, M
Bromeliaceae	<i>Tillandsia schiedeana</i> Steud.	78	14	11.387	70	VL, L, M
Cactaceae	<i>Rhipsalis baccifera</i> (Sol. ex J.S.Muell.) Stearn	54	12	7.883	60	L
Bromeliaceae	<i>Catopsis sessiliflora</i> (Ruiz & Pav.) Mez	51	13	7.445	65	VL, L, M
Piperaceae	<i>Peperomia tetraphylla</i> (G.Forst.) Hook. & Arn.	51	12	7.445	60	VL, L, M
Polypodiaceae	<i>Phlebodium pseudoaureum</i> (Cav.) Lellinger	48	15	7.007	75	VL, L, M
Bromeliaceae	<i>Tillandsia heterophylla</i> É.Morren	47	11	6.861	55	VL, L, M
Bromeliaceae	<i>Tillandsia fasciculata</i> Sw.	41	12	5.985	60	VL, L
Bromeliaceae	<i>Tillandsia multicaulis</i> Steud.	35	4	5.109	20	VL, L, VH

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Polypodiaceae	<i>Pleopeltis plebeia</i> (Schltdl. & Cham.) A.R.Sm. & Tejero	22	3	3.212	15	VL, L, VH
Bromeliaceae	<i>Tillandsia punctulata</i> Schltdl. & Cham.	20	4	2.920	20	VL, L, VH
Araceae	<i>Syngonium podophyllum</i> Schott	18	8	2.628	40	VL, L, M, VH
Bromeliaceae	<i>Tillandsia belloensis</i> W.Weber	16	4	2.336	20	VL, L, M
Bromeliaceae	<i>Tillandsia butzii</i> Mez	16	5	2.336	25	VL, L, VH
Araceae	<i>Anthurium scandens</i> (Aubl.) Engl.	15	5	2.190	25	M
Bromeliaceae	<i>Tillandsia limbata</i> Schltdl.	13	3	1.898	15	VL, L
Bromeliaceae	<i>Tillandsia ionantha</i> Planch.	12	4	1.752	20	VL, L, M
Orchidaceae	<i>Prosthechea ocracea</i> (Lindl.) W.E.Higgins	11	5	1.606	25	VL, VH
Piperaceae	<i>Peperomia blanda</i> (Jacq.) Kunth	11	2	1.606	10	VL
Piperaceae	<i>Peperomia glabella</i> (Sw.) A.Dietr.	11	4	1.606	20	VL, L, M
Orchidaceae	<i>Isochilus linearis</i> (Jacq.) R.Br.	10	3	1.460	15	VL, L, M
Araceae	<i>Anthurium schlechtendalii</i> Kunth	7	3	1.022	15	VL, L
Cactaceae	<i>Epiphyllum oxypetalum</i> (DC.) Haw.	7	2	1.022	10	VL, L
Bromeliaceae	<i>Tillandsia balbisiana</i> Schult. & Schult.f.	6	3	0.876	15	L
Orchidaceae	<i>Dicheaea</i> sp.	6	3	0.876	15	VL, L
Orchidaceae	<i>Maxillaria densa</i> Lindl.	6	3	0.876	15	L, M
Orchidaceae	<i>Catasetum integerrimum</i> Hook.	5	3	0.730	15	VL, L

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Orchidaceae	<i>Dendrobium nobile</i> Lindl.	5	2	0.730	10	VL, L
Araliaceae	<i>Oreopanax capitatus</i> (Jacq.) Decne. & Planch.	4	3	0.584	15	VL, L, M, VH
Bromeliaceae	<i>Tillandsia botterii</i> É.Morren ex Baker	4	3	0.584	15	L
Orchidaceae	<i>Oncidium sphacelatum</i> Lindl.	4	3	0.584	15	VL, L
Bromeliaceae	<i>Tillandsia usneoides</i> (L.) L.	3	3	0.438	15	VH
Orchidaceae	<i>Dinema polybulbon</i> (Sw.) Lindl.	3	1	0.438	5	VL
Orchidaceae	<i>Gongora galeata</i> (Lindl. ex Bosse) Rchb.f.	3	1	0.438	5	VL, VH
Orchidaceae	<i>Scaphyglottis fasciculata</i> Hook.	3	2	0.438	10	VL, VH
Orchidaceae	<i>Trichocentrum stramineum</i> (Bateman ex Lindl.) M.W.Chase	3	1	0.438	5	
	& N.H.Williams					L, VH
Piperaceae	<i>Peperomia san-joseana</i> C.DC.	3	2	0.438	10	L, M
Polypodiaceae	<i>Polypodium rhodopleuron</i> Kunze	3	2	0.438	10	L
Aspleniaceae	<i>Asplenium miradorensense</i> Liebm.	2	1	0.292	5	VH
Bromeliaceae	<i>Catopsis nutans</i> (Sw.) Griseb.	2	1	0.292	5	L
Orchidaceae	<i>Jacquinella teretifolia</i> (Sw.) Britton & P.Wilson	2	1	0.292	5	VH
Polypodiaceae	<i>Pleopeltis polypodioides</i> (L.) E.G.Andrews & Windham	2	2	0.292	10	VL, L
Araceae	<i>Monstera deliciosa</i> Liebm.	1	1	0.146	5	VL
Araceae	<i>Philodendron advena</i> Schott	1	1	0.146	5	L

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Bromeliaceae	<i>Tillandsia deppeana</i> Steud.	1	1	0.146	5	VL
Bromeliaceae	<i>Tillandsia polystachia</i> (L.) L.	1	1	0.146	5	L, VH
Bromeliaceae	<i>Tillandsia variabilis</i> Schltdl.	1	1	0.146	5	L
Moraceae	<i>Ficus aurea</i> Nutt.	1	1	0.146	5	L
Orchidaceae	<i>Brassia verrucosa</i> Bateman ex Lindl.	1	1	0.146	5	VH
Orchidaceae	<i>Campylocentrum schiedei</i> (Rchb.f.) Benth. ex Hemsl.	1	1	0.146	5	VL
Orchidaceae	<i>Laelia anceps</i> Lindl.	1	1	0.146	5	VL
Orchidaceae	<i>Leochilus oncidoides</i> Knowles & Westc.	1	1	0.146	5	L
Orchidaceae	<i>Lycaste aromatica</i> (Graham) Lindl.	1	1	0.146	5	VL, L, M
Orchidaceae	<i>Rhyncholaelia glauca</i> (Lindl.) Schltr.	1	1	0.146	5	L
Polypodiaceae	<i>Campyloneurum angustifolium</i> (Sw.) Fée	1	1	0.146	5	L
Polypodiaceae	<i>Platyserium bifurcatum</i> (Cav.) C.Chr.	1	1	0.146	5	VL, L, M
Pteridaceae	<i>Vittaria graminifolia</i> Kaulf.	1	1	0.146	5	L, M
Parasitic plants						
Loranthaceae	<i>Struthanthus</i> sp.	46	14	6.715	70	VL, L, M
Loranthaceae	<i>Psittacanthus schiedeanus</i> (Cham. & Schltdl.) G.Don	44	17	6.423	85	VL, L, M, VH
Santalaceae	<i>Phoradendron nervosum</i> Oliv.	5	2	0.730	10	VL, VH

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2 ^aTree frequency = (No. of trees with the species / Total trees) × 100

3 ^bSite frequency = (No. of sites with the species / Total sites) × 100

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Appendix C. Results of the Generalized Linear Mixed Models (GLMM) for ecosystem services. χ^2 = Wald chi-square; df = degrees of freedom; Marginal R^2 = variance explained by fixed effects (marginalization level); Conditional R^2 = variance explained by fixed + random effects (site); ICC = Intraclass Correlation Coefficient. Figura

Ecosystem service	χ^2 ($df = 3$)	p -value	Marginal R^2	Conditional R^2	ICC
Carbon storage	2.56	0.465	0.018	0.533	0.524
Carbon sequestration	1.18	0.757	0.009	0.182	0.175
Oxygen production	1.18	0.758	0.009	0.182	0.175
Avoided runoff	2.82	0.421	0.032	0.309	0.286

Note: The fixed-effect test compares the full model (Marginalization level + (1|Site)) against a null model retaining the random effect (1 + (1|Site)). Post hoc (Tukey) comparisons among all pairs of marginalization levels showed no significant differences in any case (p -Tukey > 0.05 for all comparisons).