

Invasion by Ulex europaeus L. and fire history: Patterns in vegetation composition, diversity, and structure in Colombian Páramos

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Supplementary Figures

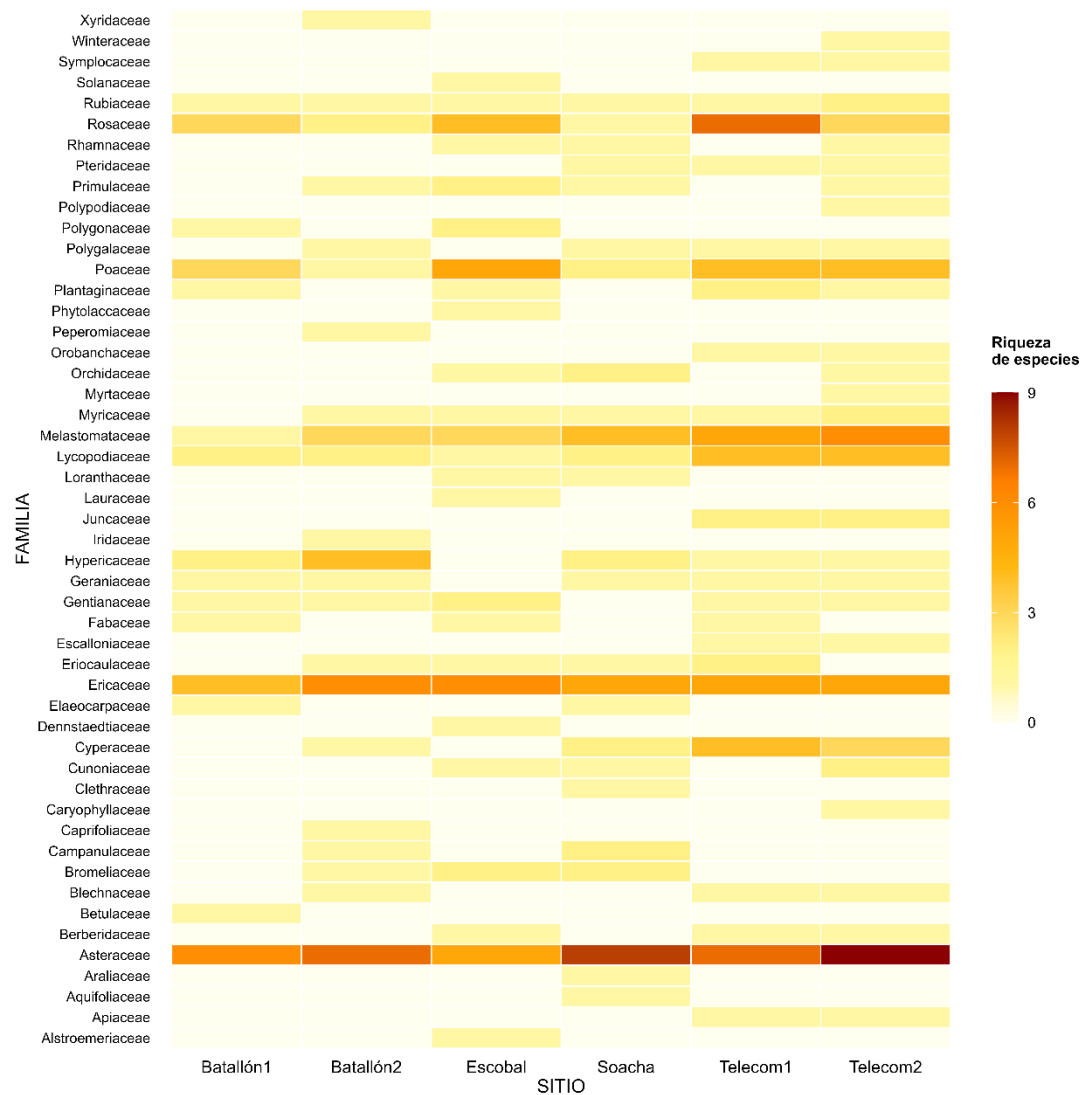


Figure S1. Species distribution by botanical family across sampling sites (heatmap).

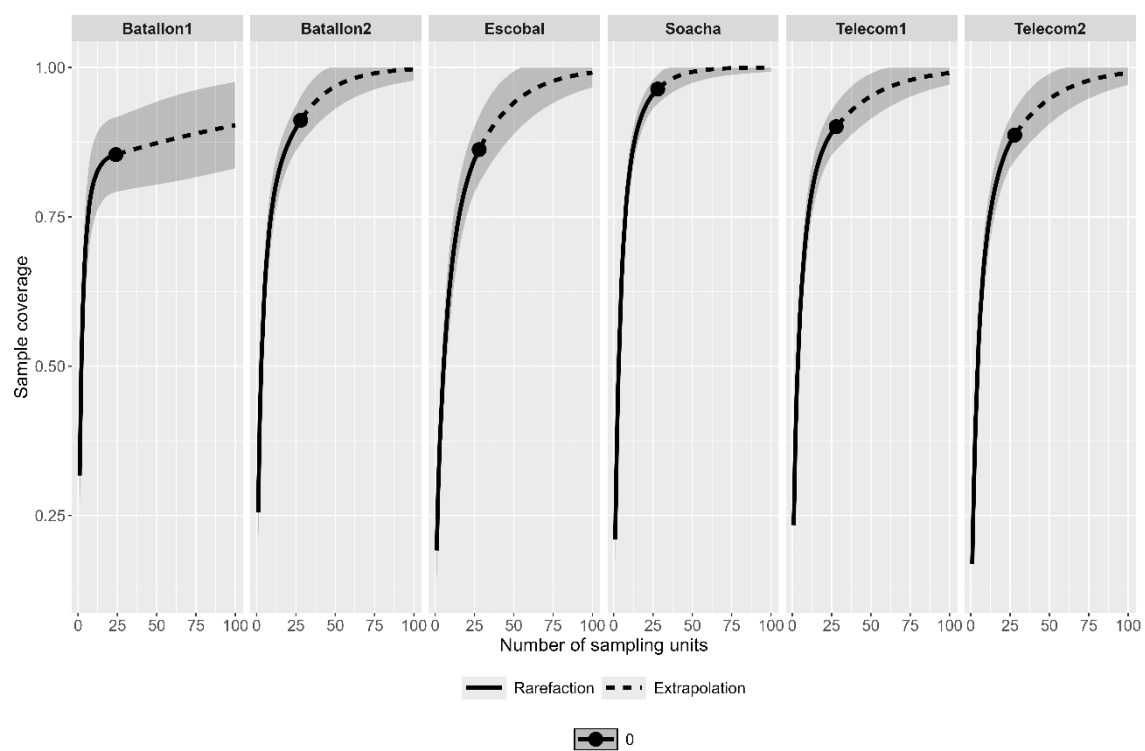


Figure S2. Rarefaction and extrapolation curves based on sample size. Sample coverage according to sampling units.

Supplementary Tables

Table S1. Data on species presence/absence and growth forms across study sites, following the classification of Ramsay and Oxley (1997).

Family	Specie	Growth form	SITE					
			Batallon1	Batallon2	Escobal	Soacha	Telecom1	Telecom2
Alstroemeriaceae	<i>Bomarea hirsuta</i>	Creeper/Climber	0	0	1	0	0	0
Apiaceae	<i>Nyphogeton ternata</i>	Acaulescent rosette	0	0	0	0	1	1
Aquifoliaceae	<i>Ilex kunthiana</i>	Upright shrub	0	0	0	1	0	0
Araliaceae	<i>Oreopanax mutisianus</i>	Tree	0	0	0	1	0	0
Asteraceae	<i>Achyrocline crassiceps</i>	Herb	0	0	0	1	0	0
	<i>Ageratina asclepiadea</i>	Upright shrub	0	0	0	1	0	1
	<i>Ageratina boyacensis</i>	Upright shrub	0	0	1	0	0	1
	<i>Ageratina elegans</i>	Upright shrub	0	0	0	1	0	0
	<i>Ageratina glyptophlebia</i>	Upright shrub	0	0	0	0	0	1
	<i>Ageratina gracilis</i>	Upright shrub	0	0	1	0	0	1
	<i>Ageratina tinifolia</i>	Upright shrub	1	1	0	0	0	0
	<i>Ageratina vacciniifolia</i>	Upright shrub	0	0	1	0	0	0
	<i>Baccharis latifolia</i>	Upright shrub	0	1	0	0	0	0
	<i>Baccharis macrantha</i>	Upright shrub	0	0	0	0	1	1
	<i>Baccharis prunifolia</i>	Upright shrub	0	0	0	0	1	1
	<i>Baccharis tricuneata</i>	Upright shrub	0	0	0	0	1	0
	<i>Diplostephium phyllicoides</i>	Upright shrub	0	1	0	1	0	0
	<i>Espeletia argentea</i>	Stem rosette	0	0	1	0	1	1
	<i>Espeletia corymbosa</i>	Stem rosette	0	0	0	1	0	0
	<i>Espeletia grandiflora</i>	Stem rosette	1	1	0	0	0	0
	<i>Espeletia grandiflora x corymbosa</i>	Stem rosette	0	0	0	1	0	0

Family	Specie	Growth form	SITE					
			Batallon1	Batallon2	Escobal	Soacha	Telecom1	Telecom2
	<i>Espeletia saboyana</i>	Stem rosette	0	0	0	0	1	1
	<i>Linochilus phyllicoides</i>	Upright shrub	1	1	0	0	0	0
	<i>Linochilus rosmarinifolius</i>	Upright shrub	1	1	0	0	0	0
	<i>Monticalia abietina</i>	Upright shrub	0	0	0	0	1	0
	<i>Monticalia ledifolia</i>	Upright shrub	1	1	0	0	0	0
	<i>Monticalia pulchella</i>	Upright shrub	1	0	0	1	1	1
	<i>Pseudognaphalium sp.</i>	Herb	0	0	1	0	0	0
	<i>Verbesina baccharidea</i>	Upright shrub	0	0	0	1	0	0
Berberidaceae	<i>Berberis goudotii</i>	Upright shrub	0	0	0	0	1	1
	<i>Berberis samacana</i>	Upright shrub	0	0	1	0	0	0
Betulaceae	<i>Alnus acuminata</i>	Tree	1	0	0	0	0	0
Blechnaceae	<i>Parablechnum loxense</i>	Basal rosette	0	1	0	0	1	1
Bromeliaceae	<i>Puya goudotiana</i>	Basal rosette	0	1	0	0	0	0
	<i>Puya lineata</i>	Basal rosette	0	0	0	1	0	0
	<i>Puya nitida</i>	Basal rosette	0	0	1	1	0	1
	<i>Tillandsia sp.</i>	Basal rosette	0	0	1	0	0	0
Campanulaceae	<i>Lobelia tenera</i>	Herb	0	1	0	1	0	0
	<i>Siphocampylus columnae</i>	Upright shrub	0	0	0	1	0	0
Caprifoliaceae	<i>Valeriana pilosa</i>	Herb	0	1	0	0	0	0
Caryophyllaceae	<i>Cerastium arvense</i>	Prostrate herb	0	0	0	0	0	1
Clethraceae	<i>Clethra fimbriata</i>	Tree	0	0	0	1	0	0
Cunoniaceae	<i>Weinmannia fagaroides</i>	Tree	0	0	0	0	0	1
	<i>Weinmannia tomentosa</i>	Tree	0	0	1	1	0	1
Cyperaceae	<i>Carex bonplandii</i>	Tussock	0	0	0	1	1	0
	<i>Carex pichinchensis</i>	Tussock	0	0	0	0	1	1

Family	Specie	Growth form	SITE					
			Batallon1	Batallon2	Escobal	Soacha	Telecom1	Telecom2
	<i>Cyperus xanthostachyus</i>	Tussock	0	1	0	0	1	1
	<i>Rhynchospora macrochaeta</i>	Tussock	0	0	0	1	0	0
	<i>Rhynchospora ruiziana</i>	Tussock	0	0	0	0	1	1
Dennstaedtiaceae	<i>Pteridium arachnoideum</i>	Herb	0	0	1	0	0	0
Elaeocarpaceae	<i>Vallea stipularis</i>	Tree	1	0	0	1	0	0
Ericaceae	<i>Bejaria resinosa</i>	Upright shrub	0	0	1	1	0	0
	<i>Cavendishia bracteata</i>	Upright shrub	0	0	1	0	0	0
	<i>Gaultheria anastomosans</i>	Upright shrub	1	1	1	1	1	1
	<i>Gaultheria hapalotricha</i>	Upright shrub	0	1	1	1	1	1
	<i>Gaultheria myrsinoides</i>	Prostrate shrub	1	1	1	0	1	1
	<i>Gaylussacia buxifolia</i>	Upright shrub	0	1	0	1	0	0
	<i>Macleania rupestris</i>	Upright shrub	1	1	1	1	1	1
	<i>Vaccinium floribundum</i>	Upright shrub	1	1	0	0	1	1
Eriocaulaceae	<i>Paepalanthus alpinus</i>	Basal rosette	0	0	1	1	0	0
	<i>Paepalanthus andicola</i>	Basal rosette	0	0	0	0	1	0
	<i>Paepalanthus lindenii</i>	Basal rosette	0	1	0	0	0	0
Escalloniaceae	<i>Escallonia myrtilloides</i>	Upright shrub	0	0	0	0	1	1
Fabaceae	<i>Ulex europaeus</i>	Upright shrub	1	0	1	0	1	0
Gentianaceae	<i>Halenia major</i>	Herb	1	1	1	0	1	1
	<i>Symbolanthus anomalus</i>	Upright shrub	0	0	1	0	0	0
Geraniaceae	<i>Geranium multiceps</i>	Prostrate herb	0	1	0	1	0	0
	<i>Geranium sibbaldioides</i>	Prostrate herb	1	0	0	0	1	1
Hypericaceae	<i>Hypericum goyanesii</i>	Upright shrub	1	1	0	0	0	0
	<i>Hypericum juniperinum</i>	Upright shrub	1	1	0	1	1	1
	<i>Hypericum lancifolium</i>	Upright shrub	0	1	0	0	0	0

Family	Specie	Growth form	SITE					
			Batallon1	Batallon2	Escobal	Soacha	Telecom1	Telecom2
	<i>Hypericum mexicanum</i>	Upright shrub	0	0	0	1	0	0
	<i>Hypericum strictum</i>	Upright shrub	0	1	0	0	0	0
Iridaceae	<i>Orthrosanthus chimboracensis</i>	Herb	0	1	0	0	0	0
Juncaceae	<i>Juncus bufonius</i>	Tussock	0	0	0	0	1	1
	<i>Juncus echinocephalus</i>	Tussock	0	0	0	0	1	1
Lauraceae	<i>Persea mutisii</i>	Tree	0	0	1	0	0	0
Loranthaceae	<i>Gaiadendron punctatum</i>	Tree	0	0	1	1	0	0
Lycopodiaceae	<i>Diphasiastrum complanatum</i>	Prostrate herb	0	1	1	0	1	1
	<i>Diphasiastrum thyoides</i>	Prostrate herb	1	0	0	1	1	1
	<i>Diphasium jussiae</i>	Prostrate herb	0	0	0	0	1	1
	<i>Lycopodium clavatum</i>	Prostrate herb	1	1	0	1	1	1
Melastomataceae	<i>Brachyotum strigosum</i>	Upright shrub	0	0	0	1	0	0
	<i>Bucquetia glutinosa</i>	Upright shrub	0	1	1	1	1	1
	<i>Castratella piloselloides</i>	Acaulescent rosette	0	1	0	1	0	1
	<i>Chaetogastra grossa</i>	Tree	0	0	1	0	0	1
	<i>Miconia elaeoides</i>	Upright shrub	0	0	1	0	1	1
	<i>Miconia ligustrina</i>	Upright shrub	1	1	0	1	1	1
	<i>Miconia summa</i>	Upright shrub	0	0	0	0	1	1
	<i>Monochaetum myrtoideum</i>	Upright shrub	0	0	0	0	1	0
Myricaceae	<i>Morella parvifolia</i>	Upright shrub	0	1	0	1	1	1
	<i>Morella pubescens</i>	Tree	0	0	1	0	0	1
Myrtaceae	<i>Ugni myricoides</i>	Upright shrub	0	0	0	0	0	1
Orchidaceae	<i>Cyrtochilum revolutum</i>	Herb	0	0	0	1	0	0
	<i>Epidendrum chioneum</i>	Herb	0	0	1	0	0	0
	<i>Epidendrum zipaquiranum</i>	Herb	0	0	0	1	0	0

Family	Specie	Growth form	SITE					
			Batallon1	Batallon2	Escobal	Soacha	Telecom1	Telecom2
	<i>Gomphichis traceyae</i>	Basal rosette	0	0	0	0	0	1
Orobanchaceae	<i>Castilleja integrifolia</i>	Herb	0	0	0	0	1	1
Peperomiaceae	<i>Peperomia galioides</i>	Herb	0	1	0	0	0	0
Phytolaccaceae	<i>Phytolacca bogotensis</i>	Herb	0	0	1	0	0	0
Plantaginaceae	<i>Aragoa abietina</i>	Upright shrub	0	0	0	0	1	0
	<i>Digitalis purpurea</i>	Herb	1	0	1	0	0	0
	<i>Plantago oreades</i>	Basal rosette	0	0	0	0	1	1
Poaceae	<i>Anthoxanthum odoratum</i>	Tussock	1	0	0	1	1	1
	<i>Chusquea tessellata</i>	Bambusoid	1	0	1	0	1	1
	<i>Danthonia secundiflora</i>	Herb	0	0	0	0	1	0
	<i>Paramochloa effusa</i>	Tussock	1	1	1	1	1	1
	<i>Paspalum sp.</i>	Tussock	0	0	1	0	0	0
	<i>Peyritschia irazuensis</i>	Tussock	0	0	1	0	0	0
	<i>Peyritschia planifolia</i>	Tussock	0	0	1	0	0	1
Polygalaceae	<i>Monnina aestuans</i>	Upright shrub	0	1	0	0	1	1
	<i>Monnina salicifolia</i>	Upright shrub	0	0	0	1	0	0
Polygonaceae	<i>Muehlenbeckia tamnifolia</i>	Creeper/Climber	1	0	1	0	0	0
	<i>Rumex acetosella</i>	Herb	0	0	1	0	0	0
Polypodiaceae	<i>Serpocaulon levigatum</i>	Herb	0	0	0	0	0	1
Primulaceae	<i>Cybianthus marginatus</i>	Upright shrub	0	0	1	0	0	0
	<i>Myrsine coriacea</i>	Tree	0	0	1	0	0	1
	<i>Myrsine dependens</i>	Upright shrub	0	1	0	1	0	0
Pteridaceae	<i>Jamesonia bogotensis</i>	Herb	0	0	0	1	1	1
Rhamnaceae	<i>Frangula goudotiana</i>	Upright shrub	0	0	1	1	0	1
Rosaceae	<i>Acaena cylindristachya</i>	Acaulescent rosette	1	0	0	0	1	0

Family	Specie	Growth form	SITE					
			Batallon1	Batallon2	Escobal	Soacha	Telecom1	Telecom2
	<i>Acaena elongata</i>	Upright shrub	1	0	0	0	1	0
	<i>Hesperomeles goudotiana</i>	Upright shrub	1	1	1	1	1	1
	<i>Hesperomeles obtusifolia</i>	Upright shrub	0	1	1	0	1	1
	<i>Lachemilla cylindristachya</i>	Acaulescent rosette	0	0	0	0	1	0
	<i>Lachemilla orbiculata</i>	Acaulescent rosette	0	0	1	0	1	0
	<i>Rubus bogotensis</i>	Creeper/Climber	0	0	1	0	1	0
	<i>Rubus choachiensis</i>	Creeper/Climber	0	0	0	0	0	1
Rubiaceae	<i>Arcytophyllum nitidum</i>	Upright shrub	1	1	1	1	1	1
	<i>Nertera granadensis</i>	Prostrate herb	0	0	0	0	0	1
Solanaceae	<i>Cestrum buxifolium</i>	Upright shrub	0	0	1	0	0	0
Symplocaceae	<i>Symplocos theiformis</i>	Upright shrub	0	0	0	0	1	1
Winteraceae	<i>Drimys granadensis</i>	Tree	0	0	0	0	0	1
Xyridaceae	<i>Xyris subulata</i>	Herb	0	1	0	0	0	0
Total	134		29	40	47	46	55	62

Table S2. Plant diversity of the sampling sites based on Hill numbers ($q = 0, 1, 2$) derived from incidence frequency

Site	No. Families	No. Genera	No. Species	N	If	qD ₀	qD ₁	qD ₂	SC (%)
Batallon1	15	24	29	24	109	29	17.8	13.2	85.4
Batallon2	22	33	40	28	151	40	26.4	19.1	91.1
Escobal	25	41	47	28	133	47	32.6	21.5	86.3
Soacha	32	41	46	28	135	46	36.3	30.8	96.4
Telecom1	24	41	55	28	195	55	37.4	26.6	90.1
Telecom2	30	47	61	28	196	62	45.2	35.2	88.7

N: number of sampling units (transects and plots); If: incidence frequency; qD₀: species richness; qD₁: exponential Shannon entropy (effective diversity weighted by detection frequency); qD₂: inverse Simpson index (effective diversity of dominant species); SC (%): sample coverage.

Table S3. Top 10 species by Importance Value Index (IVI) along transects

Site	Specie	dens_rel	freq_rel	dom_rel	IVI_sum	IVI_pct
Batallon1	<i>Ulex europaeus</i>	45.28	14.63	40.48	100.39	33.46
	<i>Monticalia ledifolia</i>	12.58	12.20	20.30	45.07	15.02
	<i>Ageratina tinifolia</i>	3.77	9.76	13.91	27.44	9.15
	<i>Espeletia grandiflora</i>	6.92	7.32	8.10	22.34	7.45
	<i>Hesperomeles goudotiana</i>	6.29	7.32	7.34	20.94	6.98
	<i>Linochilus rosmarinifolius</i>	8.81	9.76	2.36	20.92	6.97
	<i>Vaccinium floribundum</i>	6.29	7.32	2.67	16.28	5.43
	<i>Hypericum goyanesii</i>	3.77	9.76	1.95	15.48	5.16
	<i>Hypericum juniperinum</i>	1.89	4.88	0.13	6.89	2.30
	<i>Chusquea tessellata</i>	0.63	2.44	0.80	3.87	1.29
Batallon2	<i>Espeletia grandiflora</i>	43.65	15.00	31.66	90.31	30.10
	<i>Monticalia ledifolia</i>	15.74	7.50	18.00	41.24	13.75
	<i>Vaccinium floribundum</i>	9.64	10.00	21.08	40.72	13.57
	<i>Linochilus rosmarinifolius</i>	5.58	12.50	3.22	21.30	7.10
	<i>Bucquetia glutinosa</i>	8.12	7.50	4.44	20.06	6.69
	<i>Gaultheria anastomosans</i>	4.57	10.00	2.12	16.68	5.56
	<i>Hesperomeles goudotiana</i>	1.02	2.50	10.66	14.17	4.72
	<i>Hypericum lancifolium</i>	3.05	7.50	0.42	10.96	3.65
	<i>Miconia ligustrina</i>	1.52	2.50	4.95	8.97	2.99
	<i>Hesperomeles obtusifolia</i>	3.05	5.00	0.52	8.57	2.86
Escobal	<i>Ulex europaeus</i>	44.29	15.00	18.72	78.01	26.00
	<i>Weinmannia tomentosa</i>	8.57	10.00	20.92	39.49	13.16
	<i>Cavendishia bracteata</i>	10.00	5.00	20.40	35.40	11.80
	<i>Macleania rupestris</i>	4.29	5.00	19.04	28.32	9.44
	<i>Miconia elaeoides</i>	2.86	7.50	3.94	14.30	4.77
	<i>Chaetogastra grossa</i>	4.29	7.50	1.87	13.66	4.55
	<i>Bucquetia glutinosa</i>	3.57	7.50	0.41	11.48	3.83
	<i>Hesperomeles goudotiana</i>	2.86	7.50	0.61	10.97	3.66
	<i>Ageratina vacciniifolia</i>	4.29	5.00	0.35	9.63	3.21

Site	Specie	dens_rel	freq_rel	dom_rel	IVI_sum	IVI_pct
	<i>Bejaria resinosa</i>	3.57	5.00	0.51	9.08	3.03
Soacha	<i>Morella parvifolia</i>	22.02	10.29	24.06	56.38	18.79
	<i>Miconia ligustrina</i>	28.27	10.29	11.67	50.24	16.75
	<i>Gaiadendron punctatum</i>	13.69	7.35	15.29	36.33	12.11
	<i>Ageratina asclepiadea</i>	1.79	5.88	20.33	28.00	9.33
	<i>Weinmannia tomentosa</i>	3.57	10.29	13.46	27.32	9.11
	<i>Macleania rupestris</i>	8.63	8.82	4.38	21.83	7.28
	<i>Espeletia corymbosa</i>	5.36	4.41	3.08	12.85	4.28
	<i>Espeletia grandiflora x corymbosa</i>	3.27	2.94	2.29	8.51	2.84
	<i>Hesperomeles goudotiana</i>	2.38	4.41	1.10	7.89	2.63
	<i>Bucquetia glutinosa</i>	1.49	5.88	0.42	7.79	2.60
Telecom1	<i>Ulex europaeus</i>	34.98	13.21	54.82	103.00	34.33
	<i>Espeletia argentea</i>	26.91	13.21	12.48	52.59	17.53
	<i>Morella parvifolia</i>	4.04	7.55	9.66	21.25	7.08
	<i>Espeletia saboyana</i>	9.87	3.77	4.46	18.10	6.03
	<i>Berberis goudotii</i>	4.04	11.32	1.35	16.71	5.57
	<i>Baccharis macrantha</i>	4.48	5.66	2.76	12.91	4.30
	<i>Macleania rupestris</i>	0.90	3.77	5.63	10.30	3.43
	<i>Hesperomeles obtusifolia</i>	2.24	5.66	0.54	8.44	2.81
	<i>Bucquetia glutinosa</i>	2.24	5.66	0.31	8.21	2.74
	<i>Monticalia pulchella</i>	0.90	3.77	1.94	6.62	2.21
Telecom2	<i>Espeletia saboyana</i>	51.79	10.17	41.95	103.91	34.64
	<i>Espeletia argentea</i>	19.90	5.08	13.27	38.25	12.75
	<i>Miconia ligustrina</i>	6.89	8.47	10.69	26.05	8.68
	<i>Morella parvifolia</i>	2.81	8.47	5.50	16.78	5.59
	<i>Macleania rupestris</i>	2.30	8.47	2.63	13.41	4.47
	<i>Morella pubescens</i>	0.51	3.39	9.21	13.11	4.37
	<i>Bucquetia glutinosa</i>	3.83	6.78	1.62	12.23	4.08
	<i>Chaetogastra grossa</i>	1.28	3.39	5.67	10.34	3.45
	<i>Miconia summa</i>	1.53	1.69	4.51	7.73	2.58
	<i>Weinmannia fagaroides</i>	1.02	3.39	1.25	5.66	1.89

Table S4. Top 10 species by Importance Value Index (IVI) along plots

Site	Specie	freq_rel	dens_rel	IVI_sum	IVI_pct
Batallon1	<i>Ulex europaeus</i>	16.18	13.64	29.81	14.91
	<i>Gaultheria anastomosans</i>	17.65	11.36	29.01	14.51
	<i>Hypericum juniperinum</i>	10.29	9.09	19.39	9.69
	<i>Vaccinium floribundum</i>	8.82	6.82	15.64	7.82
	<i>Arcytophyllum nitidum</i>	8.82	4.55	13.37	6.68
	<i>Hypericum goyanesii</i>	5.88	6.82	12.70	6.35
	<i>Digitalis purpurea</i>	4.41	6.82	11.23	5.61
	<i>Linochilus rosmarinifolius</i>	4.41	6.82	11.23	5.61
	<i>Monticalia ledifolia</i>	4.41	4.55	8.96	4.48

Site	Specie	freq_rel	dens_rel	IVI_sum	IVI_pct
	<i>Geranium sibbaldioides</i>	2.94	4.55	7.49	3.74
Batallon2	<i>Paepalanthus lindenii</i>	14.41	9.21	23.62	11.81
	<i>Gaultheria anastomosans</i>	12.61	9.21	21.82	10.91
	<i>Parablechnum loxense</i>	8.11	7.89	16.00	8.00
	<i>Vaccinium floribundum</i>	6.31	5.26	11.57	5.78
	<i>Lycopodium clavatum</i>	5.41	5.26	10.67	5.33
	<i>Arcytophyllum nitidum</i>	4.50	5.26	9.77	4.88
	<i>Geranium multiceps</i>	4.50	5.26	9.77	4.88
	<i>Paramochloa effusa</i>	4.50	3.95	8.45	4.23
	<i>Bucquetia glutinosa</i>	3.60	3.95	7.55	3.78
	<i>Espeletia grandiflora</i>	2.70	3.95	6.65	3.33
Escobal	<i>Ulex europaeus</i>	15.05	8.82	23.88	11.94
	<i>Cavendishia bracteata</i>	6.45	4.41	10.86	5.43
	<i>Gaultheria myrsinoides</i>	6.45	4.41	10.86	5.43
	<i>Bucquetia glutinosa</i>	4.30	4.41	8.71	4.36
	<i>Gaultheria anastomosans</i>	5.38	2.94	8.32	4.16
	<i>Ageratina gracilis</i>	3.23	4.41	7.64	3.82
	<i>Cestrum buxifolium</i>	3.23	4.41	7.64	3.82
	<i>Muehlenbeckia tamnifolia</i>	3.23	4.41	7.64	3.82
	<i>Phytolacca bogotensis</i>	3.23	4.41	7.64	3.82
	<i>Ageratina vacciniifolia</i>	3.23	2.94	6.17	3.08
Soacha	<i>Gaultheria hapalotricha</i>	8.03	5.77	13.80	6.90
	<i>Arcytophyllum nitidum</i>	7.30	5.77	13.07	6.53
	<i>Brachyotum strigosum</i>	5.84	6.73	12.57	6.29
	<i>Gaylussacia buxifolia</i>	6.57	5.77	12.34	6.17
	<i>Rhynchospora macrochaeta</i>	6.57	5.77	12.34	6.17
	<i>Paepalanthus alpinus</i>	5.84	4.81	10.65	5.32
	<i>Anthoxanthum odoratum</i>	4.38	3.85	8.23	4.11
	<i>Gaultheria anastomosans</i>	4.38	3.85	8.23	4.11
	<i>Morella parvifolia</i>	4.38	3.85	8.23	4.11
	<i>Paramochloa effusa</i>	4.38	3.85	8.23	4.11
Telecom1	<i>Ulex europaeus</i>	9.15	7.29	16.45	8.22
	<i>Gaultheria anastomosans</i>	9.86	6.25	16.11	8.05
	<i>Parablechnum loxense</i>	5.63	5.21	10.84	5.42
	<i>Gaultheria myrsinoides</i>	4.93	5.21	10.14	5.07
	<i>Arcytophyllum nitidum</i>	4.93	4.17	9.10	4.55
	<i>Diphasium jussiae</i>	4.23	4.17	8.39	4.20
	<i>Carex bonplandii</i>	3.52	4.17	7.69	3.84
	<i>Anthoxanthum odoratum</i>	4.23	3.13	7.35	3.68
	<i>Espeletia argentea</i>	4.23	3.13	7.35	3.68
	<i>Castilleja integrifolia</i>	2.82	4.17	6.98	3.49
Telecom2	<i>Parablechnum loxense</i>	9.49	6.67	16.16	8.08
	<i>Gaultheria anastomosans</i>	7.30	5.71	13.01	6.51
	<i>Arcytophyllum nitidum</i>	5.11	4.76	9.87	4.94

Site	Specie	freq_rel	dens_rel	IVI_sum	IVI_pct
	<i>Lycopodium clavatum</i>	5.11	3.81	8.92	4.46
	<i>Espeletia argentea</i>	3.65	4.76	8.41	4.21
	<i>Nyphogeton ternata</i>	3.65	4.76	8.41	4.21
	<i>Diphasiastrum complanatum</i>	3.65	3.81	7.46	3.73
	<i>Gaultheria myrsinoides</i>	3.65	3.81	7.46	3.73
	<i>Chusquea tessellata</i>	4.38	2.86	7.24	3.62
	<i>Castilleja integrifolia</i>	2.92	3.81	6.73	3.36

Table S5. Indicator species (IndVal) by site and TSLF based on transect records.

Treatment	Group	Specie	IndVal (stat)	p-value
By site	Batallon1	<i>Hypericum goyanesii</i>	0.816	0.001 ***
		<i>Ageratina tinifolia</i>	0.764	0.001 ***
	Batallon2	<i>Espeletia grandiflora</i>	0.864	0.001 ***
		<i>Hypericum lancifolium</i>	0.655	0.017 *
		<i>Gaultheria anastomosans</i>	0.65	0.019 *
	Escobal	<i>Miconia elaeoides</i>	0.586	0.038 *
	Soacha	<i>Morella parvifolia</i>	0.878	0.001 ***
		<i>Gaiadendron punctatum</i>	0.845	0.001 ***
		<i>Ageratina asclepiadea</i>	0.7	0.006 **
		<i>Espeletia corymbosa</i>	0.655	0.031 *
		<i>Myrsine dependens</i>	0.586	0.049 *
	Telecom1	<i>Berberis goudotii</i>	0.837	0.001 ***
		<i>Baccharis macrantha</i>	0.624	0.033 *
	Telecom2	<i>Espeletia saboyana</i>	0.879	0.001 ***
	Batallon1+Batallon2	<i>Linochilus rosmarinifolius</i>	0.832	0.001 ***
		<i>Monticalia ledifolia</i>	0.784	0.001 ***
		<i>Vaccinium floribundum</i>	0.734	0.002 **
	Escobal+Soacha	<i>Weinmannia tomentosa</i>	0.821	0.001 ***
		<i>Bejaria resinosa</i>	0.598	0.046 *
	Escobal+Telecom2	<i>Chaetogastra grossa</i>	0.598	0.044 *
	Soacha+Telecom2	<i>Miconia ligustrina</i>	0.9	0.001 ***
		<i>Macleania rupestris</i>	0.797	0.002 **
	Telecom1+Telecom2	<i>Espeletia argentea</i>	0.839	0.001 ***
	Batallon1+Escobal+Telecom1	<i>Ulex europaeus</i>	0.975	0.001 ***
by TSLF	No recent fire	<i>Espeletia argentea</i>	0.693	0.016 *
		<i>Berberis goudotii</i>	0.632	0.024 *
		<i>Espeletia saboyana</i>	0.632	0.020 *
	13 years	<i>Morella parvifolia</i>	0.944	0.001 ***
		<i>Miconia ligustrina</i>	0.934	0.001 ***
		<i>Gaiadendron punctatum</i>	0.845	0.001 ***
		<i>Macleania rupestris</i>	0.79	0.002 **
		<i>Ageratina asclepiadea</i>	0.735	0.002 **

		<i>Espeletia corymbosa</i>	0.655	0.010 **
		<i>Myrsine dependens</i>	0.586	0.034 *
	25 years	<i>Espeletia grandiflora</i>	0.906	0.001 ***
		<i>Gaultheria anastomosans</i>	0.715	0.005 **
		<i>Linochilus rosmarinifolius</i>	0.703	0.010 **
		<i>Vaccinium floribundum</i>	0.7	0.009 **
		<i>Hypericum lancifolium</i>	0.655	0.007 **
	3 years	<i>Miconia elaeoides</i>	0.628	0.016 *
	No recent fire +3years	<i>Ulex europaeus</i>	0.839	0.001 ***
	13+3 years	<i>Weinmannia tomentosa</i>	0.862	0.001 ***
		<i>Bejaria resinosa</i>	0.598	0.021 *

Table S6. Indicator species (IndVal) by site and TSLF based on plots records.

Treatment	Group	Specie	IndVal (stat)	p-valor
By Sitio	Batallon1	<i>Linochilus rosmarinifolius</i>	0.707	0.007 **
		<i>Hypericum goyanesii</i>	0.592	0.038 *
	Batallon2	<i>Paepalanthus lindenii</i>	1	0.001 ***
		<i>Geranium multiceps</i>	0.69	0.007 **
	Escobal	<i>Cavendishia bracteata</i>	0.655	0.020 *
		<i>Cestrum buxifolium</i>	0.655	0.024 *
		<i>Muehlenbeckia tamnifolia</i>	0.655	0.017 *
		<i>Phytolacca bogotensis</i>	0.655	0.024 *
	Soacha	<i>Brachyotum strigosum</i>	1	0.001 ***
		<i>Rhynchospora macrochaeta</i>	0.926	0.001 ***
		<i>Gaylussacia buxifolia</i>	0.797	0.001 ***
		<i>Paepalanthus alpinus</i>	0.797	0.001 ***
		<i>Gaultheria hapalotricha</i>	0.745	0.003 **
		<i>Ageratina elegans</i>	0.655	0.015 *
		<i>Epidendrum zipaquiranum</i>	0.655	0.025 *
		<i>Verbesina baccharidea</i>	0.655	0.019 *
		<i>Morella parvifolia</i>	0.617	0.020 *
	Telecom1	<i>Diphasium jussiaei</i>	0.7	0.006 **
	Soacha+Telecom1	<i>Carex bonplandii</i>	0.655	0.013 *
	Telecom1+Telecom2	<i>Castilleja integrifolia</i>	0.756	0.001 ***
		<i>Nyphogeton ternata</i>	0.756	0.002 **
		<i>Espeletia argentea</i>	0.724	0.003 **
		<i>Espeletia saboyana</i>	0.707	0.003 **
		<i>Chusquea tessellata</i>	0.598	0.038 *
	Batallon1+Batallon2	<i>Vaccinium floribundum</i>	0.666	0.024 *
	Batallon1+Escobal	<i>Digitalis purpurea</i>	0.62	0.012 *
	Batallon1+Escobal+Telecom1	<i>Ulex europaeus</i>	0.975	0.001 ***
	Batallon2+Telecom1+Telecom2	<i>Parablechnum loxense</i>	0.926	0.001 ***
	Batallon1+Batallon2+Soacha+Telecom1+Telecom2	<i>Gaultheria anastomosans</i>	0.875	0.036 *

By TSLF	No recent fire	<i>Castilleja integrifolia</i>	0.632	0.007 **
		<i>Nyphogeton ternata</i>	0.632	0.021 *
		<i>Espeletia saboyana</i>	0.592	0.027 *
	13 years	<i>Brachyotum strigosum</i>	1	0.001 ***
		<i>Rhynchospora macrochaeta</i>	0.926	0.001 ***
		<i>Gaylussacia buxifolia</i>	0.797	0.001 ***
		<i>Paepalanthus alpinus</i>	0.797	0.001 ***
		<i>Gaultheria hapalotricha</i>	0.792	0.001 ***
		<i>Morella parvifolia</i>	0.697	0.005 **
		<i>Ageratina elegans</i>	0.655	0.010 **
		<i>Epidendrum zipaquiranum</i>	0.655	0.014 *
		<i>Verbesina baccharidea</i>	0.655	0.014 *
		<i>Miconia ligustrina</i>	0.604	0.019 *
	25 years	<i>Paepalanthus lindenii</i>	1	0.001 ***
		<i>Geranium multiceps</i>	0.69	0.005 **
		<i>Vaccinium floribundum</i>	0.628	0.029 *
		<i>Espeletia grandiflora</i>	0.62	0.018 *
	3 years	<i>Cavendishia bracteata</i>	0.655	0.007 **
		<i>Cestrum buxifolium</i>	0.655	0.010 **
		<i>Muehlenbeckia tamnifolia</i>	0.655	0.013 *
		<i>Phytolacca bogotensis</i>	0.655	0.010 **
		<i>Ageratina gracilis</i>	0.62	0.025 *
	No recent fire +25 years	<i>Parablechnum loxense</i>	0.816	0.002 **
	No recent fire +3 years	<i>Ulex europaeus</i>	0.839	0.001 ***