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New records of interesting xenophytes in Spain

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Resumen: Verloove, F. Nuevos datos sobre algunos xenófitos interesantes en España. *Lazaroa 26: 141-148 (2005).*

Los trabajos florísticos desarrollados entre 2001 y 2003 en las provincias de Barcelona, Gerona, Murcia y Tarragona han aportado información interesante respecto a algunas especies exóticas. En esta nota se confirma la aclimatación y el desarrollo recientemente observados de algunas especies (*Eragrostis curvula*, *Jarava caudata*,…). Algunas otras podrían ser nuevas para la Península Ibérica (*Chamaesyce glomerifera*, *Chloris truncata*, *Cyperus imbricatus* y *Urochloa maxima*). Se discute la ecología y los modos de introducción y dispersión de algunas de ellas.

Abstract: Verloove, F. New records of interesting xenophytes in Spain. *Lazaroa 26: 141-148 (2005).*

Continued floristic research in the Spanish provinces of Barcelona, Gerona, Murcia and Tarragona between 2001 and 2003 yielded several additional records of interesting non-native vascular plants. The recent naturalization and spread of some taxa is confirmed (*Eragrostis curvula*, *Jarava caudata*,…), others are possibly new for the flora of the Iberian Peninsula (*Chamaesyce glomerifera*, *Chloris truncata*, *Cyperus imbricatus* and *Urochloa maxima*). The ecology and means of introduction and dispersal of several taxa are discussed.

INTRODUCTION

Encouraged by fructuous previous research upon the Spanish xenophytic flora (VERLOOVE, *Lazaroa* 24: 7-11, 2003) I have had the opportunity to visit various areas in Spain (especially in Catalonia) in order to proceed my earlier research. Again, numerous interesting records came to light, some representing the first findings in the Iberian Peninsula. It is clear that the influx of exotic vascular plants is still ongoing, both in man-made habitats (ruderal areas, agricultural grounds,…) as in (semi-) natural ones.

MATERIALS AND METHODS

The xenophytic flora of Spain was studied in the provinces of Barcelona (area comprised between the city of Barcelona, eastwards to Mataro and Hostalric; May and September 2003), Gerona (especially around Blanes, northwards up to the city of Gerona; May 2003), Murcia (surroundings of La Manga del Mar Menor; October 2001) and Tarragona (particularly in the vicinity of Cambrils, southwards up to Almadrava; September 2003). Special attention was paid to the floristic composition of riverbanks, especially those of riu Besòs, Ripoll and Tordera and several other local or smaller streams. In addition, numerous man-made habitats, especially in the coastal area, were investigated.

Voucher specimens of most enumerated taxa have been deposited in the herbaria of the Real Jardín Botánico de Madrid (MA), the herbarium of the University of Gerona (HGI), the herbarium of the Botanic Garden of Berlin, Germany (B), the National Botanic Garden of Belgium (BR), the herbarium of the University of Liège, Belgium (LG), the herbarium of the University of Gent, Belgium (GENT) and/or the private herbaria of the author or Eric J. Clement.

The nomenclature follows CLEMENT & FOSTER (*Alien plants of the British Isles*. XVIII + 590 pp., 1994) and RYVES *& al*. (*Alien grasses of the British Isles*. XX + 181 pp., 1996) for taxa treated by these authors, except for the genera *Chamaesyce* and *Jarava*. For few other taxa the nomenclature follows the most recent insights in the countries of the species' origin.

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RESULTS

Ambrosia tenuifolia Sprengel

Barcelona: Montmelo, riu Besòs (NE-Barcelona), UTM 31TDF39, ca. 50 m, gravelly riverbed, very common, 09.IX.2003, *F. Verloove* 5474 (priv. herb. author).

The South American *Ambrosia tenuifolia* has been found as an ephemerous casual in this area in the vicinity of Llinars del Vallès and Sant Celoni (CASASAYAS, *La flora al.lòctona de Catalunya*, Tesi doctoral (ined.), 880 pp., 1989). At present the species appears to be fully naturalized in the riu Besòs valley, often in abundance and always accompanied by *Ambrosia coronopifolia*. Apart from the abovementioned locality, *Ambrosia tenuifolia* also occurs in Sant Fost de Campsentelles (riu Besòs near Can Rovira), in Montmelo (riu el Congost) and doubtlessly elsewhere.

Contrary to many authors (including CASASAYAS l.c.), *Ambrosia tenuifolia* is a perennial species.

Atriplex semibaccata R. Br.

Murcia: La Manga del Mar Menor, s.l., ruderalized dunes, near the sea, extremely invasive in this area, 08.X.2001, *F. Verloove* 4967 (priv. herb. author, priv. herb. Eric J. Clement, LG).

The Australian *Atriplex semibaccata* is increasingly becoming naturalized in the southeastern provinces Alicante, Almeria and Murcia (see for instance JUAN *& al*., *Botanica Complutensis* 21: 59-69, 1996; DANA *& al*., *Acta Bot. Malacitana* 23: 252-256, 1998). It is usually confined to nitrophilous man-made habitats but seems to penetrate recently in more natural ones, competing with native vulnerable species from saline soils. *Atriplex semibaccata* is not yet taken into account by SANZ ELORZA *& al*., *Lazaroa* 22: 121-131, 2001). Elsewhere in the species' secondary area, for instance in California, it is also considered as a noxious invasive species. Birds would have been responsible for the dispersal of *Atriplex semibaccata* (fleshy reddish berry-like fruits when mature!) (RANDALL & HOSHOVSKY, *California Invasive Plant Council*: http://ucce.ucdavis.edu/datastore/detailreport.cfm?usernumber=9&surveynumber=182).

Bouteloua gracilis (Kunth) Lag. ex Griffiths

Barcelona: Palafolls, exit of motorway A19 at junction with N2, UTM 31TDG71, ca. 50 m, rocky, dry talus, 17.V.2003 and 13.IX.2003, resp. *F. Verloove* 5379 (priv. herb. author, BR, HGI, MA n° 714241) and 5533 (priv. herb. author, MA n° 714234).

About the first European record of this American grass species, see VERLOOVE (*Willdenowia* 34(1): 67-69, 2004).

Chamaesyce glomerifera Millsp. (syn.: Euphorbia glomerifera (Millsp.) L.C. Wheeler)

Barcelona: Montgat (NE-Barcelona), along cycle track between beach and railway track, E of tunnel, UTM 31TDF39, s.l., weed in plantation, several specimens, 09.IX.2003, *F. Verloove* 5529 (priv. herb. author, MA n° 714242).

Chamaesyce glomerifera closely resembles *C. nutans*, the latter being widely naturalized in the eastern and southern part of the Iberian Peninsula (see for instance BENEDÍ & ORELL, *Collect. Bot*. 21: 9-55, 1992). Both taxa have an upright habit in common and could have been confused in the studied area. *Chamaesyce glomerifera* is a completely glabrous plant with smaller seeds (0,9-1,0 mm vs. 1,2-1,3 mm) and conspicuous stipules (up to 2,5 mm but usually smaller).

Chamaesyce glomerifera is part of the *Chamaesyce hypericifolia*—complex and sometimes considered conspecific with that species. The former however is a glabrous taxon, the latter a pubescent one.

BENEDÍ & ORELL l.c. have drawn the attention to the presence of glabrous forms of *Chamaesyce nutans* in the Iberian Peninsula (var. *glaberrima* Boiss.). HÜGIN (*Feddes Repert*. 109: 189-223, 1998), who has studied numerous European collections of *Chamaesyce nutans*, has never seen completely glabrous specimens; nor did THELLUNG (Anisophyllum. In: Ascherson P. & Graebner P. (eds.), *Synopsis der mitteleuropäischen Flora* 7(92): 422-479, 1917). Such Iberian plants are in need of revision and possibly also belong to *Chamaesyce glomerifera*.

Chamaesyce glomerifera is originally native in the New World (sub-) tropics but has become a pantropical weed at present. The species is not mentio-

ned by HÜGIN l.c. and there is probably only one previous European record: the species has been recorded recently as an ephemerous casual with imported *Phoenix* spec. in Belgium (VERLOOVE, *Ingeburgerde plantensoorten in Vlaanderen (Naturalized plants in Flanders)*, 227 pp., 2002).

Chenopodium pumilio R. Br.

Barcelona: La Batllòria, la Verneda, riu Tordera, UTM 31TDG61, ca. 90 m, gravelly riverbed, 5 ex., 11.IX.2003, *s.c.*; **Gerona**: Vilarnadal, riu Llobregat E of GIV 6026, UTM 31TDG98, ca. 30 m, gravelly riverbed, 13.IX.2003, *s.c.*; **Tarragona**: Cambrils, Vilafortuny, UTM 31TCF34, s.l., vacant lot near the sea, several specimens, 23.IX.2003, *s.c.*

CASASAYAS I FORNELL & FARRÀS I DE BLÀS (*Collect. Bot.* 16: 161-164, 1985) reported about the first Catalonian record of the Australian *Chenopodium pumilio*. Meanwhile the species seems to have extended its area and is regularly seen in northeastern Spain, although usually in restricted numbers.

Chloris truncata R. Br.

Tarragona: Cambrils, Cambrils Platja, near Torrent d'en Gener, UTM 31TCF34, s.l., sandy ruderal area beside campsite, near the sea-shore, small population but well-established, 26.IX.2003, *F. Verloove* 5510 (priv. herb. author, MA n° 714233).

This Australian species is known as a naturalized xenophyte from the Teide nature reserve (Tenerife, Canary Islands) (BOLIBAR, *Estudio preliminar de las plantas vasculares alóctonas de los parques nacionales españoles*, 89 pp., 2003). The record from Cambrils Platja might be the first finding of an established population from the European continent. It represents the first record in the Iberian Peninsula (pers. comm. C. Acedo 12.2003). In the past, *Chloris truncata* used to be a rather regular but ephemerous wool-alien in various European countries: Belgium, the Czech Republic, Great Britain, the Netherlands, Sweden,… (FASSEAUX, *Bull. Soc. Roy. Bot. Belg.* 84: 239-242, 1952; DVO_ÁK & KÜHN, *Preslia* 38: 327-332, 1966; RYVES, *Watsonia* 10: 35-48, 1974; VAN OOSTSTROOM & REICHGELT, *Gorteria* 1: 41-46, 1962 and LANGE *& al*., *Bot. Not.* 2: 186-191, 1954). SHINNERS (*Sida* 5: 182, 1973) reports about its occurrence as a wool-alien in the United States. The exact origin of the Cambrils-population remains uncertain.

Recently, another *Chloris*-species has been recorded from Cambrils, *C. virgata* (VALLVERDÚ, *An. Jard. Bot. Madrid* 57: 429-430, 2000); this species probably disappeared after infrastructural works (comm. J. Vallverdú 01.2003). In the very same area, a third species (*Chloris gayana*) behaves like an invasive weed (SOBRINO *& al*., *J. Veg. Sci.* 13: 585-594, 2002). These taxa can be distinguished as follows:

1. Annual; lowest lemma with long ciliate hairs at apex ..... ***Chloris virgata***
   Perennial; lowest lemma without long hairs at apex ..... 2.
2. Awn of lowest lemma at most as long as the lemma body; leaf acute at apex; inflorescence branches rigid, erect; plant tall, often > 50 cm; lowest lemma brownish at maturity ..... ***C. gayana***
   Awn of lowest lemma much longer than the lemma body; leaf obtuse at apex; inflorescence branches slender, horizontally spreading at maturity; plant much smaller, < 50 cm; lowest lemma truncate, becoming blackish at maturity ..... ***C. truncata***

Worthwhile mentioning is the recent occurrence of *Chloris virgata* as a roadside weed around Zaragoza (MATEO SANZ & PYKE, *Flora Montiberica* 9: 37-40, 1998); these records seem to constitute the real first findings in the Iberian Peninsula (prior to those of VALLVERDÚ l.c.).

Cotula australis (Sieber ex Sprengel) Hook f.

Gerona: Blanes, Platja de Sabanell, UTM 31TDG81, s.l., camping Blanes and surroundings, 10.V.2003, *F. Verloove* 5372 (BR); Blanes, sa Palomera, UTM 31TDG81, s.l., ruderalized beach, 12.V.2003, *s.c.*; **Barcelona**: Malgrat de Mar, Pla de Grauch, UTM 31TDG81, 5 m, road verges, arable fields,…, 12.V.2003, *s.c.*; Malgrat de Mar, S of railway station, UTM 31TDG81, s.l., ruderalized beach, 13.V.2003, *s.c.*

The above records confirm the recent naturalization and spread of *Cotula australis* in this area (see for instance FONT *& al*., *Buttl. Inst. Cat. Hist. Nat.* 66: 63-72, 1998; VERLOOVE, *Lazaroa* 24: 7-11, 2003; VERLOOVE & VANDENBERGHE, *Le Monde des Plantes*

477: 13-14, 2002). As a matter of fact this species has become a locally common weed from dry, sandy nitrophilous soils (especially ruderalized beaches).

Cyperus imbricatus Retz. (det. Muthama Muasya)

Barcelona: Barbera dell Vallès (Santa Maria de Barbera), N of Pont de Santiga, UTM 31TDF29, ca. 100 m, gravelly border of riu Ripoll, one tall caespitose plant, 10.IX.2003, *F. Verloove* 5485 (priv. herb. author, GENT, MA n° 714239).

Cyperus imbricatus belongs to the *C. alopecuroides*-complex, a cluster of very closely related and predominantly African taxa, viz *C. alopecuroides* Rottb., *C. dives* Del. and *C. imbricatus*. Main diacritic features of the specimen from Barbera dell Vallès are the long, cylindric spikes, small glumes ca. 1 mm with prominent green keel and slightly recurved mucro, 3-fid style,… (*Cyperus alopecuroides* usually has 2-fid styles and glumes rounded at the back; *C. dives* is a much more robust species with culms over 1 cm wide at flowering time). According to Prof. Muthama Muasya (Nairobi, Kenya) our specimen falls within the variability of *Cyperus imbricatus* although some characteristics are more or less aberrant: involucral bracts slightly wider, culms slightly thicker, inflorescence branches somewhat longer,… (compare for instance with HAINES & LYE, *The sedges and rushes of East Africa*, 406 pp., 1983).

The origin of the Spanish specimen remains uncertain. There are some remarkably similar recent records from the Italian Biella province (SOLDANO & SELLA, *Flora spontanea della provincia di Biella*: XLI + 542 p., 2000). *Cyperus imbricatus* has become a pantropical weed (problematic for instance in the Philippines and to a lesser extent in Thailand; HOLM *& al*., *A geographical atlas of world weeds*: XLIX + 391 p., 1979). The species has been reported as an exceptional wool alien in Central Europe (PROBST, *Wolladventivflora Mitteleuropas*: VII + 193 p., 1949) and the Netherlands (VAN OOSTSTROOM & REICHGELT, *Natuurhistorisch Maandblad* 49: 19-22, 1960). In the mediterranean *Cyperus imbricatus* exists in Egypt (comm. Muthama Muasya). AMINI RAD (*Iran. Journ. Bot.* 9(2): 257-259, 2002) reports about the recent discovery of this species in Iran. The status of *Cyperus imbricatus* in the riu Ripoll basin remains uncertain; additional research stream up could yield further records.

Eragrostis curvula (Schrad.) Nees

Barcelona: Blanes, riu Tordera, S of railway-bridge, UTM 31TDG81, 5 m, stony riverbed, 3 ex., 12.V.2003, *F. Verloove* 5373 (BR); Arenys de Mar, immediately S of the city, along N2, UTM 31TDG60, 5 m, roadverges, 16.V.2003, *s.c.*; Montcada, near riu Ripoll, W of poligon industrial (end of junction), UTM 31TDF39, 55 m, roadverge, 16.V.2003, *s.c.*; Barbera dell Vallès towards Ripollet, poligon industrial Can Salvatella, UTM 31TDF29, disturbed roadverge in industrial area, few specimens, 10.IX.2003, *s.c.*; Gualba de Baix towards la Batllòria, along BV 5116, UTM 31TDG61, roadverge, few specimens, 11.IX.2003, *s.c.*; Sant Pol de Mar, A19 motorway, immediately W and E of tunnel, UTM 31TDG60, roadverges, 16.V.2003, *s.c.*; Malgrat de Mar, A19 motorway near parking Malgrat, UTM 31TDG71, ca. 130 m, roadverges, 16.V.2003, *s.c.*; Palafolls, drive-out A19 motorway x N2, UTM 31TDG71, ca. 50 m, roadverge, 17.V.2003, *s.c.*; **Gerona**: Llagostera, Sureda d' en Barella, along C250, UTM 31TDG93, 100 m, roadverges, 14.V.2003, *s.c.*; Cassa de la Selva, along C250 NW of the city, UTM 31TDG83, ca. 130 m, roadverges, 14.V.2003, *s.c.*; Vilarnadal, riu Llobregat, UTM 31TDG98, ca. 30 m, gravelly riverbed of riu Llobregat, 17.V.2003, *s.c.*.

The above records confirm the recent expansion of the South African *Eragrostis curvula* in this area. Contrary to CASASAYAS I FORNELL & FARRÀS I DE BLÀS (*Collect. Bot.* 16: 161-164, 1985) *Eragrostis curvula* is present in Spain long before the nineteen eighties: FERNÁNDEZ-GONZÁLEZ & MORENO (*Bull. Soc. Ech. Pl. Vasc. Eur. Bas. Méd.* 21: 66-67, 1986) reported about experimental growings in various parts of Spain, at least from 1958 onwards.

Eragrostis neomexicana Vasey

Tarragona: Cambrils (Vilafortuny), TV 3147 towards Salau, UTM 31TCF44, s.l., foot of tree in town, 21.IX.2003, *F. Verloove* 5501 (MA n° 714237).

This American species has been recorded before in the Iberian Peninsula (PORTAL, *Eragrostis de France et de l'Europe occidentale*, 431 pp., 2002) but there are probably no recent findings. The Cambrils record seems to be the first one in Catalonia (CASASAYAS, *La flora al.lòctona de Catalunya*, Tesi doctoral (ined.), 880 pp., 1989). There was only one specimen and its occurrence seems to be ephemerous.

Eragrostis virescens J. Presl

Barcelona: La Roca del Vallès, BV 5001 towards Vilanova del Vallès, UTM 31TDG40, ca. 150 m, as a weed in a Phaseolus-field, abundant, 11.IX.2003, *s.c.*; Cabrera de Mar, les Ribes, near riera d'Argentona, UTM 31TDF59, s.l., ruderal roadverge, 12.IX.2003, *s.c.*; **Tarragona**: Cambrils, Punta de la Riera de Riudoms, UTM 31TCF34, s.l., gravelly roadverge and adjacent ruderalized beach, several specimens, 23.IX.2003, *F. Verloove* 5488 (BR); Cambrils, riera de Riudoms, UTM 31TCF34, s.l., roadverge, foot of trees, locally common, 23.IX.2003, *F. Verloove* 5502 (MA n° 714236).

The above records confirm the recent naturalization and expansion of this American species in Catalonia.

Jarava caudata (Trin.) Peñail. (syn.: Stipa caudata Trin.)

Gerona: Gerona, Castell de Montjuïc, UTM 31TDG84, 175 m, ruderal area inside the ruins of the old castle, few specimens, 14.V.2003, *F. Verloove* 5419 (priv. herb., BR, HGI, LG); **Barcelona**: Sant Fost de Campsentelles, Can Rovira, UTM 31TDF39, 130 m, stony riverbed of riu Besòs, locally abundant, 16.V.2003, *F. Verloove* 5466 (priv. herb., BR, LG); Castellbisbal, right bank of riu Llobregat, UTM 31TDG19, gravelly, +/- ruderalized winterbed of river, 4 specimens, dispersed N and S of the bridge, 08.IX.2003, *F. Verloove* 5477 (BR); Montmelo towards Mollet del Vallès, left bank of riu Besòs, UTM 31TDF39, ca. 50 m, dry, stony border of river, locally very common and fully naturalized, 09.IX.2003, *F. Verloove* 5552 (MA n° 714232); Mollet del Vallès towards Martorelles, right bank of riu Besòs, left bank of riu Besòs x riera de Tenes, etc…, UTM 31TDF39, ca. 50 m, ruderalized borders of river, talus of nearby roadverges, etc…, thousands of specimens, 09.IX.2003, *s.c.*

Jarava caudata, of South American origin, was first mentioned from Spain by PYKE (*Flora Montiberica* 23: 20-22, 2003) from the steppe-country north of Zaragoza. The species inhabits arid roadverges and ruderalized steppe. Its presence has been detected in 1995 and *Jarava caudata* appears to be firmly established in a wide area.

In 2003 we have been able to locate numerous additional Spanish records of this species, especially in the riu Besòs basin northeast of Barcelona (see above). Locally, *Jarava caudata* is extremely common and well naturalized. It may be associated with the former wool-processing industry in this area (see below, sub *Senecio pterophorus*). For additional comments on the chorology, ecology and taxonomy of this species in southern Europe, see VERLOOVE (*Candollea*, in press).

Jarava plumosa (Nees) Jacobs & Everett (syn.: Stipa papposa Nees)

Barcelona: Sabadell, La Creu de Barbera, carrer de Puig i Cadalfach x carrer de J. Blume, UTM 31TDF29, talus of roads, weed in plantations, locally common, 10.IX.2003, *F. Verloove* 5483 (BR, MA n° 714240); Sabadell, NE-side of airport, UTM 31TDF29, grassland, weed in plantations, roadverges, locally very common, co-dominant, 10.IX.2003, *F. Verloove* 5484 (priv. herb.); Barbera dell Vallès towards Ripollet, poligon industrial Can Salvatella, UTM 31TDF29, disturbed roadverge in industrial area, along with *Eragrostis curvula*, few specimens, 10.IX.2003, *F. Verloove* 5487 (MA n° 714238).

The South American *Jarava plumosa* was first indicated from Spain by CASASAYAS I FORNELL & FARRÀS I DE BLÀS (*Collect. Bot.* 16: 161-164, 1985). The species was found along roadverges in the Sabadell-area (N-Barcelona) and was also believed to be a remnant of the former wool-processing industry in this area. To date, the area has altered considerably but *Jarava plumosa* still thrives very well locally and has expanded to adjacent areas (see above). For additional comments on the chorology, ecology and taxonomy of this species in southern Europe, see VERLOOVE (*Candollea*, in press).

Oenothera rosea L'Hér. ex Aiton

Tarragona: Cambrils, near the railway station, UTM 31TCF34, ca. 15 m, ruderal area, locally well established, 21.IX.2003, *s.c.*

The American *Oenothera rosea* is more or less widespread in parts of Catalunya but has not been reported before from the surroundings of Cambrils.

Paspalum notatum Flügge var. **saurae** Parodi (syn.: P. saurae (Parodi) Parodi)

Tarragona: Cambrils, Cambrils Platja, W of Riera d'Alforja, UTM 31TCF34, s.l., border of a lawn, foot of fence, 26.IX.2003, *F. Verloove* 5503 (priv. herb.).

VERLOOVE (*Lazaroa* 24: 7-11, 2003) reported about the first occurrence of this taxon in the province of Gerona. The record from Cambrils Platja represents the first finding in the province of Tarragona. It seems that *Paspalum notatum* var. *saurae* is increasing and further records surely will come to light. BÖHLING & SCHOLZ (*Willdenowia* 34: 79, 2004) recently report about a well-established stand of «*Paspalum notatum*» at Montjuïc in Barcelona. These plants doubtlessly are identical with the other ones found in Catalonia.

As already stated before (VERLOOVE l.c.) this taxon deserves at most varietal rank; it is usually more robust with longer (and often more) inflorescence branches than *Paspalum notatum* s.str. but there seems to be a continuous variation without clear delimitation. Hence, recent taxonomists (cf. ALLEN & HALL, Paspalum. In: Barkworth & al. (eds.), *Flora of North America, north of Mexico*, volume 25: 566-599, 2003) have even opted to reduce *Paspalum saurae* to a simple cultivar of *P. notatum*.

Up to now the Spanish populations of *Paspalum notatum* s.l. seemed to be the only naturalized ones in Europe. Recently however, the species has been discovered in Greece too (Island of Korfu; SCHOLZ, *Willdenowia* 32: 206, 2002).

Physalis ixocarpa Brot. ex Hornem.

Tarragona: Cambrils, Vilafortuny, UTM 31TCF34, s.l., vacant lot near the sea, one tall specimen, 23.IX.2003, *F. Verloove* 5505 (priv. herb., BR).

The first Spanish occurrence of «true» *Physalis ixocarpa*, after that the species had been confused with *P. philadelphica*, was recently reported by VERLOOVE (*Lazaroa* 24: 7-11, 2003). Meanwhile, there is at least one other recent Spanish finding of this species from the province of Badajoz (VÁZQUEZ PARDO *& al*., *Acta Bot. Malacit*. 27: 259-261, 2002), relatively near to the well-known Portuguese populations.

Senecio pterophorus DC.

Barcelona: Premià de Mar, Can Pou, UTM 31TDF49, s.l., sandy railway track along N2, one specimen, 12.IX.2003, *s.c.*; **Tarragona**: Cambrils, Vilafortuny, UTM 31TCF34, ca. 10 m, sandy, ruderalized roadverge at railway track, small population (ca. 10 m2), 27.IX.2003, *F. Verloove* 5506 (priv. herb.).

This South African xenophyte was first reported from Spain (and the European continent) by PINO (*An. Jard. Bot. Madrid* 58: 188-189, 2000). From 1995 onwards *Senecio pterophorus* has been recorded in a large number of localities in the province of Barcelona (and to some extent Tarragona), particularly in the river basins of Tordera and Besòs in the surroundings of Barcelona. Subsequently, new records came to light in the Baix Llobregat area (PINO, *Spartina* 4: 2, 2001). Meanwhile (and according to our own records in 2003), *Senecio pterophorus* turns out to thrive very well along the Ripoll-river, for instance in Barbera del Vallès, Ripollet and Montcada, where, occasionally, massive stands occur. The two records mentioned above are more or less disjunct and seem to prove the species' capability for expansion.

PINO l.c. has not discussed the origin of *Senecio pterophorus* in northeastern Spain. There might be an interesting historical explanation: the area north of Barcelona (Sabadell, Terrassa) used to be a famous wool-processing area. In former times the effluents from the woollen mills carrying seeds found their way into the river. As a consequence, numerous exotic plants occurred on the riverbanks stream down of the mills. Although never studied in detail in this area, this wool-processing industry must have been responsible for the introduction of several unusual xenophytes. At least *Jarava plumosa* (*Stipa papposa*) is supposedly introduced as such (CASASAYAS I FORNELL & FARRÀS I DE BLÀS, *Collect. Bot*. 16: 161-164, 1985). There are surely others: the massive presence of the South American *Jarava caudata* (*Stipa caudata*) in the Besòs basin (see above) could also have been the result of a former introduction with wool-waste (see also RYVES *& al*., *Alien grasses of the British Isles*. XX + 181 p.,1996). Similarly, *Senecio pterophorus*, reported as a wool-alien for instance in Britain and Belgium (CLEMENT & FOSTER, *Alien plants of the British Isles*. XVIII + 590 p., 1994; VERLOOVE, *Checklist of non-native vascular plant species in Belgium*, in preparation), might also have been a former wool-alien.

Another interesting issue is the reported presence of a similar but South American species, *Senecio grisebachii* Baker, in Liguria in northwestern Italy (BARBERIS *& al*., *Webbia* 52: 201-206, 1998). The authors already admited that their plants do not perfectly match with Baker's original description, espe-

cially with regard to the size of flower heads and achenes «which are always smaller». As a matter of fact, we have been able to examinate the Ligurian plants *in situ* in September 2004 and they are identical with the Catalonian ones and consequently belong to *Senecio pterophorus* too. The Ligurian and Catalonian populations also share the same ecological niches (see BARBERIS *& al*. l.c., PINO l.c.).

Solanum bonariense L.

Murcia: El Algar, Torre del Negro, near Cartagena, bare, stony roadverge, large population, 09.X.2001, *F. Verloove* 4974 (priv. herb. author, priv. herb. Eric Clement, LG).

A new record of this South American xenophyte of which only one previous record for the province of Murcia is available (cf. ROBLEDO *& al*., *An. Biol*. 21: 47-54, 1996).

Solanum elaegnifolium Cav.

Barcelona: Mollet del Vallès, Poligon Industrial on left bank of riu Besòs, UTM 31TDF39, ca. 50 m, ruderalized roadverge, two populations of ca. 5 m2 each, 09.IX.2003, *F. Verloove* 5476 (priv. herb.).

Solanum elaegnifolium, native in South America, has been recorded previously in the surroundings of Barcelona by MASALLES (*Butll. Inst. Cat. Hist. Nat.* 51: 179, 1984); infrastructural works probably have destroyed this population (AYMENI, *Butll. Inst. Cat. Nat. Hist.* 64: 77, 1996). In Spain the species seems to be restricted to man-made habitats so far. Elsewhere in Europe *Solanum elaegnifolium* is increasingly regarded as a noxious invasive species in vulnerable natural environments.

Urochloa maxima (Jacq.) Webster (syn.: Panicum maximum Jacq.)

Tarragona: Cambrils, near the railway station, UTM 31TCF34, ca. 15 m, ruderal area, locally well-established, 21.IX.2003, *F. Verloove* 5509 (priv. herb. author, priv. herb. Eric Clement, MA n° 714235).

On behalf of its particular lemma ornamentation (and other exomorphological diacritic features), *Panicum maximum* has been transferred to the genus *Urochloa* by WEBSTER (*The Australian Paniceae (Poaceae)*, 322 pp.,1987). At present, his viewpoint is becoming widely accepted (see for instance WIPFF & THOMPSON, Urochloa. In: Barkworth & al. (eds.), *Flora of North America, north of Mexico*, volume 25: 492-507, 2003; ALISCIONI *& al*., *Amer. J. Bot.* 90: 796-821, 2003).

The population in Cambrils seems to represent the first spontaneous record in the Iberian Peninsula (pers. comm. C. Acedo 12.2003). As a matter of fact, the species was already included, as a relic of cultivation, in an old catalogue of plants from Torrecilla de Alcañiz (province of Teruel) (sub *P. compressum* Biv.; PARDO SASTRÓN, *Bol. Soc. Aragonesa Ci. Nat.* 2: 262-268, 1903).

According to Flora Europaea *Urochloa maxima* would have been native in Sicily (CLAYTON, Panicum. In: Tutin T.G. (ed.), *Flora Europaea* vol. 5: 261, 1980). This appears to be unlikely: the Sicilian plants are rather small grasses confined to calcareous rocks near the sea. They apparently belong to a closely related distinct taxon, recently segregated as *Panicum bivonianum* (BRULLO *& al*., *Giorn. Bot. Ital.* 129(2): 173, 1995), characterized by densely pubescent spikelets.

Verbena litoralis Kunth var. **brasiliensis** (Vell.) Briq. (syn.: V. brasiliensis Vell.)

Barcelona: Sant Celoni towards La Batllòria, Gualba de Baix, along BV 5116, UTM 31TDG61, roadverge, ca. 100 m, common and increasing in this area, here +/- 25 ex., 11.IX.2003, *F. Verloove* 5480 (BR); Gualba de Baix, riu Tordera, UTM 31TDG61, gravelly roadverge, ca. 90 m, 3 ex., 11.IX.2003, *s.c.*; La Batllòria, riu Tordera, UTM 31TDG61, roadverge of gravelly secondary road, ca. 90 m, very common in monospecific stands, 11.IX.2003, *s.c.*; Sant Celoni, near Can Carreres, along BV 5116, UTM 31TDG51, roadverge, ca. 120 m, 1 ex., 11.IX.2003, *s.c.*

VERLOOVE (*Lazaroa* 24: 7-11, 2003) recently reported about the first occurrence of *Verbena litoralis* in Spain. As a matter of fact the species was unknown to Dr. S. Castroviejo (pers. comm. 2002). GUTIÉRREZ I PEREARNAU & SÁEZ GOÑALONS (*Fol. Bot. Misc.* 10: 67-75, 1996) and GUTIÉRREZ I PEREARNAU (*Butll. Inst. Cat. Hist. Nat.* 66: 59-62, 1998), on the contrary, already cited the presence and naturalization of *Verbena litoralis* in this area. The present records seem to confirm its further naturalization and spread.

The very same taxon is increasingly found in northwestern Italy (Liguria), especially along dry riverbeds and to some extent in waste areas (pers. obs. September 2004). Up to now, it was probably confused with a South American relative, *Verbena bonariensis*.

DISCUSSION

Once more, additional floristic surveys in Spain revealed numerous interesting new data about its xenophytic flora. Several taxa are reported for the first time in the Iberian Peninsula, others seem to have extended their known area considerably in recent times. The extension of some reputed noxious weeds (for instance *Atriplex semibaccata*, *Eragrostis curvula*, *Jarava caudata*, *Senecio pterophorus*,…) might be alarming and should possibly be watched. The degree of naturalization of some other xenophytes remains uncertain but their future expansion cannot be excluded (*Chloris truncata*, *Paspalum notatum*).

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The origin of some of the enumerated taxa is possibly related with the former wool-processing industrial activities around Barcelona. The actual presence of (among others) *Jarava caudata* and *Senecio pterophorus* is likely to be the result of an earlier introduction with sheep wool. A remarkably high number of the naturalized xenophytes in this area used to be regular wool aliens in various European countries (Great Britain, Belgium, several Central European countries). Unfortunately, the Spanish wool alien flora has never been studied in detail in the past; hence this ascription will remain hypothetical.

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