

Bromeliad species of the Atlantic forest of north-east Brazil: losses of critical populations of endemic species

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Appendix 1

Bromeliad species recorded in the Atlantic forest of north-east Brazil, with the number of known populations, their ecological attributes, and herbarium (Holmgren *et al.*, 1990) voucher specimen details.

Species	N	Ecological attributes							Voucher
		Geographical range ¹	Habitat specificity ²	Life form ³	Pollination ⁴	Dispersal ⁵			
<i>Aechmea conifera</i> L.B.Sm.	4	EB	2	OE	VP	VD	IPA 20812		
<i>Aechmea eurycymbus</i> Hams	1	EA	1	FE	VP	VD	Werdermann 2931 (B Holotype)		
<i>Aechmea frassyi</i> Leme & J.A.Siqueira	3	EA	1	TE	VP	VD	HB (Holotype)		
<i>Aechmea fulgens</i> Brongn.	18	EA	4	FE	VP	VD	UFP 14148		
<i>Aechmea gustavoi</i> Leme & J.A.Siqueira	3	EA	2	FE	VP	VD	UFP 30134 (Holotype)		
<i>Aechmea lingulata</i> (L.) Baker	25	WD	3	FE	IP	VD	UFP 24885		
<i>Aechmea marginalis</i> Leme & J.A. Siqueira	1	EA	1	TE	VP	VD	HB(Holotype)		
<i>Aechmea mertensii</i> (G. Meyer) Schultes f.	17	WD	5	OE	VP	VD	UFP 24949		
<i>Aechmea mulfordii</i> L.B.Sm.	11	EB	3	FE	VP	VD	UFP 18753		
<i>Aechmea muricata</i> (A. Cam.) L.B.Sm.	11	EA	4	FE	VP	VD	UFP 18698		
<i>Aechmea nudicaulis</i> (L.) Griseb.	2	WD	1	OE	VP	VD	UFP 21367		
<i>Aechmea</i> sp.1 ⁶	3	EA	2	FE	VP	VD	UFP 24887		
<i>Aechmea</i> sp.2 ⁶	1	EA	1	TE	VP	VD	UFP 32455		
<i>Aechmea</i> sp.3 ⁶	2	EA	1	FE	VP	VD	UFP 24886		
<i>Aechmea</i> sp.4 ⁶	2	EA	1	FE	VP	VD	UFP 21359		
<i>Aechmea stelligera</i> L.B.Sm.	21	EA	3	FE	VP	VD	UFP 21841		
<i>Aechmea tomentosa</i> Mez	9	EA	4	FE	VP	VD	UFP 18695		
<i>Aechmea toverdammii</i> Harms	5	EA	1	FE	VP	VD	UFP 33307		
<i>Ananas comosus</i> (L.) Merrill	8	EB	3	TE	VP	VD	UFP 18748		
<i>Anacoccus parviflorus</i> (Mart. ex Schultes f.) Lindman	5	EB	2	FE	IP	VD	UFP 24936		
<i>Billbergia moreletii</i> Brongn.	11	EB	2	OE	VP	VD	UFP 21361		
<i>Billbergia porteania</i> Brongn.	3	WD	1	OE	VP	VD	UFP 25096		
<i>Bromelia arenaria</i> Ule	1	EA	1	TE	VP	VD	Ule 7151 (B Holotype)		
<i>Bromelia karatas</i> L.	20	WD	5	TE	VP	VD	UFP 14146		
<i>Canistrum algoanum</i> Leme & J.A.Siqueira	6	EA	2	FE	VP	VD	UFP 33805		
<i>Canistrum aurantiacum</i> E. Morren	17	EA	5	FE	VP	VD	UFP 15652		
<i>Canistrum pickleii</i> (A. Lima & L.B.Sm.) Leme & J.A.Siqueira	6	EA	2	FE	IP	VD	UFP 16855		
<i>Catopsis berteroniana</i> (Schultes f.) Mez	4	WD	2	OE	IP	AB	UFP 25080		
<i>Catopsis sessiliflora</i> (Ruiz & Pavón) Mez	4	WD	2	OE	IP	AB	UFP 33295		

Ecological attributes									
Species	N	Geographical range ¹	Habitat specificity ²	Life form ³	Pollination ⁴	Dispersal ⁵	Voucher		
<i>Cryptanthus algoanus</i> Leme & J.A.Siqueira	1	EA	1	TE	IP	VD	HB (Holotype)		
<i>Cryptanthus bahianus</i> L.B.Sm.	6	WD	2	TE	IP	VD	UFP 33299		
<i>Cryptanthus burle-marxii</i> Leme	4	EA	3	TE	IP	VD	HB (Holotype)		
<i>Cryptanthus diana</i> Leme	14	EA	2	TE	IP	VD	UFP 30484		
<i>Cryptanthus fosterianus</i> L.B.Sm.	1	EA	1	TE	IP	VD	MB Foster 2131 (US (Holotype))		
<i>Cryptanthus pickelii</i> L.B.Sm.	6	EA	3	TE	IP	VD	IPA 6307 (Holotype)		
<i>Cryptanthus zonatus</i> (Vis.) Beer	6	EA	3	TE	IP	VD	IPA 7444		
<i>Cryptanthus</i> sp.1 ⁶	1	EA	1	TE	IP	VD	UFP 39386		
<i>Cryptanthus</i> sp.2 ⁶	2	EA	1	TE	IP	VD	UFP 51514		
<i>Cryptanthus</i> sp.3 ⁶	1	EA	1	TE	IP	VD	UFP 32493 (Holotype)		
<i>Dyckia linae</i> L.B.Sm.	1	EA	1	TE	VP	AB	UFP 38912		
<i>Dyckia pernambucana</i> L.B.Sm.	7	EA	1	TE	VP	AB	UFP 22781		
<i>Encholirium pernambucanum</i> L.B.Sm. & R.W. Read	1	EA	1	TE	VP	AB	UFP 33250		
<i>Encholirium spectabile</i> Mart. ex Schultes f.	2	WD	1	TE	VP	AB	UFP 29791		
<i>Guzmania lingulata</i> (L.) Mez	5	WD	1	OE	VP	AB	UFP 21965		
<i>Guzmania monostachia</i> (L.) Rusby ex Mez	5	WD	2	OE	VP	AB	IPA 45549		
<i>Hohenbergia catincae</i> Ule	8	WD	2	TE	IP	VD	UFP 16006		
<i>Hohenbergia ramageana</i> Mez	16	EB	4	FE	IP	VD	UFP 14147		
<i>Hohenbergia ridleyi</i> (Baker) Mez	4	EA	1	FE	IP	VD	IPA 7941		
<i>Hohenbergia stellata</i> Schultes. f.	4	WD	1	TE	IP	VD	UFP 51380		
<i>Lymania smithii</i> R.W. Read	5	EB	2	FE	IP	VD	UFP 21363		
<i>Neoregelia pernambucana</i> Leme & J.A.Siqueira	1	EA	1	FE	VP	VD	UFP 32494		
<i>Orthophytum disjunctum</i> L.B.Sm.	13	EA	4	TE	IP	VD	UFP 16002		
<i>Orthophytum</i> sp.1 ⁶	1	EA	1	TE	IP	VD	UFP 33202		
<i>Orthophytum</i> sp.2 ⁶	1	EA	1	TE	IP	VD	UFP 33328		
<i>Pitcairnia linae</i> L.B.Sm.	26	EA	4	FE	VP	VD	IPA 8580 (Holotype)		
<i>Portea leptantha</i> Harms	2	EA	1	TE	VP	VD	UFP 14145		
<i>Pseudananas sagenarius</i> (A.Cam.) Camargo	3	WD	1	TE	VP	VD	UFP 21842		
<i>Racinaea spiculosa</i> (Griseb.) M.A. Spencer & L.B.Sm.	6	WD	2	OE	IP	AB	UFP 21848		
<i>Tillandsia bulbosa</i> Hooker	11	WD	5	OE	VP	AB	UFP 21839		
<i>Tillandsia chapuensis</i> Rauh	6	EB	2	TE	IP	AB	UFP 22783		
<i>Tillandsia gardneri</i> Lindley	11	EB	2	OE	VP	AB	UFP 21850		
<i>Tillandsia geminiflora</i> Brongn.	3	EB	2	OE	VP	AB	UFP 29795		
<i>Tillandsia juncea</i> (Ruiz & Pavón) Poirét	13	WD	3	OE	IP	AB	UFP 21837		
<i>Tillandsia kegeliana</i> Mez	3	EB	3	OE	VP	AB	IPA 16188		
<i>Tillandsia paraënsis</i> Mez	3	WD	2	OE	VP	AB	UFP 32721		
<i>Tillandsia pohliana</i> Mez	2	WD	1	OE	VP	AB	UFP 33315		
<i>Tillandsia polystachia</i> (L.) L.	17	WD	4	OE	IP	AB	UFP 33329		
<i>Tillandsia</i> sp. ⁶	1	EA	1	OE	-	AB	PEUFR 18156		
<i>Tillandsia streptocarpa</i> Baker	5	WD	1	FE	IP	AB	UFP 33305		
<i>Tillandsia stricta</i> Solander	10	WD	4	OE	VP	AB	UFP 25085		

Ecological attributes							
Species	N	Geographical range ¹	Habitat specificity ²	Life form ³	Pollination ⁴	Dispersal ⁵	Voucher
<i>Tillandsia tenuifolia</i> L.	21	WD	4	FE	VP	AB	UFP 33254
<i>Tillandsia tricholepis</i> Baker	1	WD	1	OE	IP	AB	UFP 33314
<i>Tillandsia usneoides</i> L.	12	WD	3	OE	IP	AB	UFP 33298
<i>Vriesea cearensis</i> L.B.Sm.	1	EA	1	OE	VP	AB	IPA 8612 (Holotype)
<i>Vriesea flammea</i> L.B.Sm.	1	EB	1	OE	VP	AB	UFP 24921
<i>Vriesea gigantea</i> Gaudichaud	2	EB	1	OE	VP	AB	UFP 32725
<i>Vriesea lima</i> L.B.Sm.	4	EB	1	TE	VP	AB	IPA 1363(Holotype)
<i>Vriesea oleosa</i> Leme	6	EB	1	OE	VP	AB	UFP 25081
<i>Vriesea procera</i> (Mart ex Schultes f.) Wittmack	11	WD	4	FE	VP	AB	UFP 21428
<i>Vriesea psittachia</i> (Hooker) Lindley	2	EB	2	OE	VP	AB	UFP 21287
<i>Vriesea rectifolia</i> Rauh	1	EB	1	OE	VP	AB	HEID (65290) (Holotype)
<i>Vriesea rodigasiana</i> E. Morren	5	EB	1	OE	VP	AB	IPA 16542
<i>Vriesea scalaris</i> E. Morren	1	EB	1	OE	VP	AB	IPA 45547
<i>Vriesea tijuacana</i> E. Pereira	3	EB	2	OE	VP	AB	UFP 21995
<i>Vriesea</i> sp.1 ⁶	1	EA	1	OE	VP	AB	UFP 32711
<i>Vriesea</i> sp.2 ⁶	1	EA	1	TE	VP	AB	UFP 33802

¹Geographical range: EA, endemic to the Atlantic forest of north-east Brazil; EB, endemic to the Brazilian Atlantic forest; WD, widely distributed.

²Habitat specificity refers to the number of vegetation types (1–5; see text and Table 1) in which each species occurs.

³Life form: OE, obligatory epiphytes; TE, terrestrial; FE, facultative epiphytes.

⁴Pollination mode: VP, vertebrate-pollinated; IP, invertebrate-pollinated.

⁵Dispersal mode: VD, vertebrate-dispersed species; AB, abiotically-dispersed species.

⁶New species being described by J.A. Siqueira Filho, E. Leme and collaborators.