

## NOTES ON BROMELIACEAE, XI

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Since the third part of *Flora Neotropica*, No. 14, Bromelioideae has gone to press, we are now using its enumeration for all three subfamilies.

### 1. PITCAIRNIOIDEAE

#### 1. PUYA

10a. *P. MIMA* L. B. Smith & R. W. Read, sp. nov. In clavi *Florae Neotropicae* cum *P. coerulea* Lindl. posita sed pediculis longis floribus mutantibus differt; *P. ferruginea* (R. & P.) L. B. Smith habitum simulans sed inflorescentia glabra differt.

PLANT flowering to 2 m high. LEAVES uniform, ca. 5 dm long; sheaths small, suborbicular; blades very narrowly triangular, 3 cm wide, rigid, white-lepidote on both sides, laxly serrate with slender red brown antrorsely curved 7 mm long spines. SCAPE erect, slender, glabrous; upper scape-bracts barely imbricate, ovate, acute, entire, glabrous. INFLORESCENCE laxly racemose, over 4 dm long, glabrous. FLORAL BRACTS like the upper scape-bracts, about equaling the lower pedicels; pedicels ascending, slender, 5 cm long; flowers nutant, making a strong angle with the pedicel. SEPALIS lanceolate, subacute, 45 mm long; petals over 10 cm long, naked, light greenish yellow, spirally contorted after anthesis; ovary almost woolly superior; ovules alate. Pl. 1.

PERU: CAJAMARCA: Jaen: San Felipe, several km above and north-east of village, 1920-1950 m, 10 February 1964, from cultivation in Huntington Botanical Gardens, July 1977, Hutchison 18109 (holotype, US; isotype, UC).

### 8. PITCAIRNIA

20a? *P. ATTENUATA* L. B. Smith & R. W. Read, sp. nov. Ob flores putridos affinitate haud cognita sed ab omnibus speciebus adhuc cognitissimis angustissimis integrisque, scapo brevi curvato, inflorescentia simplici densa, bracteis florigeris brevibus, floribus subsessilibus, sepalis lateralibus parvis argute carinatis differt.

PLANT somewhat caulescent; stem prostrate, ca. 1 cm in diameter. LEAVES all alike, mostly fasciculate at the apex of the stem, 1-1.5 m long, entire; sheaths very broadly ovate, 15 mm long; blades linear, filiform-attenuate, narrowed toward base but scarcely petiolate, glabrous above with conspicuous pale midrib, densely pale-lepidote beneath. SCAPE curved, 8 cm long, its apex barely protruding from the leaf-fascicle; scape-bracts erect, subfoliaceous, densely imbricate. INFLORESCENCE simple, densely subcylindric, 6 cm long, 25 mm wide. FLORAL BRACTS broadly ovate, attenuate or apiculate, short and covering little of the

sepals, pale-lepidote; flowers subsessile. SEPALs lance-oblong, broadly subacute, 18 mm long, glabrous, sulcate when dry, the posterior ones complanate, strongly carinate; petals 35 mm long, strong yellowish pink (J. Schunke V.); ovary apparently more than 1/2 superior; ovules not known. Pl. 2.

PERU: SAN MARTIN: Mariscal Caceres: Uchiza: Cerro de Santa Cruz east of El Puente (Carretera Marginal), high forest, on moist rocks in deep shade, 700-800 m, 6 August 1974, J. Schunke V. 8078 (holotype, US; isotype, MO).

152. *P. MULTIFLORA* L. B. Smith, Contr. U. S. Nat. Herb. 29: 312, fig. 32. 1949; Smith & Downs, Fl. Neotrop. No. 14: 364, fig. 123 N-O. 1974.

PANAMA: COCLE: Near saw-mill, 8 km north of El Cope (28 km northwest of Penonome), very wet cloud forest, 600-750 m, 1 September 1977, Maas 2780 (U, US). New to Panama.

153a. *P. ANCUASHII* L. B. Smith & R. W. Read, sp. nov. A P. kalbreyeri Baker, cui verisimiliter affinis, foliorum laminis serrulatis, inflorescentia multiflora subdensa, bracteis florigeris pedicelos multo superantibus differt.

PLANT evidently caulescent, flowering 1.1 m high. LEAVES dimorphic, some with broad blades, others bladeless with petioles modified into stout spines; sheaths uniform, ovate, 12 cm long, entire, drying dark castaneous, coriaceous, covered with appressed brown scales; petiole 1.2 m long, spinose-serrate, castaneous at base; blade linear-lanceolate, biattenuate, nearly 3 m long, 8 cm wide, serrulate, glabrous, bearing a strong median channel. SCAPE erect, stout, finely white-arachnoid; scape-bracts erect, densely imbricate, lanceolate, attenuate, to 20 cm long, entire, the lower coriaceous, castaneous, even, brown-lepidote, the others thin, pale, strongly nerved and sulcate when dry, finely whitish-lepidote. INFLORESCENCE simple, subdense, 55 cm long, laxly and very finely white-lepidote. FLORAL BRACTS very narrowly triangular, to 10 cm long, always much exceeding the slender 3 cm long pedicels; flowers suberect. SEPALs oblong-lanceolate, acute, 4 cm long, thin, strongly nerved, ecarinate; petals over 6 cm long, yellow (!Ancuash), bearing a large truncate scale at base; ovary 1/2 superior; ovules acyte or apiculate, Pl. 3.

PERU: AMAZONAS: Quebrada Sasa, Rio Canepa, monte, 250 m, 30 May 1973, Ernesto Ancuash 519 (holotype, US; isotype, MO).

163a. *P. BICOLOR* L. B. Smith & R. W. Read, sp. nov. A P. reflexiflora Andre, cui valde affinis, foliorum laminis multo latioribus, petiolis spinoso-serratis differt.

PLANT caulescent, flowering over 1.3 m high. LEAVES dimorphic, some reduced to thin, red, finely white-lepidote, entire, linear-lanceolate, 17 cm long sheaths, others 1.1 m long, green, glabrous; sheaths 2 cm long, suborbicular, spinose-serrate; petioles elongate, slender, subdensely spinose-serrate; blades linear-lanceolate, biattenuate, entire, 6 cm wide. SCAPE erect, slender; scape-bracts imbricate, linear-lanceolate, subacute and acuminate, entire, finely white-lepidote, soon glabrous. INFLORESCENCE simple, erect, dark red except for the greenish yellow petals; axis slender, sparsely appressed-lepidote. FLORAL BRACTS

lance-ovate, attenuate, membranaceous, to 25 mm long, all exceeding the pedicels; pedicels setiform, 5 mm long; flowers spreading. SEPALs oblong, rounded, apiculate, 11 mm long, thin; petals lanceolate, acute, 4 cm long; ovary ca. 3/4 superior; ovules caudate. Pl. 4.

COLOMBIA: CHOCÓ: Ansermamuevo to San José de Palmar road near line with Valle, Alto del Galapago, terrestrial, 2000 m, Forero, Gentry, Sugden & Daly 2852 (holotype, MO; photo US).

195a. *P. HITCHCOCKIANA* L. B. Smith emend. L. B. Smith & R. W. Read. A descriptione originali bracteis florigeris per anthesin arcuato-divergentibus, a *P. wendlandii* Baker bracteis florigeris sine lamina, a *P. clavata* L. B. Smith foliorum laminis integerrimis multo angustioribus differt. Pl. 5 (Asplund 20082).

ECUADOR: TUNGURAHUA: Valley of the Pastaza River, between Baños and Cashurco, 8 hours east of Cashurco, on tree, 1300-1800 m, 25 September 1923, Hitchcock 21816 (holotype, NY; isotypes GH, US); valley of Rio Pastaza, between Rio Topo and la Victoria, cliff, 1200 m, 1 December 1939, Asplund 10029 (S, US); Banas, Rio Pastaza, 15 February 1953, Prescott 494 (NY); Machai, cliff, 1500 m, 30 March 1956, Asplund 20037 (S, US). NAPO: Mera, Mangayacu to Puente Quile, 31 March 1956, Asplund 20082 (S, US).

In Flora Neotropica Monograph No. 14 this species was described and keyed as having erect floral bracts although most of the material beyond the type showed them arched-divergent. Consequently it is necessary to change its position to the vicinity of *P. clavata*.

The following specimen can not be separated satisfactorily from *P. hitchcockiana* although it is a rather large disjunct:

BRAZIL: MATO GROSSO: Campo Grande, 1978, A. Seidel 778 (US).

204a. *P. MUCIDA* L. B. Smith & R. W. Read, sp. nov. A *P. scep-trigera* Mez et *P. umbratile* L. B. Smith, quibus affinis, bracteis florigeris membranaceis integerrimis, floribus subsessilibus, sepalis anguste triangularibus differt.

PLANT known only from a scape, inflorescence, and 2 detached similar leaves, wholly mucilaginous (!Forero et al.). LEAVES linear-lanceolate, 4 cm wide with pale median channel, attenuate, subpetiolate, to 1 cm wide and sparsely serrulate; sheath unknown. SCAPE straight, stout, scape-bracts very fragile and almost wholly lost but doubtless densely imbricate before anthesis. INFLORESCENCE simple, densely ellipsoid, 14 cm long. FLORAL BRACTS membranaceous and extremely fragile but evidently ample and covering the sepals, entire, rose (!Forero et al.), apparently glabrous; flowers subsessil. SEPALs narrowly triangular, attenuate, 45 mm long, coriaceous, verrucose, white-lepidote, the lateral ones alate-carinate; petals rose (!Forero et al.), appendaged; ovary ca. 4/5 superior; ovules caudate. Pl. 6.

COLOMBIA: CHOCÓ: Nevita: Mereda Llanadas, north slope of Cerro Torra, ridge west of Rio Surama, road to Alto del Oso, epiphytic in forest, 600-900 m, 22 February 1977, Forero, Gentry, Sugden & Daly 3143 (holotype, MO; photo, US).

252a. *P. CURVIDENS* L. B. Smith & R. W. Read, sp. nov. A *P. glaziovii* Baker et *P. scandens* Ule, quibus verisimiliter affinis,

foliis exterioribus integris, scapi bracteis inferioribus foliaceis magnis, inflorescentia multiflora, a P. glaziovii inflorescentia laxa, pedicellis gracillimis, a P. scandens caule brevissimo, bracteis florigeris quam pedicellis vix longioribus differt

PLANT acaulescent with swollen base, flowering to 45 cm high. LEAVES glabrous, dimorphic, the basal ones as shown by a young shoot reduced to small apiculate entire sheaths; the others with deciduous blades known only from the persistent base with subdensely serrate flat, curved or twisted spines. SCAPE erect, slender, white-lepidote soon becoming glabrous; lower scape-bracts foliaceous but with persistent linear, long-attenuate blades to 32 cm long, 7 mm wide, entire, sparsely and fugaciously vestite toward base with coarse, white, spreading scales, upper scape-bracts lance-ovate, attenuate, entire, shorter than the internodes. INFLORESCENCE simple, 14 cm long before complete anthesis, lax, sparsely white-arachnoid, soon glabrous. FLORAL BRACTS lance-ovate, attenuate, about equaling the slender, 10 mm long pedicels; flowers in bud, suberect, scarlet with yellow base (Irwin et al.). SEPALS lance-oblong, 23 mm long, the posterior carinate; petals naked; ovary ca. 2/3 superior; ovules caudate. Pl. 7.

BRAZIL: MINAS GERAIS: Serra do Cipó, km 132 (ca. 153 km north of Belo Horizonte), high campo slopes, outcrops, and creek margin, 1400 m, 17 February 1968, Irwin, Maxwell & Wasshausen 20338 (holotype, UB; photo US).

Probably conspecific but leaves unknown and sepals slightly different shape:

BRAZIL: MINAS GERAIS: Serra do Cipó, km 120 (ca. 145 km north of Belo Horizonte), sand campo with outcrops, 1200 m, 14 February 1968, Irwin, Maxwell & Wasshausen 20081 (UB).

## 2. TILLANDSIOIDEAE

### 14. TILLANDSIA

55. T. TRUNCATA L. B. Smith, Contr. U. S. Nat. Herb. 29: 530, fig. 85. 1954.

PERU: HUANUCO: Huanuco - Tingo Maria road, "ceja de la montaña", km 456, ca. 2400 m, epiphytic, 13 April 1977, Gentry, Reville, Alfaro Castaneda & Daly 19316 (MO). New to Peru.

### 16. GUZMANIA

31a. G. RUGOSA L. B. Smith & R. W. Read, sp. nov. A G. virescente (Hooker) Mez et G. weberbaueri Mez, quibus ob bracteas florigeras rugosas affinis, scapi bracteis foliaceis magnis differt.

PLANT known only from scape and inflorescence but presumably stemless because of its ligulate scape-bracts. LEAVES unknown but presumably large and ligulate judging from the lower scape-bracts. SCAPE straight, stout, sparsely punctulate-lepidote; scape-bracts foliaceous, much exceeding the base of the inflo-

rescence, ligulate, acute, green, concolorous, obscurely punctate-lepidote, the lowest 4 dm long, 45 mm wide. INFLORESCENCE large, covered with mucilage, bipinnate, lax with basal internodes 4 cm long; primary bracts subfoliaceous, red, exceeding the lower spikes; spikes spreading, densely ellipsoid, 6 cm long, the sterile naked stipe 3 cm long. FLORAL BRACTS broadly elliptic, 22 mm long, centrally rugose and verrucose, laxly lepidote; flowers subsessile, suberect. SEPAIS oblong, rounded and slightly cucullate at apex, 25 mm long, 6 mm wide, equally subfree, thin, nerved, sparsely appressed-lepidote, yellow. Pl. 8

COLOMBIA: CHOCO: Road from Ansermanuevo to San Jose del Palmar, by Valle del Cauca boundary, Alto del Galapago, terrestrial in open area, 2000 m, 18 February 1977, Forero, Gentry, Sugden & Daly 2904 (holotype, MO; photo, US).

43a. G. ATTENUATA L. B. Smith & R. W. Read, sp. nov. A G. acrorifolia (Griseb.) Mez, cui affinis, foliorum vaginis pallide viridibus, laminis longe attenuatis, inflorescentia digitata subglobosa, bracteis primariis filiforme attenuatis differt.

PLANT possibly somewhat caulescent but base lacking, flowering ca. 5 dm high. LEAVES to 8 dm long, obscurely punctulate-lepidote; sheaths ovate, 12 cm long, pale green; blades linear, long-attenuate, 12 mm wide. SCAPE straight, very slender; scape-bracts subfoliaceous, densely imbricate and completely covering the scape. INFLORESCENCE densely digitate, subglobose, 3 cm long, green, obscurely punctulate-lepidote; primary bracts with small ovate base and very narrowly triangular filiform-attenuate blade; spikes subsessile, subglobose, densely few-flowered, 15 mm long. FLORAL BRACTS suborbicular, 7 mm long, nerved; flowers subsessile. SEPAIS elliptic, obtuse, 9 mm long, very short-connate, nerved. Pl. 9.

PANAMA: DARIEN: Southern slope of westernmost summit of Cerro Tacarcuna massif between Pucro base camp and Tacarcuna summit camp, epiphytic in lower montane wet forest, 1400-1600 m, 21 July 1976, Gentry, Leon & Forero 16866 (holotype, MO; photo, US).

78. G. RETUSA L. B. Smith, *Fieldiana Bot.* 28: 143, fig. 23 a-e. 1951.

PERU: HUANUCO: La Divisora, Tingo Maria - Pucallpa road near Loreto border, alt. 1150-1250 m, epiphyte, 29 March 1977, Gentry, Daly & Salvador Cruz 18829 (MO). New to Peru.

116a. G. TESTUDINIS L. B. Smith & R. W. Read, sp. nov. In *Florae Neotropicae* clave ob sepala alte connata, foliorum laminas ligulatas, inflorescentiam compositam laxam et pedicellos breves G. dudleyi L. B. Smith et G. sprucei (Andre) L. B. Smith interposita.

PLANT known only from fragments but presumably stemless because of its ligulate leaf-blades, flowering ca. 6 dm high. LEAVES to 72 cm long, obscurely appressed-lepidote; sheaths elliptic, ca. 10 cm long, green except for the castaneous base; blades ligulate, broadly subacute and apiculate, 4 cm wide, concolorous. SCAPE erect, slender, glabrous; scape-bracts ovate, attenuate, exceeding the internodes. INFLORESCENCE very laxly bipinnate, 14 cm long, soon glabrous; axes red (!Forero et al.);

primary bracts broadly ovate, attenuate, chartaceous, nerved, about equaling the lowest branch; racemes spreading, to 4 cm long, laxly 2-6-flowered, short-stipitate. FLORAL BRACTS broadly ovate, obtuse, 9 mm long, thin, nerved; pedicels obscure, 3 mm long; flowers divergent. SEPAIS 16 mm long, yellow (!Forero et al.), highly connate, the free lobes broadly obovate, 5 mm long. Pl. 10.

COLOMBIA: CHOCÓ: Road from Ansermanuevo to San José del Palmar, by Valle del Cauca boundary, Alto del Galapago, terrestrial in cloud forest, 2000 m, 18 February 1977, Forero, Gentry, Sugden & Daly 2905 (holotype, MO; photo, US).

117b. G. KENNEDYAE L. B. Smith & R. W. Read, sp. nov. A G. sprucei (Andre) L. B. Smith et G. lellingeri L. B. Smith & R. W. Read, cuibus affinis, sepalis per anthesin in bracteais florigeris omnino inclusis differt.

PLANT stemless, flowering 44 cm high. LEAVES 5 dm long, laxly vestite with minute appressed brown scales; sheaths 10 cm long, purple-striped (!Kennedy), dark castaneous at base; blades ligulate, attenuate, 2 cm wide, green, concolorous. SCAPE erect, slender; scape-bracts imbricate and completely covering the scape, subfoliaceous to ovate. INFLORESCENCE simple, sub-lax, 13 cm long. FLORAL BRACTS divergent, ovate, acute, 5 cm long, all exceeding and enfolding the sepals, red, subchartaceous, faintly nerved and lepidote toward apex; pedicels ca. 4 mm long. SEPAIS 35 mm long, connate into a slender 23 mm long tube, the free lobes elliptic, obtuse; corolla 6 cm long, yellow. Pl. 11.

PANAMA: PANAMA: La Eneida, region of Cerro Jefe, very common, epiphytic in cloud forest, 800 m, 2 September 1974, Helen Kennedy, Maas & Dressler 3372 (holotype, US).

Stouter and with leaf-blades 5 cm wide the following is not taxonomically different:

COLOMBIA: CHOCO: North ridge of Alto del Buey, east-southwest of El Valle, epiphyte in premontane wet forest, 500-1150 m, 8 August 1976, Gentry & Fallen 17359 (MO, US).

#### 18. CATOPSIS

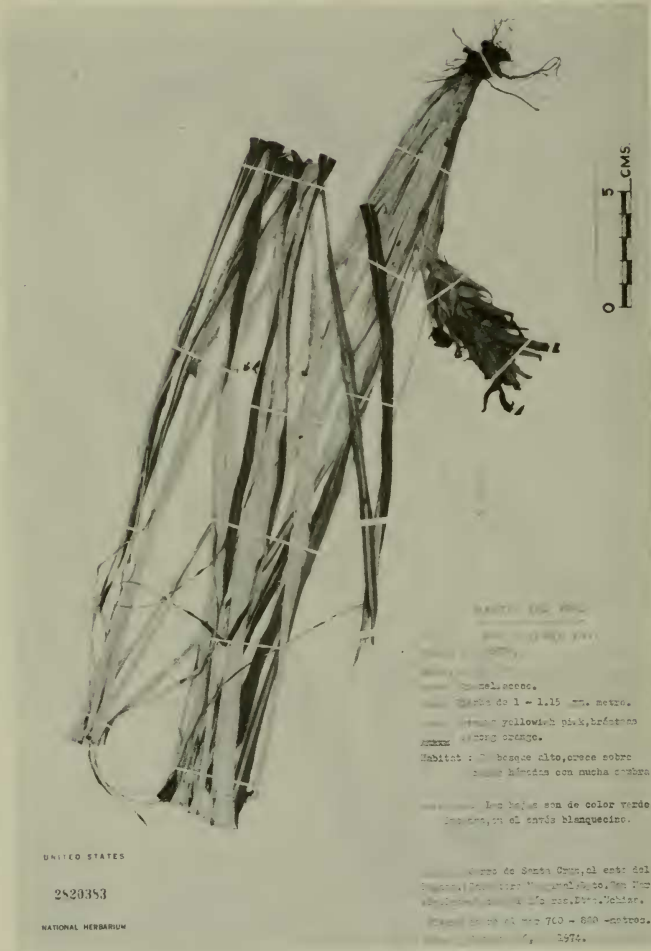
5. C. BERTERONIANA (Schult. f.) Mez, DC. Mon. Phan. 9: 621. 1896.

FRENCH GUIANA: Approuague Stream, Arataye River, Pararé Falls, 6 km from the stream, on a granite "inselberg", epiphytic on shrubs, 400-500 m, 29 August 1977, Sastre 5829 (P, US). New to French Guiana.

Plate 1



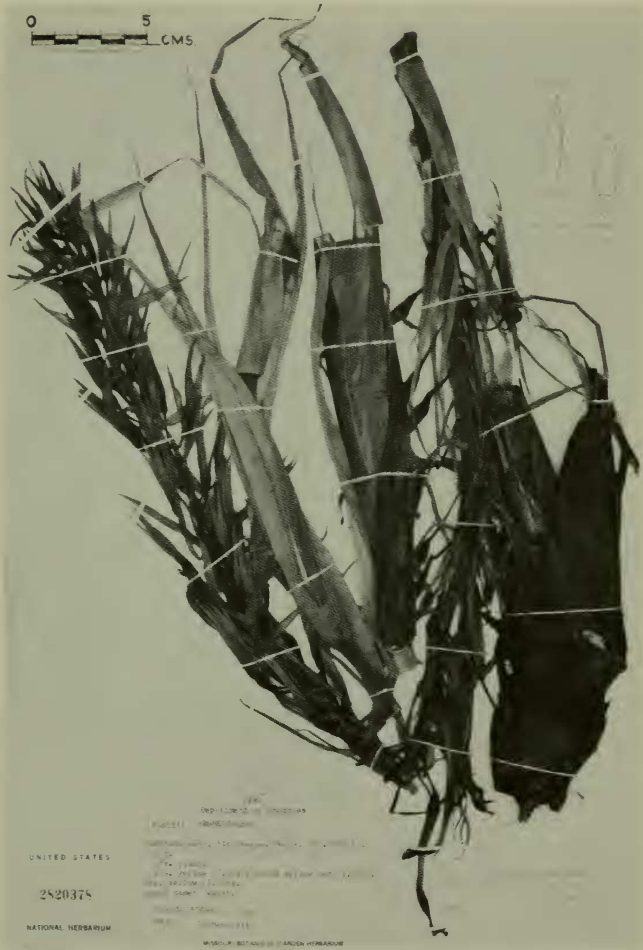
*Puya mimia* Smith & Read



Pitcairnia attenuata Smith & Read



Plate 3



*Pitcairnia ancúashii* Smith & Read



Pitcairnia bicolor Smith & Read

## Plate 5



*Pitcairnia hitchcockiana* L. B. Smith emend. Smith & Read



Pitcairnia mucida Smith & Read

Plate 7



Pitcairnia curvidens Smith & Read



*Guzmania rugosa* Smith & Read

Plate 9



*Guzmania attenuata* Smith & Read



*Guzmania testudinis* Smith & Read



Plate 11



*Guzmania kennedyae* Smith & Read