Uncinia (Cyperaceae) of Ecuador

Gerald A. Wheeler  
*University of Minnesota*

Paul Goetghebeur  
*University of Gent*

Follow this and additional works at: [https://scholarship.claremont.edu/aliso](https://scholarship.claremont.edu/aliso)

Recommended Citation
Wheeler, Gerald A. and Goetghebeur, Paul (1996) "Uncinia (Cyperaceae) of Ecuador," *Aliso: A Journal of Systematic and Floristic Botany*. Vol. 15: Iss. 1, Article 3.  
Available at: [https://scholarship.claremont.edu/aliso/vol15/iss1/3](https://scholarship.claremont.edu/aliso/vol15/iss1/3)
UNCINIA (CYPERACEAE) OF ECUADOR

GERALD A. WHEELER
Department of Plant Biology
University of Minnesota
St. Paul, Minnesota 55108-1095

AND

PAUL GOETGHEBEUR
Department of Morphology, Systematics and Ecology
Laboratory of Botany, University of Gent
Ledeganckstraat 35, Gent, Belgium

ABSTRACT

Nine species of Uncinia (Cyperaceae: Caricoideae) are recorded from Ecuador, one of which, U. ecuadorensis, is newly described and illustrated here. Descriptions, illustrations, distribution maps, and both artificial and vegetative keys are provided for the nine species, and for some uncinias additional taxonomic, phytogeographic and ecological comments are made. A lectotype is designated for the name U. lenuis.

Key words: Caricoideae, Cyperaceae, Ecuador, Uncinia ecuadorensis, U. hamata, U. lacustris, U. macrolepis, U. paludosa, U. phleoides, U. subsacculata, U. tenuifolia, U. tenuis.

INTRODUCTION

All of the 60 to 70 species of Uncinia Pers. (Cyperaceae: Caricoideae) occur south of the Tropic of Cancer, with about 25 growing in the mountains and cooler regions of South America (Wheeler and Goetghebeur 1995). Of the ten Uncinia taxa (nine species and one variety) previously reported from the northern half of the continent (Kunth 1837; Kükenthal 1909; Steyermark 1951; Wheeler and Goetghebeur 1995; Wheeler 1995), we recognize eight species as occurring in Ecuador; in addition, U. ecuadorensis G. A. Wheeler & Goetghebeur is newly described and illustrated here.

This paper represents the first comprehensive treatment of the Ecuadorian species of Uncinia. Based on early collections made by William Jameson, Aloysius L. Sodiro, and Richard Spruce, Clarke (1883) and Kükenthal (1909) reported two species and one variety, U. hamata (Sw.) Urban, U. phleoides (Cav.) Pers. and its var. nux-nigra C. B. Clarke, whose type was collected in Ecuador. In 1988, Læggaard (Cyperaceae of Ecuador, unpublished) recorded an additional species, U. tenuis Poeppig ex Kunth, and also made reference to two unknown species. Based on many new collections, four new species have recently been described from northern South America, U. lacustris G. A. Wheeler, U. paludosa G. A. Wheeler & Goetghebeur, U. subsacculata G. A. Wheeler & Goetghebeur, and U. tenuifolia G. A. Wheeler & Goetghebeur, all of which whose types come from Ecuador (Wheeler and Goetghebeur 1995).

All Ecuadorian Uncinia are montane or páramo plants (Table 1), with essentially none growing below 1200 m. The páramo uncinias, all of which are diminutive in stature, grow in moist to wet places on high, wind-swept plains, which are dominated by low shrubs and herbs, particularly grasses and sedges. Indeed, U. ecuadorensis, U. lacustris, U. paludosa, and U. macrolepis Decne. seldom occur below 3500 m and the last-named species is known to reach as high as 4600 m. The remaining five species grow at lower elevations, mostly in montane rain forest, although U. tenuifolia seems to be confined to steep, calcareous cliffs. By far the most frequently collected species are U. hamata and U. phleoides, both of which grow in forests and in partially disturbed sites. Of the nine species recorded from Ecuador, four are known only from that country: viz., U. ecuadorensis, U. lacustris, U. subsacculata, and U. tenuifolia, with the last two known thus far only from their types. Parenthetically, no members of the subfamily Caricoideae, such as Uncinia, occur in the nearby Galápagos Islands (Koyama 1971).

The members of Uncinia are characterized by perigynia (transformed prophylls) that contain a greatly exserted rachilla, the latter being invariably terete and tipped by a retrorse, inrolled scale (a transformed glume of a reduced male flower) that forms an “un-
Table 1. Schematic of the relative occurrence, at increasing altitudes, for nine *Uncinia* species in Ecuadorian montane rain forest and páramo.

| Species*          | Montane Rain Forest | Páramo          |
|-------------------|---------------------|-----------------|
|                   | 1200-1999 | 2000-2499 | 2500-3099 | 3100-3699 | 3700-4000 | 3500-4199 | 4200-4600 |
|                   | cliff : forest     |                |           |           |           |          |
| *Uncinia macrolepis* |          |          |           |           |           |        |
| *Uncinia ecuadorensis* |          |          |           |           |           |        |
| *Uncinia lacustris* |          |          |           |           |           |        |
| *Uncinia paludosa* |          |          |           |           |           |        |
| *Uncinia subsacculata* |          |          |           |           |           |        |
| *Uncinia tenuis* |          |          |           |           |           |        |
| *Uncinia phleoides* |          |          |           |           |           |        |
| *Uncinia tenuifolia* |          |          |           |           |           |        |
| *Uncinia hamata* |          |          |           |           |           |        |

* For each species, symbols of increasing size represent higher values for the ratio of the number of collections made within a specified altitudinal range, given in meters (m), to the total number of collections seen; circled symbols represent species known from fewer than five collections.

Like most genera of the Cyperaceae, mature fruit is sine qua non for the positive identification of *Uncinia* species. The primary taxonomic characters useful in the systematics of the genus are: deciduous versus persistent scales; perigynia vestiture or the lack of it; and staminal filament width compared to anther width. Other useful features are spike shape and density and variations in perigynia, and include size, shape, color, position and density of marginal hairs, and beak characteristics. Still other useful features are achenes, rachillae, rhizomes, anther length, and scale and leaf characters. On the other hand, some features are unreliable as taxonomic characters. For example, a sterile bract may be present or absent from different spikes of the same plant. Also, some features of the perigynium, such as differences in texture, veination, winging of the margins, and orifice shape, are of limited importance in the taxonomy of the genus (Hamlin 1959). Moreover, in the Ecuadorian plants coloration of the basal sheaths vary little among species.

Two keys to the Ecuadorian *Uncinia* are provided below. The Artificial Key is based primarily on flowering and fruiting material and thus provides the most...
reliable means of identifying the material at hand. The second key is based primarily on vegetative characteristics, although habitat information has also been utilized. The Vegetative Key was constructed to provide a means of identifying *Uncinia* material when no flowering or fruiting parts are available. For instance, the latter key has been helpful in identifying sterile plants mounted on herbarium sheets. Issued as a caveat, however, vegetative material of *Uncinia* is often difficult to distinguish from other cyperaceous genera, particularly *Carex* L. (Wheeler 1994). Nevertheless, it is appropriate to note that while many *Carex* species have long internodes with conspicuous cauliine leaves, most *Uncinia* species have short internodes so that the leaves are basal (Hamlin 1958; Kukkonen 1967). Also, the basal sheaths of many *Carex* species are strongly reddish- or purplish-tinged, whereas all Ecuadorian *Uncinia* have pale brown to brown or, more often, dark reddish brown basal sheaths.

Although the keys are largely self-explanatory, explanations for some characters are as follows. In the Artificial Key: 1) Rachilla length was measured unidirectionally from the point of attachment (at the achene base within the perigynium) to the “end” of the terminal hook (i.e., the length of the descending portion of the hook was excluded, though that dimension is given separately); and 2) spike width was measured from the tip of the perigynium (or pistillate scale) on one side of the rachis to that on the opposite side; hence, rachilla length (and its concomitant width) was excluded. In both keys, the measurements of the widest leaves include dead leaves and other leaf remnants at the base of the plant.

All names based on Ecuadorian specimens are typified here with the exception of *Uncinia phleoides* (whose syntypes come from Chile), which must await a revision of the taxonomically difficult *U. phleoides* species complex. Species are arranged alphabetically and sectional relationships are indicated, with six species placed in section *Platyandrae* C. B. Clarke (sensu Clarke 1883 and Kükenthal 1909) and the remaining three in section *Uncinia*. As presently circumscribed, the members of section *Platyandrae* have staminal filaments that are as wide as or wider than the anthers and the margins of the appressed-hispid perigynia are ciliate from the apex to near the base; in contrast, the members of section *Uncinia* have staminal filaments narrower than the anthers and perigynia that are glabrous or sparsely hispid distally. Moreover, the pistillate scales in members of section *Platyandrae* are persistent, whereas in two of the three Ecuadorian members of section *Uncinia* the scales are deciduous. However, the two sections of *Uncinia*, as currently delimited, contain considerable morphological variation within each section and, as such, one of us (GAW) is currently pursuing this problem.

The species descriptions were written from Ecuadorian specimens. Recent collections have come, at least in large part, from the joint botanical expeditions of the Botanical Institute, University of Aarhus, Denmark, and the Universidad Católica del Ecuador,quito. Data gathered from the literature, personal communication, and the labels of specimens received on loan from various herbaria (see Acknowledgments) were used to prepare distribution maps and develop habitat descriptions.

**TAXONOMY**

**KEYS TO THE UNCINIA SPECIES OF ECUADOR**

**ARTIFICIAL KEY**

1. Perigynia glabrous; pistillate scales deciduous; filaments narrow (ca. 0.1 mm wide); plants rhizomatous.

2. Perigynia 3.6–4.5 mm long; rachilla (exserted part) 2.4–3.6 mm long; persistent appendage of pistillate scales 0.8 mm long or longer

3. Perigynia 4.8–5.6 mm long; rachilla (exserted part) 4.7–5.6 mm long; persistent appendage of pistillate scales less than 0.5 mm long

4. Perigynia slightly to densely pubescent, the margins ciliate; pistillate scales persistent; filaments wide (ca. 0.2–0.3 mm) or narrow; plants cespitose or rhizomatous.

5. Leaves more than 1 mm wide; plants cespitose or rhizomatous; perigynia not as above.

6. Achenes less than 3 mm long; rachilla straight

7. Perigynium beak more than 1 mm long; rachilla (exserted part) more than 5 mm long, wide spreading; spikes oblong-cylindric

8. Perigynia 2.8–3.6 mm long; pistillate scales 2.6–4 mm long; leaves 3 mm wide or less

9. U. tenuis

10. U. subsacculata

11. U. tenuifolia

12. U. macrolepis

13. U. phleoides

14. U. eucuadorensis

15. U. lacustris

16. U. hamata

17. U. tenuis

18. U. phleoides

19. U. macrolepis

20. U. lacustris
8. Perigynia 4.5–5.4 mm long; pistillate scales 4–6.2 mm long; leaves 3–5.5 mm wide .......................... 5. U. paludosa

VEGETATIVE KEY

1. Widest leaves (6–)6.5–10 mm and few leaves less than 5 mm wide; plants cespitose ................. 6. U. phlloides

2. Leaves stiff, coriaceous, basal; páramo plants. 
   3. Rhizomes slender, less than 1 mm thick; leaves generally spreading and often strongly curved ................ 4. U. macrolepis
   4. Leaves 1.5–3 mm wide (average width 2.2 mm) ........................................ 3. U. lacustris
   5. Widest leaves more than 3 mm; average leaf width at least 2.8 mm. 
      6. Widest leaves 5.5 mm; leaves 5–29 cm long and very few (if any) less than 3 mm wide, average leaf width 4 mm ............. 5. U. paludosa
      7. Widest leaves 3.5 mm; leaves 2–13 cm long and usually some less than 3 mm wide, average leaf width less than 3.5 mm ......... 1. U. ecuadorensis

2. Leaves flaccid, membranaceous, cauline or basal; montane plants.
   6. Leaves 1 mm wide or less; plants very densely cespitose (thus far known only from calcareous rock wall) ........................................ 8. U. tenufolia
   7. Leaves mostly more than 1 mm wide; plants rhizomatous or loosely to densely cespitose (in forested areas but U. hamata also grows in clearings and along trails).

7. Leaves less than 4 mm wide; plants with slender, long-creeping rhizomes.
   8. Leaves serrulate from apex to base though sometimes sparingly so near the middle .................. 9. U. tenuis
   9. Leaves smooth below the middle except near the base, where sometimes sparingly serrulate .............. 7. U. subsacculata

SPECIES OF UNCINIA FROM ECUADOR

1. Uncinia ecuadorensis G. A. Wheeler & Goetghebeur, sp. nov. 

TYPE.—ECUADOR. Prov. Imbabura: Volcán Cotocachi, 00° 22' N. lat., 78° 20' W. long., alt. 3900–4100 m, páramo, 6 Jun 1985, Lægaard 54497A (holotype: AAU!; isotype: GENT).

Herbace caespitose; culmi 8–32 cm alti; vaginas basales bruneo-purpureae, glabres. Folia 5–7, basilaria; laminae 2–13 cm longae, 2–3.5 mm latae; ligulae 1–2 mm longae. Spica solitaria, terminalis, androgyna, 1.4–3 cm longa, 3–6 mm lata. Pars mascula 3.5–8.5 mm longa, 5–13-flora. Pars feminina ca. 20–70-flora; squamae pistillatae persistentes, 2.8–5 mm longae, 1–1.6–2 mm latae. Perigynia 3.7–5 mm longa, 1–2 mm lata, supere scabrido-hispidula, marginibus ciliolata; rostra 1.2–2 mm longa, hispidula. Achenium 1.8–2.2 mm longum, 1–1.6 mm latum; rachilla 6.5–13 mm longa, exserta pars 3.4–10 mm longa, perseafe late patula, glabra. Stigmatic 3. Antherae 3, 1–1.3 mm longae, ca. 0.2 mm latae; filamenta linearia dilatata, ca. 0.2 mm lata.

Plants loosely to densely cespitose, with short, creeping rhizomes; rhizomes ca. 1.5–2 mm thick, dark reddish brown. Fertile culms 8–32 cm tall, 0.5–1.2 mm thick, erect or slightly curved, about equaling or more often exceeding the leaves, obscurely trigonous, smooth, with glabrous, dark reddish brown basal sheaths. Leaves 5–7, basal; blades 2–13 cm long, 2–3.5 mm wide, ascending, rigid, subcoriaceous, glabrous, the margins scabrous (a mixture of antrorse, retrorse, and dolabiform hairs), terminating in a 3-angled, scabrous attenuated tip; inner band of leaf sheaths hyaline with reddish veins or reddish brown, glabrous, the apex slightly concave; ligules 1–2 mm long, rounded. Inflorescence a solitary, androgynous spike, 1.4–3 cm long, 3–6 mm wide, oblong-cylindric. Staminate part 3.5–8.5 mm long, 5–13-flowered; scales 2.2–3.2 mm long, 0.8–1.5 mm wide, ovate, obtuse to subacute, glabrous, pale brown to brown, 3(–5)–veined, the tips with narrow hyaline margins and ciliolate. Pistillate part tightly flowered with ca. 20–70 perigynia; scales persistent, 2.8–5 mm long, 1–1.6(–)2 mm wide, shorter than the perigynia, ovate to lanceolate, subacute to acute, subcoriaceous, glabrous, stramineous center with broad, pale brown to brown margins, 3–5(–7)–veined, the tips with narrow hyaline margins and ciliolate, the lowermost one sometimes with a scabrous-ciliate awn up to 2 cm long. Perigynia 3.7–5 mm long, 1–2 mm wide, ovate-lanceolate, apressed-hispid distally, smooth or sparsely hispid proximally, the margins ciliate (at least in the distal half), reddish brown or stramineous with reddish streaks, 2 veins prominent the rest faint, tapered to a long beak; perigynum beak narrowly conical, 1.2–2 mm long, hispid. Achenes 1.8–2.2 mm long, ca. 1–1.5 mm wide, compressed-trigonous with more or less flat, oblong sides, tightly enveloped by the perigynium, brown, sessile. Rachilla 6.5–13 mm long, terete, projecting beyond orifice of perigynium, the exserted portion 3.4–10 mm long, slightly to very widely spreading and sometimes perpendicular (or even reflected) to the axis of the spike, smooth, stramineous or pale brown to brown, the hook 0.8–1.4 mm long and stramineous or brownish. Stigmas 3; style base little thickened. Anthers 3, 1–1.3 mm long, ca. 0.2 mm wide; filaments linear, dilated (ca. 0.2 mm wide), as wide as or wider than the anthers.

PARATYPES.—PROV. CHIMBORAZO: Páramo de los Alturas, Collanes Valley, 4000 m, 3 Sep 1987, Ramsay and Merrow-Smith 349 (K).—PROV. COTOCACHI: slopes of Volcán Cotocachi, 4100 m, 11 Oct 1987, Ramsay and Merrow-Smith 800 (K).

Uncinia ecuadorensis is known from three localities in Ecuador (Fig. 15), where it grows in páramo, at about 4000–4100 m. At the type locality, it was grow-
ing "in small tussocks in pajonal" with grasses and other cyperaceous plants, such as the rarity _U. lacustris_. Plants with ripe fruit have been collected in May and June. The epithet refers to the discovery of this species in Ecuador.

Although this species (Fig. 13) resembles _Uncinia erinacea_ (Cav.) Pers. and somewhat less so two newly described South American uncinias (Wheeler 1997), all of which occur in Chile, it differs from them by having smaller and differently shaped perigynia and achenes, shorter rachillae, narrower leaves, and acute pistillate scales. Moreover, whereas the culms of the three above-mentioned Chilean species have long internodes and conspicuous cauline leaves, the internodes of _U. ecuadorensis_ are short so that the leaves are basal. If one assumes that _U. erinacea_ and _U. ecuadorensis_ are closely related, then the robust _U. erinacea_, with its leafy culm, broad leaves, and longer rachillae, seemingly is the more "primitive" of the two. In this regard, Hamlin (1958, p. 85) considers _U. erinacea_ to be "the most primitive living member of the genus." Like _U. erinacea_, the new species belongs in section _Platyandrae_.

2. _Uncinia hamata_ (Swartz) Urban, _Symb. Antill. 2_: 169. 1900. 

TYPE.—JAMAICA, s.d., Swartz s.n. (holotype: S; isotypes: LD-2 sheets!)

Plants cespitose, from short-to long-creeping rhizomes. Fertile culms 20–60 cm tall, 0.5–1 mm thick, erect or somewhat curved, from shorter than to exceeding the leaves, obscurely trigonous, smooth, with glabrous, brownish sheaths. Leaves 5–7, the uppermost ones cauline with conspicuous sheaths and long internodes; blades (4.5–)8–50 cm long, 2.4–6.4 mm wide, flat, membranaceous, flaccid, glabrous, the margins antrorsely scabrous, terminating in a scabrous attenuate tip; leaf sheaths up to 6.5 cm long, more or less tightly enveloping culm, glabrous, green; inner band glabrous, greenish below and whitish green or pale reddish brown above, mouth slightly thickened and often dark reddish brown, the apex concave; ligules 2–6 mm long, rounded to acute. Inflorescence a solitary, androgyinous spike, (4.5–)7–16 cm long, 2–4 mm wide, linear to cylindric, subclavate. Stamineate part 6–16 mm long, 10–30-flowered; scales 1.8–3.2 mm long, 0.8–1.8 mm wide, ovate, obtuse to subacute, coriaceous, glabrous, greenish center and stramineous or pale brown margins, with an inverted V-shaped reddish brown strip near the apex, 1–3-veined, the tips with very narrow hyaline margins and ciliolate. Pistillate part tightly flowered, with ca. 25–100 perigynia; scales persistent, 3.3–5.8 mm long, 1.5–2.8 mm wide, shorter than to about equaling the perigynia, oblong-ovate, obtuse to subacute, coriaceous, glabrous, green or greenish brown, with an inverted V-shaped reddish brown strip near the apex, 9–13-veined, the tips with very narrow hyaline margins and ciliolate. Perigynia 4–6.2 mm long, 1.3–1.8 mm wide, oblong-ovate or elliptical, appressed hispid distally, smooth or sparsely hispid proximally, the margins ciliolate from apex to near the base with the longest hairs distally, stramineous or pale brown to brown, 2 veins prominent and the rest faint, tapered to a stipitatelike base; perigynium beak conical, appressed hispid, the margins densely ciliate. Achenes 3.2–3.8 mm long, 1.2–1.6 mm wide, compressed-trigonous with more or less flat, oblong sides, tightly enveloped by the perigynium, brownish, sessile. Rachilla 6–11.5 mm long, terete, projecting beyond orifice of perigynium, the exserted portion up to 6.5 mm long, but sometimes the uppermost ones mostly hidden by the scales, usually geniculate in the distal half, stramineous or brownish, the hook 1.3–1.6 mm long and whitish green or pale brown to brown (particularly the descending part). Stigmas 3; style base somewhat thickened. Anthers 3, 0.8–1.6 mm long, ca. 0.2 mm wide; filaments linear, dilated (0.2–0.3 mm wide), as wide as or wider than the anthers.

_Uncinia hamata_ (Fig. 3) occurs from northern Argentina (Barros 1947) northward to Mexico and the Caribbean islands of Jamaica and Hispaniola (Kükenthal 1909; Foster 1965; Mora-Osejo 1966; Chater 1994; Wheeler in press); as such, it is the northernmost-occurring _Uncinia_ in the Western Hemisphere. In Ecuador (Fig. 14), where it is quite common, it grows in loose to dense tufts in montane rain forest, at elevations from about 1200 to 3400 m, growing primarily in shaded places, such as on the forest floor and in ravines; however, it also grows in partially shaded sites, such as along river banks and adjacent to trails. Specimens with ripe fruit have been collected from February through October. The epithet refers to the hooked fruits of this species.

_Uncinia hamata_ has rachillae that typically divaricate at about a 45 degree angle from the rachis, with most of them bent upwards just beneath the hook (Fig. 4). Also, whereas most _Uncinia_ species, as mentioned earlier, have short internodes so that the leaves are basal, the culms of _U. hamata_ have long internodes and conspicuous cauline leaves. This vegetative character is particularly useful for identifying plants that are mostly (or entirely) devoid of fruit. Based on characteristics of its stamens and perigynia, this species belongs in section _Platyandrae_.

_Additional Specimens Examined.—Prov. Azuay: Cordillera Oriental, 1–8 km N of Sevilla de Oro, 8000–9000 ft. (Jul 27-Aug 12) 1945, Camp E-4479 (G, K, MICH, NY, P, US); road Cuenca-Loja, ca. 8 km S of Cumbe, ca. 3000 m, 5 Nov 1977, Harling et al. 15043 (GB); Area Nac. Rec. Cajpas, sector Llawuico, 3400 m, 10 Jan 1991, León et al. 2620 (QCA); Par. Nac. Cajpas, NW of Cuenca, at Laguna Llawuico, 3150
Fig. 1-4. 1-2 Uncinia macrolepis.—1. Habit, from Balslev 3928 (QCA).—2. Inflorescence, from Ehrenburg 114 (QCA).—3-4. Uncinia hamata, from Legaard 54612 (MIN).—3. Habit.—4. Inflorescence (arrows point to geniculate rachillae). (Bars = 1 cm in Figs. 1, 2, 4; bar = 5 cm in Fig. 3.)
Fig. 5-7. 5. **Uncinia lacustris**, from Lægaard 51887 (MIN), isotype. Habit and perigynium (dextral side of plant).—6. **Uncinia paludosa**, from Lægaard 71014 (MIN), isotype. Habit and perigynium (sinistral side of plant).—7. **Uncinia tenuifolia**, from Lægaard et al. 90884 (MIN), isotype. Habit and perigynium (dextral side of plant). (Bars = 1 cm [plant habit] and 1 mm [perigynium].)

base with the longest hairs distally, stramineous to reddish brown, 2 veins prominent and the rest faint, tapered to the base; perigynium beak conical, appressed hispid, the margins densely ciliate. Achenes 1.9–2.3 mm long, 0.9–1.1 mm wide, compressed-trigonous with more or less flat, oblong sides, tightly enveloped by the perigynium, brownish, sessile. Rachilla 4–5.4 mm long, terete, projecting beyond orifice of perigynium, the exserted portion 1.5–2.7 mm long, smooth, stramineous or pale brown, the hook 0.9–1.2 mm long and stramineous or pale brown (particularly the descending part). Stigmas 3; style base little thickened. Anthers 3, 0.9–1.2 mm long, ca. 0.2 mm wide; filaments linear, dilated (ca. 0.2 mm wide), as wide as or wider than the anthers.

**Uncinia lacustris** is known only from two sites in north-central Ecuador (Fig. 14), where it grows in páramo at elevations from about 3900–4100 m (Wheeler and Goetghebeur 1995). At the type locality, it was growing on the margins of a small lake with other cyperaceous plants, such as *Carex* and *Rhynchospora*. At Volcán Cotocachi (see Fig. 15) it grows in pajonal with the rarity *U. eucadorensis*. Plants with ripe fruit have been collected in late March and early June. The epithet refers to the occurrence of this species on the wet margins of lakes.
This species (Fig. 5) resembles *U. paludosa* but differs by having smaller perigynia (cf. Fig. 5 and 6) and achenes as well as shorter rachillae and pistillate scales. Furthermore, although both species have stiff, ascending leaves, those of *U. lacustris* are distinctly narrower than those of *U. paludosa* (cf. Fig. 5 and 6). Based on characteristics of its stamens and perigynia, this species belongs in section *Platyandrae*.

**Additional Specimen Examined.**—PROV. **IMBABURA:** Volcán Cococachi, 3900–4100 m, 6 Jun 1985, Legaard 54497B (AAU, paratype).

4. **UNCINIA MACROLEPIS** Decaisne in Dumont D'Urville, Voy. *Pôle Sud* 2:13. 1853.  [Fig. 1, 2, 14](#)

**TYPE.**—**CHILE.** [XI Región Magallanes y Antártica Chilena, Prov.] Magallanes, 1837-1840, Hombrion et Jacquinot s.n. (holotype: PI).

**Uncinia meridensis** Steyerm., Fieldiana, Bot. 28: 61. 1951.

**TYPE.**—**VENEZUELA.** State of Mérida: at El Águila above Páramo de Mucuhíes, alt. 4025 m, margin of alpine lake, 6 Jul 1944, Steyermark 57039 (holotype: F!; isotypes: MICH!, MO!, NY!).

**Uncinia smithii** Philcox, *Kew Bull.* 15:229. 1961.

**TYPE.**—**SOUTH GEORGIA.** Moraine Fjord, between Harker and Humbert Glaciers, on 15° slope, alt. 12 m, 10 Feb 1957, Smith M. 1019 (holotype: K!; isotype: K!).

Plant rhizomatous; rhizomes long-creeper, slender (0.5–0.9 mm thick), fibrillose. Fertile culms 2.5–15 cm tall, 0.8–1.4 mm thick, erect or nearly so, from shorter than to exceeding the inflorescence, obscurely trigonous, smooth except for beneath the inflorescence where it is scaberulent to scabrous, brownish at the base. Leaves 9–13, basal; blades 2.5–9 cm long, 1.5–4 mm wide, ascending or more often widely spreading and frequently curved, subcoriaceous, stiff, flat or channelled (especially proximally), glabrous, the margins scabrous (a mixture of antrorse, retrore, and dolabriform hairs), terminating in a 3-angled, scabrous attenuate tip; inner band of leaf sheaths hyaline or pale brown, glabrous, the apex slightly concave; ligules 0.5–1.5 mm long, rounded, wider than long. Inflorescence a solitary, androgynous spike, 0.8–2.2 cm long, 2–4.5 mm wide, linear to oblong. Staminate part 3.5–6 mm long, ca. 3–7-flowered; scales 2.5–4 mm long, 1.2–1.8 mm wide, oblong or ovate, obtuse, glabrous, stramineous or brownish, 3-veined, the tips hyaline and entire. Pistillate part more or less tightly flowered with 5–18-merigynia; scales persistent, slightly shorter than to exceeding the perigynia, 3.5–5.5 mm long, 1.8–3 mm wide, broadly ovate or oblong-ovate, obtuse, glabrous, stramineous or pale brown center with broad, hyaline or brown to dark brown margins, 3–7–9-veined, the tips hyaline and entire but the lowermost one sometimes with a scabrous-ciliate awn up to 2 mm long. Perigynia (3.3–)4–5.5 mm long, 1.3–1.8 mm wide, elliptical, sparingly hispid in the distal half, glabrous in the proximal half, the margins ciliate above the middle, stramineous or brownish, 2 prominent veins and 13–19-veined at least in the proximal half, tapered to a stipitatelike base; perigynium beak conical, hispidulous, sparingly ciliate along the margins. Achenes 2.8–3.5 mm long, 1.3–1.5 mm wide, oblong, brownish. Rachilla 6.6–8.5 mm long, terete, projecting beyond orifice of perigynium, the exerted portion 3.5–4.1 mm long, smooth, whitish green to stramineous, the hook 1.6–2.1 mm long and stramineous or brownish. Stigmas 3; style base conspicuously thickened. Anthers 1.4–1.7 mm long, 0.2–0.3 mm wide, wider than the staminal filaments (about 0.1 mm wide).

*Uncinia macrolepis* occurs in northern South America, in Patagonia and Tierra del Fuego, and on the south-atlantic islands of South Georgia and Tristan da Cunha (Wheeler 1994, 1995, in press). The northern plants (i.e., those from Bolivia, Colombia, Ecuador, Peru, and Venezuela) had previously been called *U. meridensis* Steyerm. (Steyermark 1951), and in 1968 Hooper considered similar-appearing plants from South Georgia (originally called *U. smithii* Philcox) and Tristan da Cunha to be conspecific with *U. meridensis*. More recently, Wheeler (1995) has demonstrated that the populations from northern South America, South Georgia, and Tristan da Cunha are morphologically indistinct from the Patagonian-Fuegian populations of *U. macrolepis*, whose name has priority.

In Ecuador (Fig. 14), this species occurs near the upper limit of páramo, at elevations between 4000 and 4600 m, where it grows on wet rocks and with cushion plants, particularly along rocky lake shores and on rock ledges. It is probably best known from Cerro Antisana (see Fig. 15) on the border between Pichincha and Napo provinces. Plants with mature fruit have been collected essentially throughout the year. The epithet refers to the broad scales of this species (Fig. 2).

Because páramo plants are typically dwarfed and compact, different species may physiognomically look very similar. For instance, *Uncinia macrolepis* (Fig. 1) resembles *U. paludosa* and somewhat less so *U. lacustris*, but differs from both of them in several morphological features. Indeed, *U. macrolepis* belongs in section *Uncinia* (Wheeler 1995), whereas the other two species belong in section *Platyandrae*. In regard to differences that can be observed in the field (with the aid of a hand-lens), the culms of *U. macrolepis* are typically roughened (i.e., scaberulent) beneath the inflorescence, whereas those of *U. lacustris* and *U. paludosa* are smooth throughout. However, in post-mature culms of *U. macrolepis* this character is sometimes
difficult to observe. Also, *U. macrolepis* has slender rhizomes and short leaves that are wide spreading and often strongly curved, whereas both *U. lacustris* and *U. paludosa* have thickish rhizomes and leaves that are longer and mostly erect and little curved. It is also noteworthy that *U. macrolepis* is the only Ecuadorian *Uncinia* with a conspicuously enlarged style base, though that of *U. hamata* is somewhat thickened.

Additional Specimens Examined.—**PROV. AZUAY**: Páramo de las Cajitas, 4200 m, 27 Aug 1985, Læggaard 55069 (AAU, GENT).—**PROV. BOLIVAR**: Ambato—Guaranda, W of Crus de los Arenales, 4150 m, 24 Aug 1985, Læggaard 54995 (AAU, GENT).—**PROV. COTOPAXI**: Par. Nac. Cotopaxi, 4280 m, 5 Jul 1986, Ehrenburg 85 (QCA).—**PROV. PICHINCHA/NAPO**: falda W de Cerro Antisana, 4200 m, 27–28 Jan 1983, Balslev 3928 (F, QCA); 3995 (QCA); 4131 (QCA); falda WSW de Cerro Antisana, 4380 m, 11 Sep 1986, Ehrenburg 114 (QCA); falda WSW de Cerro Antisana, 4580 m, 14 Sep 1986, Ehrenburg 146 (QCA); falda W de Cerro Antisana, 4200 m, 15 Sep 1986, Ehrenburg 184 (QCA); NW slope of Cerro Antisana, Lago Mauca-Machay, 4350 m, 2 Nov 1979, Holm-Nielsen et al. 20717 (AAU); Volcán Antisana, between Campamento IMAP and Laguna Micucho, 3850–3950 m, 7 Mar 1992, Læggaard 101580 (AAU, GENT).—**PROV. PICHINCHA**: 2 km S of Paso de la Virgen on road Quito–Baæza, 4100 m, 19–20 May 1984, Læggaard 52173 (AAU); Pito-Pintag, in valley 2.5 hours horseride above Inga Monserat, 3950 m, 12 Apr 1992, Læggaard 102272 (AAU, GENT).—**LOCALITY UNKNOWN**: Ramsay & Merrow-Smith 359 (K).

5. UNCINIA PALUDOSA G. A. Wheeler & Goetghebeur, *Aliso* 14:142. 1995. 

**TYPE.**—**ECUADOR.** Prov. Chimbó: páramo above Azul along road to Osogochi, 02° 18’ S. lat., 78° 42’ W. long., alt. 4200 m, swamp, 26 Apr 1988, Læggaard 71014 (holotype: AAU!; isotypes: GENT, MIN!, NY, QCNE!).

Plants loosely cespitose from short, creeping rhizomes; rhizomes 1.8–3 mm thick, dark reddish brown. Fertile culms 10–80 cm tall, 0.7–1.4 mm thick, erect or slightly curved, usually exceeding the leaves, obliquely trigonous, smooth, with glabrous, dark reddish brown basal sheaths. Leaves 6–10, usually basal; blades 5–29 cm long, 3–5.5 mm wide (average 4 mm), ascending, rigid, flat or channeled (at least proximally), coriaceous, glabrous, the margins antorsely scabrous, terminating in a 3-angled, scabrous attenuate tip; inner band of leaf sheaths hyaline or pale reddish brown, glabrous, slightly thickened at the usually reddish brown-tinged mouth, the apex concave; ligules 1–2 mm long, rounded, wider than long. Inflorescence a solitary, androgynous spike, 3.4–8.4 cm long, 1.8–3 mm wide, linear. Staminiate part 7–12 mm long, 9–17-flowered; scales 2.2–3.5 mm long, 1–1.6 mm wide, oblong to ovate, obdurate, glabrous, stramineous or pale brown to brown, 1–veined, the tips with narrow hyaline margins and ciliolate. Pistillate part more or less tightly flowered with ca. 25–50 perigynia; scales persistent, 4–6.2 mm long, 1.2–2 mm wide, about equaling to slightly exceeding the perigynia, oblong to ovate, obdurate, coriaceous, glabrous, pale brown to brown and stramineous center, 1-veined, the tips with narrow hyaline margins and ciliolate, the lowestmost one sometimes with a scabrous-ciliate awn up to 3 cm long. Perigynia 4.5–5.4 mm long, 1–1.3 mm wide, narrowly elliptical, appressed hispid distally, smooth or sparsely hispid proximally, the margins ciliate from apex to near the base with the longest hairs distally, stramineous or pale reddish brown to castaneous, 2 veins prominent and 9–13 faint veins in the proximal half, tapered to a stipitatelike base; perigynium beak conical, appressed hispid, the margins densely ciliate. Achenes 2.2–2.6 mm long, 0.8–1 mm wide, compressed-trigonal with more or less flat, oblong sides, tightly enveloped by the perigynium, brownish, sessile. Rachilla 6.4–7.8 mm long, terete, projecting beyond orifice of perigynium, the exserted portion 2.4–4.2 mm long, smooth, whitish green or stramineous, the hook 1–1.4 mm long and stramineous or reddish brown (particularly the descending part). Stigmas 3; style base little thickened. Anthers 3, 1.1–1.7 mm long, ca. 0.2 mm wide; filaments linear, dilated (0.2–0.3 mm wide), as wide as or wider than the anthers.

*Uncinia paludosa* is known from many sites in Ecuador (Fig. 14) and several specimens have been seen from Arauca and Boyacá provinces in northeastern Colombia (Wheeler in press); a single collection is also known from Río Abíeasco National Park in Peru (*León & Young 1663* [NY]). This species occurs in páramo, at elevations from about 3500 to 4400 m (Wheeler and Goetghebeur 1995), growing primarily in bogs and swamps dominated by low shrubs and herbs, particularly grasses and sedges. Flowering plants have been collected in February and those with mature fruit from April through early September. The epithet refers to the occurrence of this species in marshy habitats.

This species (Fig. 6) is closely related to *Uncinia macloviana* Gaudich., which grows in Patagonia and on the Falkland Islands (Wheeler 1994), but differs by having smaller perigynia and achenes and pistillate scales that are about equal to or slightly exceed the perigynia. It is also related to *U. lacustris* (cf. Fig. 5 and 6) but differs by having wider leaves, longer rachillae, and slightly larger perigynia and achenes. Physiognomically, *U. paludosa* also somewhat resembles *U. macrolepis*, but the two species are in different sections, the former in section *Platandrae* and the latter in section *Uncinia*. In addition to differences given in the keys, the style base of *U. macrolepis* is conspicuously enlarged, whereas that of *U. paludosa* is little thickened.
6. **Uncinia phleoides** (Cavanilles) Persoon, *Syn.: 2:* 534, 1807. *Fig. 8, 9, 15*

**TYPE.—CHILE.** [VIII Región Bío-Bío, *Prov. Concepción.*] Concepción, s.d., *Née s.n.* (syntype: MA, photograph of MA at GENT!); Talcahuano, s.d., *Née s.n.* (syntype: MA [partim], photograph of MA at GENT!; MIN!).

*Uncinia phleoides* (Cav.) Pers. var. *nux-nigra* C. B. Clarke, *J. Linn. Soc. Bot.* 20:399, 1883. *TYPE.—ECUADOR.* [Prov. Pichincha:] Pichincha, *Jameson s.n.* (holotype: K!)

Plants loosely to densely cespitose from short, stout rhizomes. Fertile culms (22–)30–115 cm tall, 1–2 mm thick, more or less erect, from shorter than to exceeding the leaves, rigid, trigonous, smooth, with glabrous, brownish sheaths. Leaves 5–9, mostly basal; blades (5–)10–80 cm long, 4–10 mm wide, ascending, stiff, flat, semicoriaceous, glabrous, the margins antorresely scabrous, terminating in a 3-angled, scabrous attenuate tip; inner band of leaf sheaths hyaline or brownish, the mouth slightly thickened and sometimes dark reddish brown, the apex concave; ligules 1.5–5 mm long, rounded to subacute. Inflorescence a solitary, androgynous spike, (6–)8–19 cm long, up to 10 mm wide in the distal half, clavate. Staminate part 7–20 mm long, ca. 30–100-flowered; scales 3–4 mm long, 1.2–1.6 mm wide, slightly obovate, obtuse, glabrous, brownish, 1-veined, the tips with hyaline margins and ciliary. Pistillate part tightly flowered, with ca. 100–250 (or more) perigynia; scales persistent, 6.8–14 mm long, 1.3–1.8 mm wide, shorter than the perigynia, oblong to slightly obovate, obtuse, coriaceous, glabrous, brownish, 1-veined, the tips with broad hyaline margins and ciliolate. Perigynia 6–8 mm long, 0.9–1.4 mm wide, narrowly oblong, appressed hispid distally, smooth or sparsely hispid proximally, the margins ciliate from apex to near the base with the longest hairs distally, stramineous or pale brown to brown, 2 veins prominent and 9–15 faint ones (at the proximal half), tapered to a stipitate-like base; perigynium beak conical, 1.2–1.8 mm long, appressed hispid, the margins ciliate with the hairs mostly in fascicles. Achenes 4.2–5.2 mm long, 0.6–1 mm wide, compressed-trigonous with more or less slightly convex, narrowly oblong sides, tightly enveloped by the perigynium, brownish, apiculate, sessile. Rachilla 8.8–11.8 mm long, terete, projecting beyond orifice of perigynium, the exserted portion 2.7–5.2 mm long, smooth, stramineous or brownish, the hook 1.2–1.7 mm long and stramineous or pale brown (particularly the descending part). Stigmas 3; style base little thickened. Anthers 1–1.6 mm long, ca. 0.2 mm wide; filaments linear, dilated (ca. 0.2 mm wide), as wide as or wider than the anthers. Chromosome number: 2n = 96 (Rahn 1960).

*Uncinia phleoides* (Fig. 8) ranges from northern Patagonia (Barros 1947) northward to Colombia (Kükenthal 1909; Foster 1965; Wheeler in press) and is also reported from Mexico (González 1983). In Ecuador (Fig. 15), where it is common, it occurs at elevations from about 2500 to 4200 m and grows in large, dense tufts in scrub forest and clearings and in disturbed sites (e.g., in roadside ditches and along trails). Among other localities, this species is well known from the slopes and environs of Chimborazo, Cotopaxi, Paschoca, and Pichincha volcanoes (see Fig. 15). Specimens with ripe fruit have been collected essentially throughout the year. The epithe, which means “phleumlike,” refers to the timothylike spikes of this species (Fig. 9).

No close relative of *Uncinia phleoides* occurs in Ecuador, though farther south on the continent it can be confused with other species. Clarke (1883) described var. *nux-nigra* from plants collected on the slopes of Cerro Pichincha (Ecuador), and Kükenthal (1909) subsequently recognized this variety in his worldwide treatment of the *Cariceae*. In the present treatment, however, these plants are not considered to be distinct from those of typical *U. phleoides*. Based on characteristics of its stamens and perigynia, this species belongs in section *Platyandrae*. The published chromosome count given above was based on Argentine material.

*Additional Specimens Examined.—PROV. AZUAY: road Cuenca—*
7. **Uncinia subsacculata** G. A. Wheeler & Goethebeier, *Aliso* 14:145. 1995.

**Fig. 12, 15**

**TYPE.**—ECUADOR. Prov. Pichincha: N side of Volcán Pichincha above Hacienda Yanacocha, 00° 07' S lat., 78° 34' W long., alt. 3800 m, *Polyplepis* forest, loose mats in shade, 4 Jun 1985, *Legaarda* 54469A (holotype: AAU!; isotypes: GENT, K, NY, QCA!).

Plants rhizomatous; rhizomes slender (0.7–1 mm thick), long-creepling, brownish. Fertile culms 15–25 cm tall, 0.7–1 mm thick, more or less erect, obscurely trigonous, smooth, with glabrous, pale brown to brown basal sheaths. Leaves 7–9, mostly basal; blades 5–21 cm long, (1.5–)2–3.4 mm wide, somewhat spreading, flat, membranaceous, glabrous, the margins antrorsely scabrous distally and smooth below the middle except near the base where sometimes sparingly serrulate, terminating in a scabrous attenuate tip; inner band of leaf sheaths hyaline, glabrous, the apex concave; ligules 1.5–2.5 mm long, subacute to acute. Inflorescence a solitary, androgynous spike, 2.5–4 cm long, 2–3.5 mm wide, linear or narrowly cylindrical. Stamineate part 6–8 mm long, 7–11-flowered; scales 3.5–4 mm long, 0.6–1.2 mm wide, lanceolate, subacute to acute, glabrous, green center with broad, hyaline margins and sometimes reddish brown-tinged distally, 1-veined, the tips entire. Pistillate part more or less tightly flowered, with ca. 10–30 perigynia; scales deciduous, but the basal one-fourth (or less) persisting as a conspicuous greenish or pale brown saccate structure less than 0.5 mm long, 4.2–6 mm long, 0.8–1.6 mm wide, from shorter than to about equaling the perigynia, membranaceous, lanceolate, subacute to acute, glabrous, green center with broad, hyaline margins and sometimes pale reddish brown-tinged distally, 1-veined, the tips entire, but the lowest one most frequently with a scabrous-ciliate awn up to 2.5 cm long. Perigynia...
Uncinia subsacculata is known only from the type locality (Fig. 15). It seemingly is a scotophilous (shade-loving) species that grows in Polylepis forest, at about 3800 m. Plants with well-developed perigynia have been collected in early June. The epithet refers to the very short, saccate appendages that persist after the deciduous scales have fallen.

This species (Fig. 12) resembles Uncinia tenuis but differs in several features, the most salient of which are given in the keys. It is noteworthy that these two South American uncinias are readily identified by their distinctive inflorescences, which, although greatly (or entirely) divested of perigynia, continue to display few to numerous saccate appendages, structures which are persistent portions of the otherwise deciduous scales (Wheeler and Goetghebeur 1995). However, in U. tenuis the proximal one-third of the scale persists as a conspicuous appendage (about 1 mm long), whereas in U. subsacculata the saccate appendage is appreciably shorter (less than 0.5 mm long). This species clearly belongs in section Uncinia.

UNCINIA TENUIFOLIA G. A. Wheeler & Goetghebeur, Aliso 14:144. 1995.

TYPE.—ECUADOR. Prov. Zamora-Chinchipe: road between Loja and Zamora, about 13 km E of the pass, just before junction with old road, 03° 58’ S. lat., 79° 05’ W. long., alt. ca. 2030 m, vertical dry cliff, 8 Mar 1989, Ølgaard et al. 90884 (holotype: AAU!; isotypes: GENT, K, MIN!, NY, QCA!, QCNE!).

Plants densely cespitose. Fertile culms 7–21 cm tall,
0.3–0.5 mm thick, erect or slightly curved, from shorter than to exceeding the leaves, obscurely trigonous, smooth, with glabrous, brown basal sheaths. Leaves 3–7, basal; blades 4–17 cm long, 0.6–1.5 mm wide, more or less spreading, flat or channeled (especially in the proximal half), membranaceous, glabrous, the margins antorsely scabrous distally, terminating in a long, scabrous attenuate tip; inner band of leaf sheaths hyaline or pale brown, glabrous, the apex concave; ligules 0.4–0.8 mm long, rounded. Inflorescence a solitary, androgynous spike, (7–)12–22 mm long, 1.5–2 mm wide, narrowly linear. Staminate part 4.5–8 mm long, 3–11-flowered; scales 2–2.8 mm long, 0.8–1.6 mm wide, obovate, obtuse to subacute, glabrous, brownish, 1(–3)-veined, the tips with hyaline margins and ciliolate. Pistillate part more or less tightly flow-
ered with 3–15 perigynia; scales persistent, 2.5–3.4 mm long, 1.2–2 mm wide, from shorter than to about equaling the perigynia, oblong to obovate, obtuse to acute, subcoriaceous, glabrous, pale brown to brown, 5–7-veined, the tips with hyaline margins and ciliate, the lowermost one infrequently with a scaberulent awn up to 9 mm long. Perigynia 2.5–3.3 mm long, 0.8–1.2 mm wide, elliptical, appressed hispid distally, smooth or sparsely hispid proximally, the margins ciliate from apex to near the base with the longest hairs distally, stramineous or brownish, 2 veins prominent and the rest faint, tapered to the base; perigynium beak conical, appressed hispid, the margins densely ciliate. Achenes 1.8–2.2 mm long, 0.9–1.1 mm wide, compressed-trigono versus with slightly convex, oblong sides, tightly enveloped by the perigynium, brownish, sessile. Rachilla 5–7.6 mm long, terete, projecting beyond orifice of perigynium, the exserted portion (1.8–)2.5–4.6 mm long, smooth, stramineous or pale brown, the hook 0.7–1.3 mm long and stramineous or brownish (particularly the descending part). Stigmas 3; style base little thickened. Anthers 3, 1–1.4 mm long, ca. 0.2 mm wide; filaments linear, dilated (ca. 0.2 mm wide), as wide or as wider than the anthers.

This scopulicolous (or cliff-growing) species is known only from the type locality in southern Ecuador (Fig. 15). It seemingly requires special edaphic conditions, growing in very thin soils on precipitous cliffs, where it forms small, dense cespitose clumps. The type collection was made from a calcareous rock face near a cave. Plants with mature fruit have been collected in early March. The epithet refers to the narrow leaves of this species.

Uncinia tenuifol ia (Fig. 7) differs in aspect from all other South American unciniias by having a combination of small spikes, filiform culms, narrow leaves, and dense cespitose habit (Wheeler and Goetghebeur 1995). Based on characteristics of its stamens and perigynia, it belongs in section Platystachya.

9. Uncinia tenuis Poeppig ex Kunth, Enum. Pl. 2: 525. 1837.

Fig. 10, 11, 15

TYPE.—CHILE. [VIII Region Bio-Bío, Prov. Bio-Bío:] Antuco, [Valle de Quilai-Leuvu, Feb 1827-29], Poeppig 243 [LECTOTYPE [here designated]: BM]. [The holotype at Berlin (B) was destroyed during the Second World War.]

Plants rhizomatous; rhizomes slender (0.7–1.2 mm thick), short- to long-creeping, brownish. Fertile culms 5–47.5 cm tall, 0.5–1 mm thick, erect or slightly to strongly curved, more or less trigonous, smooth, with glabrous, pale brown to brown basal sheaths. Leaves 5–10, mostly basal; blades 2.5–25 cm long, (0.7–)1.5–3.5 mm wide, ascending to widely spreading, flat, membranaceous, glabrous, the margins anttrorsely scabrous from apex to base though sometimes sparingly so near the middle, terminating in a scabrous attenuate tip; inner band of leaf sheaths hyaline, glabrous, the apex concave; ligules 0.8–3.8 mm long, rounded to subacute. Inflorescence a solitary, androgy nous spike, 1.7–6.3 cm long, 2–3 mm wide, linear. Stamineate part 4.5–10.5 mm long, 4–12-flowered; scales 2–2.5 mm long, 0.6–1.2 mm wide, oblong to lanceolate, obtuse to subacute, membranaceous, glabrous, green center with broad, hyaline margins and sometimes pale reddish-brown-tinged distally, 1-veined, the tips entire. Pistillate part more or less tightly flowered, with ca. 8–40 perigynia; scales deciduous, but the basal one-third persisting as a conspicuous whitish green or pale brown saccate structure about 1 mm long, 2.4–4 mm long, 0.8–1.3 mm wide, oblong to lanceolate, obtuse to subacute, membranaceous, glabrous, green center with broad, hyaline margins and sometimes pale reddish-brown-tinged distally, 1-veined, the tips entire. Perigynia 3.6–4.5 mm long, 0.8–1.2 mm wide, narrowly elliptical, glabrous, the margins smooth, whitish green to greenish brown, 2 prominent veins and the rest faint, tapered to a stipitatelike base; perigynium beak conical, 0.8–1.2 mm long, glabrous, the margins smooth. Achenes 2.2–2.8 mm long, 0.8–1.1 mm wide, compressed-trigono versus with more or less concave, oblong sides, brownish. Rachilla 5.4–7 mm long, terete, projecting beyond orifice of perigynium, the exserted portion 2.4–3.6 mm long, smooth, whitish green or stramineous to pale brown, the hook 1.2–1.7 mm long and stramineous or pale brown (particularly the descending part). Stigmas 3; style base little thickened. Anthers 3, 0.8–1.2 mm long, ca. 0.2 mm wide, wider than the filiform filaments (ca. 0.1 mm wide).

Uncinia tenuis ranges from Cape Horn in Tierra del Fuego (Wheeler 1994) northward to west-central Argentina and central Chile (Barros 1969; Muñoz-Schick 1980) and is disjunct on the Juan Fernández Islands (Skottsberg 1922); further north it occurs in Ecuador (Fig. 15) and Colombia (Wheeler in press) and is also reported from Costa Rica in Central America (Chater 1994). In Ecuador, this species (Fig. 10) grows at elevations from about 3100 to 4000 m with several collections seen from Cerro Sumaco (see Fig. 15) in Napo Province. It grows in loose mats in moist, shaded places on the forest floor and also grows epiphytically on fallen trees. Specimens with ripe fruit have been collected from April through November, though by late November the majority have been shed. Even then, however, this species is easily identified by its distinctive inflorescence axes (Fig. 11), which although greatly (or entirely) divested of perigynia continue to display whitish or pale brown saccate appendages, structures which are the persistent portions of otherwise
deciduous scales (Wheeler 1994). The epithet, which means "slender" or "thin," refers to several features of this species (e.g., its narrow rhizomes, culms, and spikes).

This species resembles *U. subsacculata* but differs by having shorter perigynia, achenes, rachillae, anthers, and scales. Also, the perigynium beak of *U. tenuis* is shorter and broader than the beak of *U. subsacculata*. Notably, these are the only two South American uncinias that have deciduous scales and persistent saccate appendages. Like *U. subsacculata*, this species belongs in section *Uncinia*.

Additional Specimens Examined.—Prov. Carche: 9 km W of Tufiño,
Volcán Los Chiles, 3800 m, 10 Mar 1992, Leggaard 101664 (AAU, MIN).—PROV. IMBABA: Yahuarcocha—Mariano Acosta 20 km, Páramo de Mariano Acosta, 3600–3650 m, 7–8 Feb 1992, Leggaard 101173 (AAU, MIN); Cerro Blanco, ca. 8 km (by air) WSW of Atavalo (road towards Antenas from road toward San Jose de Minas, S of Atavalo—Selva Alegre road), 3400–3460 m, 23 Sep 1990, oligaard 90625 (AAU, QCA, QCNE); Cerro Blanco, ca. 8 km WSW of Otavalo, 3400–3460 m, 23 Sep 1990, Oliggaard 98225 (AAU, MIN).—PROV. NAP: N side of Cerro Sumaco, 3700 m, 24 Apr 1979, Holm-Nielsen et al. 17121 (AAU, GENT, MIN, NY); Cerro Sumaco, 3750–3800 m, 1 May 1979, Holm-Nielsen et al. 17548 (AAU); Cerro Sumaco, 3350–3550 m, s.d., Holm-Nielsen et al. 17740 (NY); ca. 6 km NE of km 45 on road Salcedo–Napo, 3600 m, 16–18 Nov 1984, Leggaard 53363 (AAU, QCA); inside main crater of Cerro Sumaco, 3750–3800 m, 26 Apr 1979, Løjmandt & Molau 12823 (AAU); NE side of Cerro Sumaco, 3100–3300 m, 27 Apr 1979, Løjmandt & Molau 12888 (AAU); S side of Cerro Sumaco, 100–200 m S of main crater, 3700–3800 m, 29 Apr 1979, Løjmandt & Molau 12947 (AAU, NY, QCA); N side of Cerro Sumaco, 3650 m, 4–6 May 1979, Løjmandt & Molau 13167 (AAU).—PROV. PICHINCHA: N side of Volcán Pichincha above Hacienda Yanacocha, 3800 m, 4 Jun 1985, Leggaard 54496B (AAU, GENT, MIN, QCNE).—PROV. TUNGURAHUA: Cordillera Llanganates, between Río Topo and Río Verde Grande on W slope of Cerro Hermoso, 3950 m, 10 Nov 1980, Holm-Nielsen & Jaramillo 28340 (AAU, GENT, MIN).

ACKNOWLEDGMENTS

We would like to thank Simon Leggaard (University of Aarhus) for providing duplicate specimens and for his continuing support of the project; Benjamin Oligaard (Universidad Católica del Ecuador) and Simon Leggaard for habitat information; the curator of the A. J. Cavanilles Botanical Garden (MA) in Madrid, Spain, for providing photographs of the syntypes of Uncinia phleoides; Ronnie Viane (University of Gent) and Emilia Pangua (Universidad Complutense de Madrid) for assistance; and the curators and directors of the following herbaria for the loan (or in-house study) of specimens: AAU, BM, F, G, GB, GENT, K, LD, MICH, MIN, MO, NY, P, QCA, QCNE, U, and US.

LITERATURE CITED

BAILL., P. W. 1990. Some aspects of the phytogeography of Carex. Can. J. Bot. 68: 1462–1472.

BARROS, M. 1947. Cyperaceae: Scirpoideae, Rynchosporideae, Caricoideae, pp. 259–539. In H. R. Descole [ed.], Genera et species plantarum Argentinorum, Tomus IV (II), Fundación e Instituto Miguel Lillo, Tucumán.

——. 1969. Cyperaceae, pp. 38–92. In M. N. Correa [ed.], Flora Patagónica, Parte II, Typhaceae a Orchidaceae (excepto Gramineae). Colec. Cient. Instituto Nacional de Tecnología Agropecuaria. Buenos Aires.

CHATER, A. O. 1994. Uncinia. In: Davidse, G. et al. (eds.), Flora Mesoamericana 6: 473–474.

CLARKE, C. B. 1883. On Hemicarex Benth., and its allies. J. Linn. Soc. Bot. 20: 374–403.

CROZAT, L. 1952. Manual of Phytogeography. The Hague, Netherlands.

EDGAR, R. E. 1970. Uncinia, pp. 215–235. In L. B. Moore and R. E. Edgar, Flora of New Zealand. Vol. 2. A. R. Shearer, Government Printer. Wellington, New Zealand.

FOSTER, R. C. 1965. Studies in the flora of Bolivia, III. Cyperaceae, part 1. Rhodora 67: 97–138.

GONZÁLEZ, E., M. DEL S. 1983. Nuevas registros de Cyperaceae para la Flora del Valle del Tequendama y de la Republica Mexicana. Bol. Soc. Bot. Mexico 44: 17–21.

HAMLIN, B. G. 1958. A new classification of Uncinia (Cyperaceae-Caricoideae). Rec. Dom. Mus., Wellington 3: 85–88.

——. 1959. A revision of the genus Uncinia (Cyperaceae-Caricoideae) in New Zealand. Bull. Dom. Mus., Wellington 19: 1–106.

HOOPER, S. 1968. Cyperaceae: Uncinia. Results Norweg. Sci. Exped. Tristan da Cunha 1937–1938, 54: 7–8.

KOYAMA, T. 1971. Cyperaceae, pp. 794–823. In I. L. Wiggins and D. M. Porter, Flora of the Galápagos Islands. Stanford University Press, Stanford, California.

KØKENTHAL, G. 1909. Cyperaceae: Caricoideae, pp. 1–824. In A. Engler [ed.], Das Pflanzenreich, IV, 20, Heft 38. Liepzig: Wilhelm Engelmann.

KUKKONEN, I. 1967. Vegetative anatomy of Uncinia (Cyperaceae). Ann. Bot. (London) 31: 523–544.

KUNTH, C. S. 1837. Enumeratio Plantarum, II. Cyperographia synthetica. Stuttgart and Tübingen.

MORA-OSEJO, L. E. 1966. Cyperaceae, pp. 95–128. In: P. Pinto-Escobar, P. y L. E. Mora-Osejo, Catálogo ilustrado de las plantas de Cundinamarca. V. I. Instituto de Ciencias Naturales, Universidad Nacional, Bogotá, Colombia.

MUñOZ-SCHICK, M. 1980. Flora del parque nacional Puyehue. Mus. Nac. Hist. Nat. Santiago, Chile.

NELMES, E. 1952. Facts and speculations on phylogeny in the tribe Cariceae of the Cyperaceae. Kew Bull. 1951: 427–436.

RAHN, K. 1960. Chromosome numbers in some South American angiosperms. Bot. Tidskr. 56: 117–127.

SAVELE, D. B. O., AND J. A. CALDER. 1953. Phylogeny of Carex in the light of parasitism by the smut fungi. Can. J. Bot. 31: 164–174.

SKOTTBerg, C. 1922. The phenerograms of the Juan Fernández Islands. Nat. Hist. Juan Fernández and Easter Is. 2: 95–240.

SNEILL, R. S. 1936. Anatomy of the spikelets and flowers of Carex, Kobresia, and Uncinia. Bull. Torrey Bot. Club 63: 277–295.

STEYERMARK, J. A. 1951. Botanical exploration in Venezuela. I. Fieldiana, Bot. 28: 1–242.

WHEELER, G. A. 1994. The Uncinia (Cyperaceae) of Tierra del Fuego, the Falkland Islands, and South Georgia. Anis. Hist. Pat., Punta Arenas, Chile 22 (1993–94): 21–31.

——. 1995. The status of Uncinia macroplepis, U. meridensis, and U. smithii (Cyperaceae) in the New World. Hickenia 2: 161–164.

——. 1997. Two new species of Uncinia (Cyperaceae) from Chile. Aliso 15: 1–6.

——. In press. First report of Uncinia macroplepis and U. tenuis (Cyperaceae) in Colombia and new Colombian sites for U. paludos. Rhodora.

——, AND P. GOETGHEBEUR. 1995. Four new species of Uncinia (Cyperaceae) from northern South America. Aliso 14: 141–146.

NUMERICAL LIST OF UNCI NIA SPECIES

1. U. ecuadorensis
2. U. hamata
3. U. lacustris
4. U. macroplepis
5. U. paludos
6. U. phleoides
7. U. subsacculata
8. U. tenuifolia
9. U. tenuis
INDEX TO NUMBERED COLLECTIONS CITED
(Ecuador specimens only)

Acosta-Solis 11038 (2 at F; 6 at US); 14101 (6); 14103 (2); 14597 (2); 17264 (2); 18841 (2); 21264 (2).
André 3063 (2).
Asplund 7108 (5); 7134 (6); 7143 (6); 7546 (6); 7556 (2); 8476 (5); 16808 (6); 16940 (2); 20306 (2).
Balslev 3928 (4); 3995 (4); 4131 (4).
Balslev et al. 2036 (6); 2608 (2); 69278 (6).
Balslev & de Vries 3474 (6).
Barfod & Balslev 41314 (6).
Benoist 2295 (2); 4370 (5).
Boeke 585 (6).
Brandbyge 42562 (6).
Brandt 71852 (6); 71879 (6).
Camp E-4479 (2).
Ceron & Ceron 2755 (2).
Ceron et al. 12368 (2).
Drew E-400 (2).
Ehrenburg 85 (4); 114 (4); 146 (4); 184 (4).
Eriksen 91162 (2).
Espinosa 222 (6).
Fagerlind & Wibom 1938 (2).
Firmin 340 (6); 402 (6).
Freire-Fierro et al. 557AA (2); 909 (6); 2112 (6).
Granda 41 (6).
Grubb et al. 1059 (2); 1200 (2).
Harling et al. 15041 (6); 15043 (2); 12322 (2); 17298 (2); 23221 (2).
Holm-Nielsen 20717 (4).
Holm-Nielsen & Azanza 25145 (6).
Holm-Nielsen & Jaramillo 28340 (9).
Holm-Nielsen et al. 5307 (6); 5989 (2); 6782 (6); 17121 (9); 17416 (2); 17548 (9); 17740 (9); 27125 (2).
Jameson s.n. (6); 190 (2); 284 (2); 627 (6); 881 (6).
Jaramillo et al. 1641 (2).
Juncosa 876 (6).
Læggaard 51064 (6); 51301A (5); 51308 (5); 51310 (5); 51347 (5); 51366 (6); 51887 (3); 51896 (6); 52173 (4); 52185 (5); 52840 (5); 53363 (9); 53608 (2); 54468 (6); 54469A (7); 54469B (9); 54497A (1); 54497B (3); 54612 (2); 54733 (5); 54772 (6); 54896 (6); 54897 (5); 54995 (4); 55069 (4); 55188 (2); 55259 (2); 70026 (2); 71014 (5); 71745 (5); 71746 (6); 101154 (5); 101408 (6); 101580 (4); 101664 (9); 101903 (2); 101925 (2); 102081 (5); 102272 (4).
León et al. 2620 (2).
Løjtman et al. 12533 (6).
Løjtman & Molau 12823 (9); 12888 (9); 12947 (9); 13092 (2); 13167 (9).
Luteyn & Gavilanes 14378 (2).
Madison et al. 3611 (2).
Mille 329 (2); 330 (6).
Montesdoca 316 (6).
Oļļgaarda 90625 (9); 98225 (9); 98894 (2); 99866 (2).
Oļļgaarda & Balslev 9810 (6); 10183 (2).
Oļļgaarda et al. 34404 (5); 34412 (5); 37929 (2); 37945 (6); 38025 (6); 38475 (5); 38666 (5); 74093 (2); 90884 (8).
Palacios et al. 9821 (2).
Peñañuel & Varela 129 (6).
Pañuel & et al. 333 (6); 1076 (6).
Penland & Summers 286 (2).
Peterson et al. 8873 (2).
Prescott 222 (6).
Quintana & Bastidas 78 (6); 110 (6).
Ramsay & Merrow-Smith 162 (5); 349 (1); 359 (4); 378 (5); 739 (6); 800 (1).
Raza 259 (6).
Sodiro 58 (2); 59 (6); 199/57 (6).
Sparre 14952 (6); 16845 (6).
Spruce 5140 (6); 5405 (2).
Steyermark 53231 (6); 53232 (6); 53779 (2).
Típaz et al. 1578 (2).
Valencia 205 (2).