

NEW TAXA AND NOMENCLATURAL COMBINATIONS IN
SENECIO IN MÉXICO AND THE UNITED STATES

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ABSTRACT

The following new species and new variety are described: *S. billieturneri* T.M. Barkley, *S. lasiocaulon* T.M. Barkley, *S. porphyresthes* T.M. Barkley, *S. pseudopicridis* T.M. Barkley, *S. scalaris* var. *carmenensis* C.C. Freeman (all from México); and *S. spellenbergii* T.M. Barkley (from New Mexico, U.S.A.). The following new combinations are proposed: *S. flaccidus* var. *durangensis* (Greenm.) T.M. Barkley, *S. hintonii* (H. Robins. & Brettell) J. Pruski & T.M. Barkley, *S. multidentatus* var. *huachucanus* T.M. Barkley and *S. scalaris* var. *parrasianus* (Greenm.) C.C. Freeman.

KEY WORDS: *Senecio*, Asteraceae, México, United States, systematics.

Studies in *Senecio* in North America have led to the recognition of four new species from México and one from the United States, plus the need for four nomenclatural adjustments. They are presented in this paper.

Craig C. Freeman has kindly allowed me to present here a new variety and a new combination under *Senecio scalaris* in advance of the publication of his revision of the Aureoid species of *Senecio* in México. Thus, the names will be available for the forthcoming work on the Asteraceae of México by B.L. Turner & Guy Nesom. Author citation for the new variety and the new combination may be simply "C.C. Freeman" (instead of "Freeman in Barkley"), *vide* art. 46.2 of the *International Code of Botanical Nomenclature* (1988). Likewise, the new combination proposed below by J. Pruski & T.M. Barkley may be cited simply by those two authors.

The new species described here are known to me only from the collections that are cited. The habitat and distributional information is that of the specimen labels from the various collections.

Senecio flaccidus var. *durangensis* (Greenm.) T.M. Barkley, *comb. et stat. nov.* BASIONYM: *S. durangensis* Greenm., Publ. Field Columbian Mus., Bot. Ser. 2:275. 1907.

S. ctenophyllus Greenm., Proc. Amer. Acad. Arts 43:20. 1907. (not *S. ctenophyllus* Phil.).

Senecio hintonii (H. Robins. & Brettell) J. Pruski & T.M. Barkley, *comb. nov.* BASIONYM: *Roldana hintonii* H. Robins. & Brettell, Phytologia 27:420. 1974.

John F. Pruski of The New York Botanical Garden noted the need for this combination on some herbarium annotation labels several years ago. I agree with the utility of the transfer to *Senecio* and it is my pleasure to join John Pruski in presenting this combination.

Senecio multidentatus* var. *huachucanus (A. Gray) T.M. Barkley, *comb. et stat. nov.* BASIONYM: *S. huachucanus* A. Gray, Proc. Amer. Acad. Arts 19:54. 1883.

Senecio scalaris* var. *parrasianus (Greenm.) C.C. Freeman, *comb. et stat. nov.* BASIONYM: *S. parrasianus* Greenm., Ann. Missouri Bot. Gard. 4:20. 1917.

Senecio billieturneri T.M. Barkley, *sp. nov.* Figure 1. TYPE: MÉXICO. Durango: Lecheria, about 6 miles W of El Salto, along road to Mazatlan, along banks and in shallow water of stream, elev ca 8500 ft, perennial herb with ray and disk florets both yellow, (no date), *Howard Scott Gentry 10610* (HOLOTYPE: MICH; Isotype: MEXU).

Senecio multidentato Sch.-Bip. similis, sed capitulis magnis (1-) 4-10, disco 12-20 mm diametro et involucri bracteis 9-12 mm longis, necnon foliis caulinis medianis ac superioribus caulem circumdantibus semiamplexicaulibus, ulteris ecologia semiaquatica diversus.

Coarse, soft stemmed herb to 6+ dm tall. Herbage mostly glabrate at flowering time, but with scattered short hairs on the upper stem, the pedicels and base of the heads; variously dense pubescent on the involucre bracts. Stems arising singly or 2-3 loosely clustered from an elongate rhizome with abundant fleshy fibrous roots; the roots unbranched or with a few thin, lateral branches. Basal leaves and those of the lower 1/2 of the stem of about equal size and not disposed in a clearly defined basal cluster, upper leaves few and somewhat reduced; the well developed leaves linear-lanceolate to narrowly lanceolate, the blade 8-15 cm long and 1-2.5 cm wide, tapering to a winged petiole about as long as the blade or shorter, the middle and upper cauline leaves becoming sessile and with the bases encircling and weakly sheathing the stem, but not at all auriculate clasping, margins subentire or obscurely wavy, with a few, minute, callose denticles. Inflorescence a corymbiform cyme of (1-)4-10 heads; the ultimate branches of the inflorescence (pedicels) 3-7(-10) cm long, with 3-5 subulate bracts 5-7 mm long, equidistantly placed along the length

of the pedicel. Heads cylindrical to campanulate at maturity, the disk 12-20 mm across; principal involucre bracts ca 21, triangular-lanceolate, 9-11+ mm long, the central rib prominent, greenish and \pm permanently short pubescent, the margins scarious-stramineous and glabrous, the tip weakly attenuate and darkened, but without a distinctive blackish spot; calyculate bracts mostly 5-8, greenish, subulate, (3-)5-9 mm long; receptacle flat or low hemispheric, sometimes infested with insect larvae, naked or with low, erose ridges among the achenes; ray florets ca 13, pistillate and apparently fertile, the ligule bright yellow, 10-15+ mm long in dried specimens; disk florets numerous, often more than 50, bisexual and apparently fertile, corolla yellow, 7-8 mm long, the throat separating the tube from the limb ca $2/5$ the distance up from the base, the limb narrowly tulip shaped and flared upward to 5 small triangular lobes, ca 1 mm long or less. Achenes 5-6 mm long (immature), angled, glabrous; pappus a single series of grayish white, minutely barbellate, capillary bristles, 3-5+ mm long but of uneven lengths.

Paratypes: (All from MÉXICO. Durango: along or near Mexican highway 40, west of the city of Durango): Alrededores del Mil Diez, 2 kms al N de El Salto, Mpio. de El Salto, alt 2200 m, Junio 27, 1982, *R. Hernández M. 7414 y P. Tenorio* (KSC); wet meadow in *Pinus lutea* and *Pinus durangensis* forest, 10 miles west of El Salto on Route 40, elev 9000 feet, July 16, 1964, *Miles & Wilma Johnson 1859 & 1861* (both WIS); 10 miles W of El Salto along Mexican Rte 40, pastured pine woodland, 27 June 1974, *Marvin L. Roberts & David Keil 10319* (F,OS); 4.5 km al SW de El Salto, brecha El Salto-Pueblo Nuevo, Mpio. de El Salto, alt 2100 m, 3 de Julio de 1982, *P. Tenorio L. 808 y C. Romero de T.* (KSC); Las Adjuntas, Mpio. de El Salto, alt 2000 m, 5 de Julio de 1982, *P. Tenorio L. 829 y C. Romero de T.* (KSC).

Senecio billieturneri is referable to Group 11c, Triangulares, in the scheme of Barkley (1985). It is similar to *S. multidentatus* Sch.-Bip. and the closely related *S. huachucanus* A. Gray (which is transferred in this paper to varietal status within *S. multidentatus*). It differs from them in having (1-)4-10 notably large heads, the middle and upper cauline leaf bases encircling and weakly sheathing the stem, and in a semi-aquatic habitat, or at least the ability to grow as a facultative aquatic. The species is further noteworthy in its rather long achenes in comparison to the length of the corolla and the pappus of the disk florets.

Two of the paratypes noted above, *Miles & Wilma Johnson 1859 & 1861*, are distinctive in being monocephalous and in having few and reduced cauline leaves. Otherwise, they cannot be excluded from *S. billieturneri* as it is conceived here.

It is a pleasure to name this species for Dr. B.L. Turner of the University of Texas, who has made notable contributions to the knowledge of the botany of North America, and who has been an inspiration for two generations of botanists.

Senecio lasiocaulon T.M. Barkley, *sp. nov.* Figure 2. TYPE: MÉXICO.

Durango: Fourteen miles west of Cd. Durango (Durango to El Salto highway), edge of limestone out-cropping dropping into arroyo south of highway, grasslands, with very sparse growth of oak scrub, elevation 2000-2200 m, frequent, flowers bright yellow, June 1950, *James H. Maysilles 7032* (HOLOTYPE: NY; Isotypes: MEXU, MICH).

Senecio picridis Schauer simulans, sed foliis semper lanato-tomentosis, superioribus qual mediana minoribus, hic ultra 15 cm longis, necnon capitulescentia laxa diffusa, capitulorum numero (-15) diversus.

Subshrub 2-5 dm tall. Herbage white, closely felted lanate-tomentose throughout, but upper side of leaves somewhat grayish and unevenly glabrescent in age. Stems strict, branching only in upper 1/4, distinctly ligneous below but herbaceous upward, arising singly or loosely clustered from a ligneous, subrhizomatous caudex, with numerous branching, fibrous roots. Leaves about evenly distributed along the stem, the lowermost withering early, those of the upper 1/4 of the stem reduced in size; well developed mid-cauline leaves oblanceolate to linear-oblanceolate, tapering to a weakly distinct, winged petiole, 7-12(-15) cm long and (0.5-)1-1.5 cm wide overall, distinctly auriculate clasping at the base. Inflorescence a weakly compacted to loose corymbiform to subpaniculiform cyme of ca 7-15 heads, the ultimate branches of the inflorescence (pedicels) 2-3+ cm long. Heads subcylindrical to narrowly campanulate, the disk 5-7 mm across; principal involucre bracts ca 13(-21), linear lanceolate to lanceolate, (4-)5-6 mm long, densely and permanently close tomentose along the median ridge, margins glabrous and stramineous, the apex minutely erose fimbriate and faintly to prominently darkened; calyculate bracts ca 5 or fewer, sometimes absent, linear subulate, less than 2 mm long, sometimes obscurely anthocyanic; receptacle ca 4 mm across, flat or low hemispheric, naked except for low, erose ridges among the achenes; ray florets ca 8(-13?), pistillate and apparently fertile, corolla yellow, the tube ca 4 mm long, the ligule 5+ mm long in dried specimens; disk florets (15-)20-25, bisexual and apparently fertile, corolla yellow, ca 5-6 mm long overall, the lower 1/4 narrowly cylindrical, the upper 3/4 conically expanded and terminating in 5 short, triangular lobes less than 1 mm long. Achenes (immature) ca 2.5 mm long, angled, minutely hirtellous on the angles; pappus of abundant, minutely barbellate, white hyaline, capillary bristles in a single series, 5-7 mm long, but of uneven lengths.

Paratypes: (All from MÉXICO. Durango: along or near Mexican highway 40 west of the city of Durango). Among boulders at base of cliffs in Mimbres Canyon, 40 miles W of Durango, July 24, 1958, *D.S. Correll & I.M. Johnston 20139* (NY); weedy meadow and roadcut in pine forest belt, 7 km NE of El Salto, alt ca 2800 m, July 21, 1969, *B. & C. Marcks 1238* (DAV, WIS); 34 miles west of Cd. Durango, June 23, 1950, *J.H. Maysilles 7072* (MICH); about 5

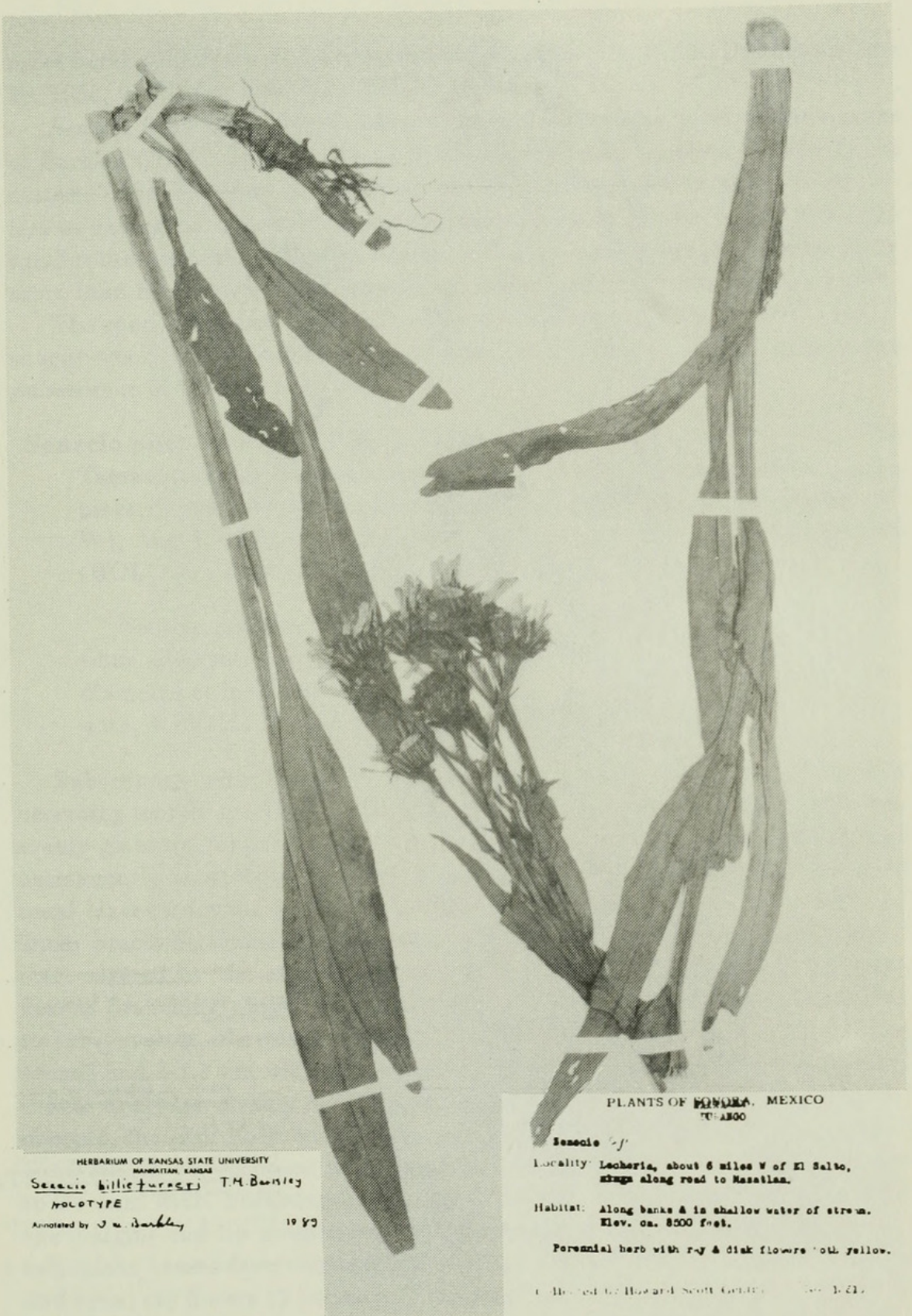


Figure 1. *Senecio billieturneri* - holotype.



Figure 2. *Senecio lasiocaulon* - holotype.

miles north of railroad at Coyotes (45 airline miles west of Cd. Durango), June 28, 1950, *J.H. Maysilles 7123* (MICH,MEXU).

Senecio lasiocaulon is referable to Group 10c, Fruticosi, *s. str.* in the scheme of Barkley (1985). It is similar to *S. picridis* Schauer, a species chiefly of the eastern Trans-Mexican Volcanic Belt and the Sierra Madre Oriental, but it differs in having permanently lanate-tomentose herbage, upper leaves distinctly smaller than the middle cauline leaves, well developed leaves that are regularly more than 8 cm long, and a loose, open inflorescence of fewer than 15 heads.

The specific epithet "lasiocaulon," is derived from the Greek roots "lasi-," shaggy-wooly, and "caulos," stem or stalk, as an allusion to the conspicuous pubescence of the herbage.

Senecio porphyresthes T.M. Barkley, *sp. nov.* Figure 3. TYPE: MÉXICO.

Tamaulipas: On mountain top 7 km SW of Miquihuana in forest of large pines, forest floor of low vegetation, elev 3430 m, (23° 40' N, 99° 45' W), Aug 5, 1941, *L.R. Stanford, L. Rutherford & R.D. Northcraft 679* (HOLOTYPE: NY; Isotypes: GH,MO).

Senecio gerberaefolio Sch.-Bip. similis, sed ab eo notulis sequentibus diversus: capitulum solitarium et minus, disco 12-20 mm diametro et involucris bracteis 12-14 mm longis; folia subduplo minor, 4-10(-12) X 1-1.5 cm; caules tenues nec robusti.

Subscapose herb 10-15 cm tall. Herbage closely lanate-tomentose, but becoming loosely tomentose with long, arachnoid hairs toward the base or unevenly glabrate; upper side of the leaves glabrescent, lower side closely and permanently short felted lanate. Stem simple, arising singly in a cluster of basal leaves from the end of a rhizome; uppermost 1/4 of the stem with 2-5 linear bracts 5-15 mm long. Rhizome creeping, simple, nearly 1 cm in diameter, covered by the exfoliating bases of old leaves and producing numerous fibrous branching roots. Leaves all basal or nearly so, narrowly oblanceolate to subspatulate, the blade tapering to the winged petiole, 4-10(-12) cm long overall and 1-1.5 cm wide, somewhat coriaceous, the margin denticulate with callose denticles, weakly revolute to flat. Head single, broadly campanulate to obconic, the disk 12-20 mm across; principal involucral bracts ca 16-20, all of equal length but disposed in an inner and an outer series, 12-14 mm long and to 2+ mm wide, linear-lanceolate, felted lanate-tomentose on the outer side, the margins and tip prominently and permanently magenta or pinkish-purple; calyculate bracts few, reduced and without the distinctively colored margins and apex; ray florets 12 (or more?) pistillate and apparently fertile, the corolla tube ca 6 mm long, the throat with a prominent thickened collar; the ligule sharply defined at the throat, bright yellow, 10+ mm long and to 5 mm wide; disk florets bisexual and apparently fertile, the corolla ca 8 mm long, tapering upward, the throat indistinct, the limb gradually flared and terminating in 5

small, triangular lobes 0.7-0.9 mm long. Achenes 2 mm long (immature), with appressed, flat, hyaline hairs (which presumably persist); pappus of both ray and disk florets of abundant, white, minutely barbellate capillary hairs that are nearly as long as the disk corollas.

Senecio porphyresthes is referable to Group 11e, Lugentes, in the scheme of Barkley (1985). It is similar to *S. gerberaefolius* Sch.-Bip., a species of the higher peaks in the eastern Trans-Mexican Volcanic Belt, but differs in having single and somewhat smaller heads, leaves only about half the size, and subscapose stems that are notably thinner. This new species is known to me by only three specimens from a single collection, but the aspect and combination of characters suggest that it is distinct. The purple-magenta color of the margins and tips of the involucre bracts is most prominent in the isotype in GH; the holotype in NY has the color somewhat faded.

Senecio gerberaefolius has a chromosome number of $n = 30$ (vouchered on specimens of John H. Beaman 1948, México. Ixtaccihuatl, GH, MEXU, UC, WIS), a number associated with cacalioid affinities and a distinctive suite of microcharacters (cf Barkley 1985). To date, cacalioid characters have not been specifically identified for *S. gerberaefolius*, but it will be interesting to learn if *S. porphyresthes* has $n = 30$ and/or cacalioid microcharacters. The disposition of the principal involucre bracts in an identifiable inner and outer series, as they occur in *S. porphyresthes* is often present with cacalioids.

The specific epithet, "porphyresthes," is derived from the Greek "porphyr," purple, and "esthes," garment, as an allusion to the conspicuous coloring of the involucre.

***Senecio pseudopicridis* T.M. Barkley, *sp. nov.* Figure 4. TYPE: MÉXICO.**

San Luis Potosí: Cerro Grande, 8 km al NW de Guadalcázar, ladera granítica con vegetación de encinar, alt 2000 m, 25-IX-1955, Rzedowski 208 (HOLOTYPE: GH; Isotype: MICH).

Senecio picridis Schauer simulans, sed semper herbaceus, et foliis primariis oblanceolatis, praeter denticulas callosas minutas integris, lamina in petiolum distinctum decurrenti diversus.

Subligneous herb 2-4+ dm tall. Herbage unevenly arachnoid-tomentose, especially upward and among the heads in the inflorescence, irregularly glabrate in age, the leaves persistently grayish lanate tomentose on the underside. Stem thin, stiff, branching upward from near the base, arising singly or 2-4 from a weakly ligneous taproot. Leaves prominently developed along the lower 2/3 of the stem; upper leaves few and somewhat reduced. Principal mid-cauline leaves oblanceolate to narrowly oblanceolate, 6-8(-10) cm long overall and 1-1.5+ cm wide, tapering to a narrow, weakly winged petiole, margins subentire, with minute callose denticles, or sometimes with 1-3 prominent, rounded teeth



HERBARIUM OF KANSAS STATE UNIVERSITY
MANHATTAN, KANSAS

Senecio porphyresthes T.H. Barkley
HOLOTYPE

Annotated by J. M. Barkley 1980

STATE OF KANSAS
PLANTS OF MEXICO

Senecio sp. (fide I. L. Johnston)
On mountain top 7 kilo. S.W. of Aquilón in
forest of large pines; forest floor of low
vegetation.



Coll. by L. R. Skarsted 3430
E. L. Sotherton 23 42 93 65
E. D. Northcraft
Aug. 5, 1911
No. 679

Figure 3. *Senecio porphyresthes* - holotype.

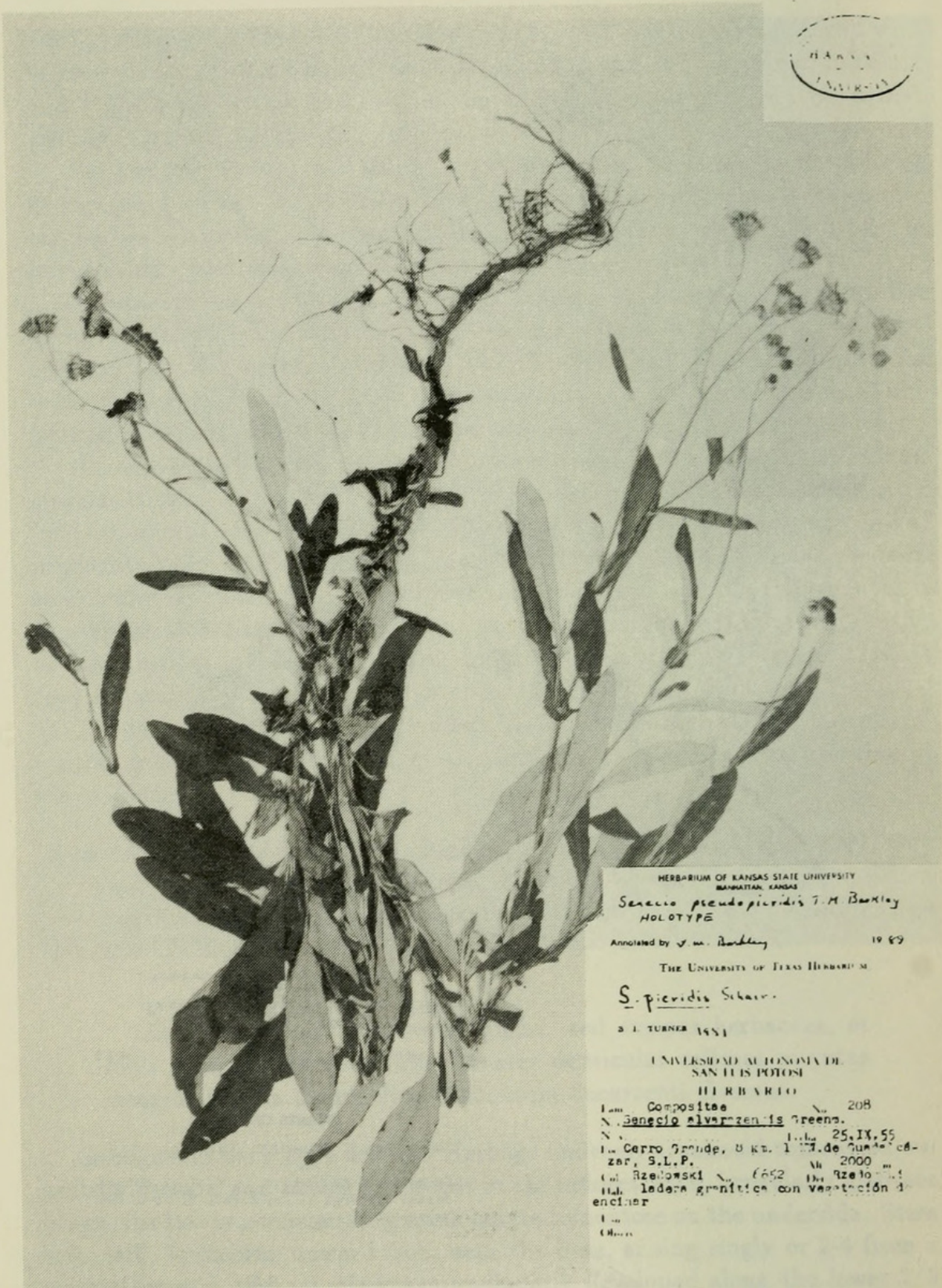


Figure 4. *Senecio pseudopicridis* - holotype.

on the lower (proximal) 1/2 of the blade, the base expanded and auriculate-clasping, but sometimes inconspicuously so. Inflorescence a loose, corymbiform cyme of (5-)6-12+ heads terminating each main branch, the ultimate branches of the inflorescence (pedicels) 2-5 cm long, with 1-3 minute, linear bractlets equidistantly placed along the length of the pedicel. Heads cylindrical or slightly campanulate at maturity, the disk 5-8 mm across; principal involucre bracts ca (13-)21, linear-lanceolate to weakly subulate, 6-7 mm long at maturity, glabrescent, but with a few, scattered, minute, thick hairs, and sometimes with some persisting arachnoid-villous hairs, apparently anthocyanic toward the tip when young, the apex with a minute, darkened tip and a small tuft of arachnoid hairs; calyculate bracts 4-8, linear, spreading, ca 2 mm long, the tip darkened and with a tuft of hairs; receptacle flat or low hemispheric, naked or nearly so; ray florets ca 8 or 13, pistillate and apparently fertile, the ligule bright yellow, 6-8+ mm long in dried specimens; disk florets numerous, \pm 25-35, bisexual and apparently fertile, the corolla 7-8 mm long, the lower 2/5 tubular, the upper 3/5 conical and terminating in 5 small triangular lobes, ca 1 mm long or less. Achenes ca 3 mm long (immature), angled, evenly short pubescent with minute, grayish hairs; pappus a single series of white hyaline, minutely barbellate, capillary bristles, 6-8 mm long, but of uneven lengths.

Paratype: MÉXICO. Zacatecas: 16 (air) miles E of Concepción de Oro, on upper north side of Sierra de Astillero, ca 3 miles NE of Guadalupe Garceron, 1/2 mile N of summit, in open pinyon woodland, frequent perennial, flowers true yellow, elev 8200 ft, Sept 22, 1973 (near 24° 38' N, 101° 08' W), *James Henrickson 13345* (LL).

Senecio pseudopicridis is referable to Group 11c, Triangulares in the scheme of Barkley (1985). It is similar to *S. picridis* Schauer, a species chiefly of the eastern Trans-Mexican Volcanic Belt and the Sierra Madre Oriental. However, *S. pseudopicridis* is fundamentally herbaceous, its principal leaves are oblanceolate, the blade tapering to a well marked petiole, subentire or nearly so, except for the minute, callose denticles. Clearly, *S. pseudopicridis* approaches some specimens of *S. picridis*, but the combination of characters and the gross aspect define it as a distinct species. Further information may alter the concepts of these two entities.

The holotype and the paratype cited above both have leaf bases that are auriculate clasping, but the isotype (in MICH) has leaf bases that are scarcely expanded. However, the isotype is otherwise identical with the holotype and is evidently of the same collection, from the same population. It raises the interesting question of the stability of the character of auriculate clasping leaves. Herbarium studies indicate that other species that normally possess that trait, occasionally do have individuals with narrow based leaves. Experience with *Senecio* suggests that virtually no characters of taxonomic utility occur without occasional exceptions.

Senecio spellenbergii T.M. Barkley, *sp. nov.* Figure 5. TYPE: U.S.A. New Mexico: Harding Co., Hwy NM 120, 16 miles NE of Roy, ca 11 miles SE of Yates, S side of Carrizo Creek, on white caliche in prairie, milepost 91, only 2 seen in late flower, the rest past (and this was late spring); phyllaries of older heads becoming glabrate, dark maroon; heads rayless, dull yellowish; 1-6 rosettes in a patch; leaves convex above, concave or grooved beneath, May 29, 1983, *Richard Spellenberg 7073* (HOLOTYPE: NY; Isotypes: KSC, NMC, TEX).

Senecio werneriaefolium A. Gray simulans, sed tomento appresse coacto, foliis angustis arcte revolutis, capitulis eradiatis fere semper solitariis, necnon achaeniis hirtellis diversus.

Dwarf, scapose herb, 3-5+ cm tall. Herbage closely whitish tomentose, the leaves with vestiture tightly felted into a velamen-like covering that irregularly exfoliates in age, upper herbage subglabrescent. Stems arising singly or sometimes 2 from a tufted rosette of basal leaves; the rosettes single or 2-6 closely clustered, from a simple or branching, suberect or weakly creeping, coarse rhizome, 3-5 mm in diameter; principal roots fleshy fibrous, branch roots thin and thread like. Principal leaves all basal, coriaceous, linear, 10-15 mm long, strongly revolute and only 1-2 mm wide; cauline leaves reduced to 2-4(-5) linear-subulate bracteoles, 2-3 mm long. Head single (rarely 2) at the end of the stem, eradiate, the disk ca 10 mm across; principal involucre bracts ca 13, linear-lanceolate, acute, 6-8 mm long, purplish to deep maroon-purple along the wide midrib and toward the tip, margins wide and scarious-stramineous; calyculate bracts 1-4, linear-subulate, less than 4 mm long; receptacle low hemispheric, naked; ray florets absent; disk florets ca 20(+) in number, bisexual and apparently fertile; corolla yellow, ca 6 mm long, the throat ca 2/5 the distance upward from the base, the limb narrowly conical, terminating in 5 triangular lobes 0.5-0.7 mm long. Achenes cylindrical to weakly fusiform, ca 3 mm long, inconspicuously angled, hirtellous; pappus of abundant, white hyaline, minutely barbellate, capillary bristles 5+ mm long but of uneven lengths.

Paratypes: (From same locality as type collection, but with following data): On white, nearly barren, very calcareous knolls in shortgrass prairie, elev 5500 ft, July 2, 1981, *R. Spellenberg, R. Soreng & T. Fisher 6053* (KSC, NMC).

Senecio spellenbergii is assignable to the "Tomentosi" group of the Aureoid assemblage, and it would key to *Senecio werneriaefolius* A. Gray in my treatment of *Senecio* in North American Flora and subsequent relevant papers (Barkley 1978; 1980; 1988). It differs from *S. werneriaefolius* in possessing a closely felted tomentum, basal leaves that are short, very narrow and tightly revolute, heads that are consistently eradiate and nearly always single, and achenes that are hirtellous. Additionally, *S. spellenbergii* has a distinctive gross aspect, habitat and distribution. It was erroneously assigned to *S. canus* by me in the past, and the type and paratype collections are referred to *S. canus*

in a floristic paper by Spellenberg *et al.* (1986). (N.B. in that publication, the type collection is erroneously cited as no. 7203 instead of no. 7073).

Senecio spellenbergii occurs on caliche soil, in a grassland habitat in the High Plains, some 150 km (90 mi) south of the nearest location of *S. werneriaefolius* which is in the subalpine areas of the San Isabel National Forest west of Trinidad, Colorado, and there the plants are distinctively "typical" for the species. *Senecio spellenbergii* is superficially similar to "Phase no. 4" of *S. werneriaefolius* as described elsewhere by me (Barkley 1980). "Phase no. 4" includes several populations on clay soil in southern Utah, where the plants tend to have close, white tomentum, narrow leaves with revolute margins and a depauperate, sometimes monocephalous aspect. Herbarium studies suggest that these populations are but edaphic extremes in a continuum of variation, and clearly within the geographic and morphological ranges of a highly variable species. A notable example of this extreme form is the following collection: Utah: Garfield Co. Dixie National Forest, Paunsaugunt Plateau, low ridge system north of the East Fork of the Sevier River, 0.4 mi north of Utah Hwy 12, near Coyote Hollow, on open exposed clay slopes with *Pinus aristata*, Sec 2, T36, R4W, elev 7650 ft, 25 May 1968, J.L. & C.G. Reveal 1017 (KSC). The specimens are small, about 5 cm tall, radiate and with glabrous achenes.

Another relevant collection is: New Mexico: McKinley Co., Zuni Indian Reservation, SE of Zuni in Galestina Canyon, SW side, about 1/2 way up the canyon, R16W, T9N, elev 6500 ft, on N slopes of small box feeder canyon, 3 June 1988, R. Spellenberg, D. Ward, J. Enote & S. Davis 9501 (KSC; the collection label notes that duplicates are also at ASU, NMC, NY, RSA, UC, Z.I.R.). The plants of this collection are similar to *S. spellenbergii* in aspect, and they have both eradiate heads and hirtellous achenes. However, the mature plants are 7-10 cm tall, which is rather larger than those of *S. spellenbergii* and the heads are frequently two per inflorescence. Furthermore, the field data suggest the collection site is not a distinctive caliche type soil, but rather, the plants are growing "on decayed red Wingate Sandstone overlayed by a gray Zuni Sandstone, with *Pinus edulis*, *Juniperus monosperma*, *Cercocarpus*, a few *Pseudotsuga* in upper cooler spots." It is, therefore, easier to regard this collection as a southern extreme of *S. werneriaefolius*, an admittedly complex and polymorphic entity, and to keep *S. spellenbergii* as a restricted and easily circumscribed entity.

It is a pleasure to name this species for Dr. Richard Spellenberg of New Mexico State University, who collected the type materials, and who has made important contributions to the knowledge of the flora of southwestern U.S and northern México.

Senecio scalaris* var. *carmenensis C.C. Freeman, *var. nov.* Figure 6. TYPE MÉXICO. Coahuila: Mpio. Villa Acuña, Sierra de Carmen, Canyon de Sentenela (= Cañon del Centinel) on Hacienda Piedra Blanca, moist

stream side, July 6, 1936, *F.L. Wynd & C.H. Mueller 546* (HOLOTYPE: NY; Isotypes: GH, MICH, MO, TEX).

Senecio scalaris Greene var. *scalaris* similis, sed foliis tomentosis vel floccosis.

Stout herbaceous perennial 2-5 dm tall. Lower surface of basal leaves and occasionally lower stem sparingly tomentose to floccose-tomentose, lower stem and basal leaves often faintly to deeply anthocyanic. Stems 1-3 from an erect or creeping and branched caudex. Basal leaves mostly pinnatifid, sometimes sublyrate, overall leaf dimensions (2.5-)3.8-11.1 cm long, 0.5-1.8(-2.3) cm wide. Inflorescence a loose corymbiform cyme of (4-)7-20(-35) heads; principal involucre bracts glabrous to sparingly tomentose at the base; achenes glabrous to hirtellous on the angles.

Paratypes: (All from MÉXICO. Coahuila): Higher western ridge on Sierra el Jardin, E of Rancho El Caballo, *Chiang et al. 9335* (LL); Sierra Jardin, *Flyr 1188* (MO); Cañon Humido on N side of Pico Centinel, Sierra el Jardin, 8 km E of Rancho El Jardin, *Johnston et al. 11793* (LL); Sierra Maderas el Carmen at Campo 3, *Wendt & Adamcewicz 502* (LL); Mpio. Ocampo, Sierra Madera el Carmen on upper slope and ridge of peak in upper portion of Oso Canyon between Campo 0 and Campo 5, *Riskind & Patterson 1785* (LL); Madera el Carmen at end of rd above Campo 5 in saddle near viewpoint of W face of Sierra, *Fryxell 2695* (LL, MO).

Senecio scalaris var. *carmenensis* is referable to Group 11d, Aureoidei, in the scheme of Barkley (1985). It is restricted to the Sierra el Carmen, Coahuila, (sometimes written as "Sierra del Carmen") where it occurs at 1500-2500 m in pine-oak woodlands, on sandy or gravelly loam, often derived from rhyolite. Three other aureoids are known in the same region: *S. millelobatus*, *S. coahuilensis* and *S. obovatus*. *Senecio scalaris* var. *carmenensis* is similar to *S. millelobatus* but may be distinguished by its pinnatifid basal leaves that are pubescent beneath and its winged midrib. By comparison, *S. millelobatus* has pinnate or twice-pinnate basal leaves that are mostly glabrous and that have an essentially unwinged leaf midrib. The systematic position of this new variety is treated in detail by Freeman (1985).

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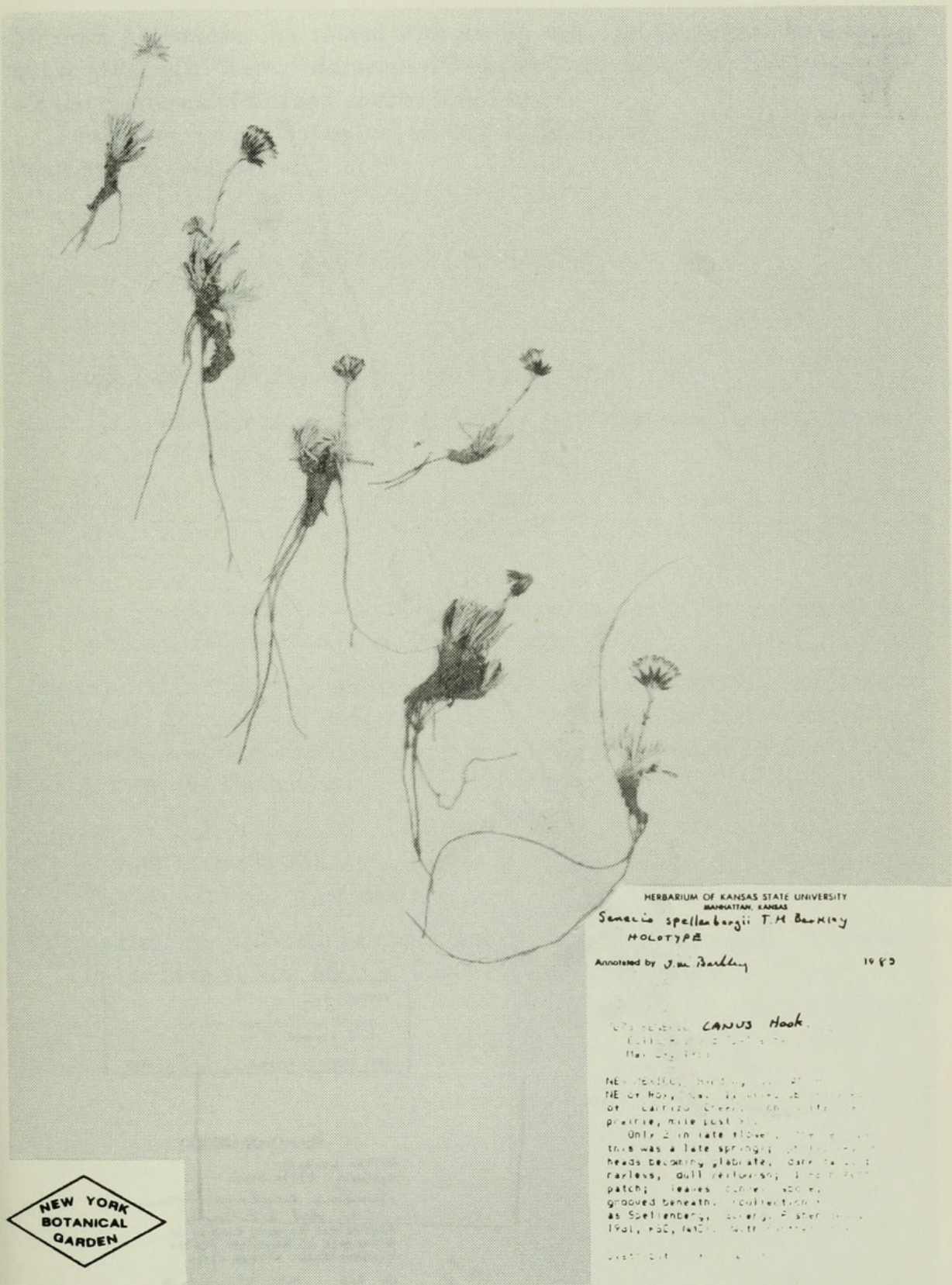
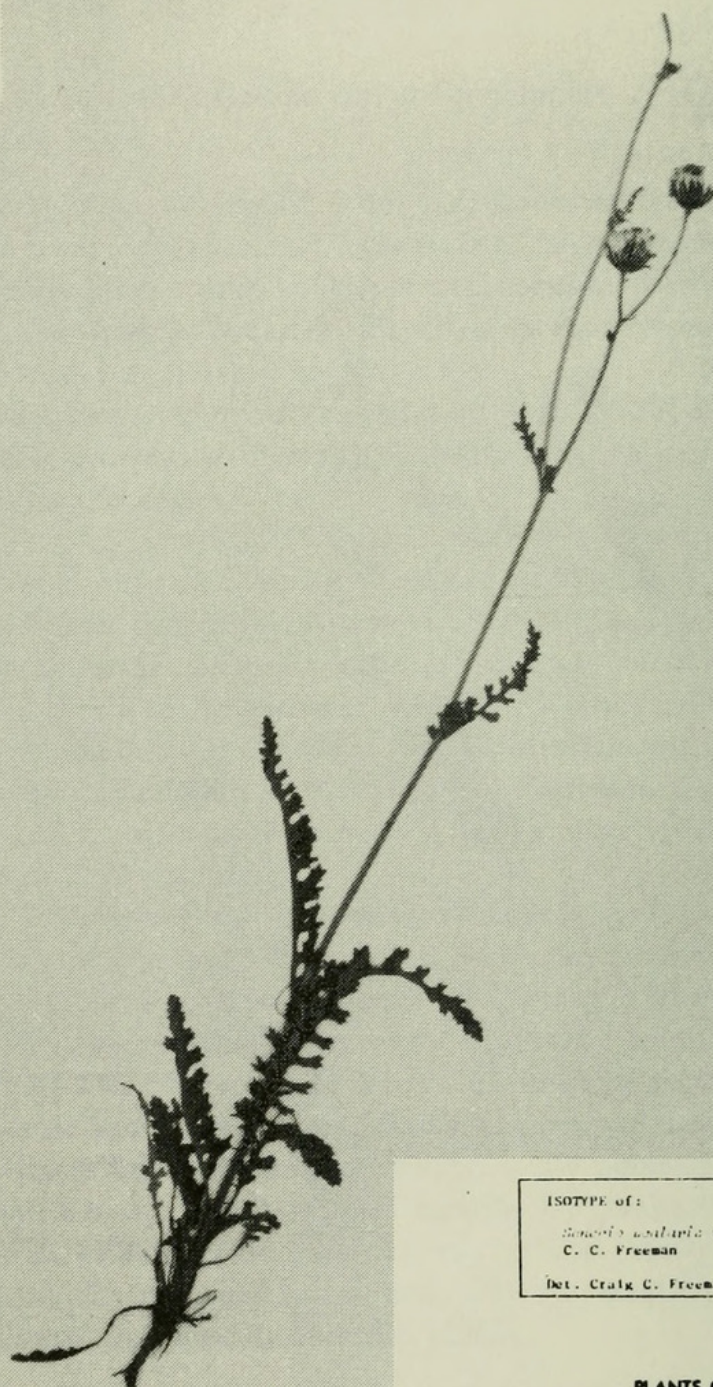
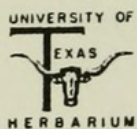


Figure 5. *Senecio spellenbergii* - holotype.



ISOTYPE of:

Senecio scalaris var. *carmenensis*
C. C. Freeman

Det. Craig C. Freeman

1985

PLANTS OF MEXICO

Estado de Coahuila

Municipio de Villa Ahumada

Senecio scalaris Greene
det. S. F. Blake

Sierra del German; Canyon de
Jentemela on Hacienda Piedra
Blanca; Moist stream side.

No. 646 Date July 6, 1936

Collected by F. Lyle Wynn and C. H. Muller

2900
1024

Figure 6. *Senecio scalaris* var. *carmenensis* - isotype.

Mexican Asteraceae, has shared with me his field and herbarium knowledge of the group. Dr. Rupert Barneby of The New York Botanical Garden kindly set the diagnoses of the new species into Latin.

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