

CONTRIBUTIONS TO THE FLORA OF THE AZORES, MADEIRA, P. SANTO AND THE CANARY ISLANDS

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ABSTRACT. During visits to the Azores in 1984 and 1987 (S.Miguel, Terceira, Pico, Faial, S. Jorge), Madeira and P. Santo in 1988 and the Canary Islands in 1985, 1986, 1988, 1989, 1990 and 1991 (Fuerteventura, Tenerife, Gomera and Hierro) a number of species new to either the island-groups or to single islands among them were found. They are listed below, and some comments on different plants have been added too.

RESUMO. CONTRIBUIÇÕES PARA A FLORA DOS AÇORES, MADEIRA, P. SANTO E CANÁRIAS. O autor descreve a descoberta de novas espécies de plantas para os arquipélagos dos Açores, Madeira e Canárias.

Species new to the Azores:

Nephrolepis exaltata (L.) Schott (Oleandraceae), S.Miguel: Sete Cidades, 1987. Known from the Canary Islands (C,T,P).

Tetrapanax papyriferus (HOOK.) C.Koch (Araliaceae), S.Jorge: Fajã de Cubres, north-coast (and in other places) 1987, probably a garden-escape. A native of China and Taiwan, introduced in other countries in N.America (e. g. Florida), S.America (Paraguay), the Isle of Helena in the Atlantic Ocean.

Arctotheca calendula (L.) Lewyns (*Cryptostemma* c.(Hill) R.Br.) (Asteraceae): Terceira: Lajes, at the harbour or pier, 1987. A native of S.Africa, in Europe widely naturalized in C. and S.Portugal and SW.Spain.

Centaurea diluta AITON (Asteraceae), S. Miguel: Ribeira Quente (S.of Furnas), in waste place, 1987, and in P. Delgada, in waste place at the harbour, 1987; further found on S. Jorge: Velas, on road-side, 1987. A native of NW.Africa and S. Spain and an adventive plant in several European countries by now. Known also from Madeira (1976, HANSEN, 1978) and from Tenerife, Canary Islands (1976, MENDEZ & WILDPRET, 1978).

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Pulicaria paludosa L. (Asteraceae), S. Miguel: P. Delgada, in waste place at the harbour, 1987. A native of the Iberian Peninsula.

Brassica juncea (L.) Czern. (Brassicaceae), Faial: Horta, in waste place, 1987. A native of S. and E. Asia.

Lunaria annua L. (Brassicaceae), Pico: On road-side near Santo Amaro, most likely a garden-escape.

Stellaria alsine GRIMM (Caryophyllaceae), Pico: Along the Estrada Longitudinal, W. of Lagoa do Capitão and near Lagoa do Caiado, on wet road-slopes, both 1987. Most likely a native plant!

Ipomoea batatas (L.) Lam. (Convolvulaceae), S. Jorge: Urzelina, escaped from cultivation, 1987.

Cicer arietinum L. (Fabaceae), S. Miguel: P. Delgada, in waste place at the harbour, 1987.

Bromus commutatus Schrad. (Poaceae), Faial: Horta, in waste place, 1974.

Species new to São Miguel:

Malva nicaeensis All. (Malvaceae): P. Delgada-West, in waste place, 1987.

Aira praecox L. (Poaceae): Pico do Barroso, in parking-place, 1987.

Phalaris canariensis L. (Poaceae): P. Delgada-West, in waste place.

Soleirolia soleirolii (REQ.) Dandy (Urticaceae): Near Lagoa do Negro, in a parking-place, 1987.

Urtica urens L. (Urticaceae): P. Delgada-West, in waste place, 1987. Hitherto known only from Terceira among the Azores.

Soliva pterosperma (JUSS.) Less. (Asteraceae): In the Azores known only from S. Miguel: Ponta Delgada, as a lawn weed in parks. In 1987 it was observed in a parking place on Pico do Barroso (ca. 940m) near Lagoa do Fogo, most likely spread from P. Delgada with the traffic. - The correct name for this tiny plant seems to be

S. sessilis RUIZ LOPES & PAVON (Ray 1987).

Species new to Terceira:

Alisma lanceolata WITH. (Alismataceae): Near the harbour of Lajes, 1987.

Dichondra micrantha URBAN (Convolvulaceae): Lajes Airport, in lawns, 1987.

Linum bienne MILL. (Linaceae): Lajes Airport, in lawns, 1987. Hitherto known only from S. Miguel.

Species new to Pico:

Drosanthemum floribundum (HAW.) Schwantes (incl. *D. candens* (Haw.) Schwantes) (Aizoaceae): Cais do Pico, on coastal rocks, 1987 (about its identity see AKEROYD & PRESTON, 1990).

Canna indica L. (Cannaceae): Cais do Pico, in waste place, 1987.

Tradescantia fluminensis VELL. (Commelinaceae): Above Ribeiras, South-coast, 1987.

Kyllinga (Cyperus) brevifolia ROTTB. (Cyperaceae): Cais do Pico, in fields above the town, 1987.

Frankenia laevis L. (Frankeniaceae): Cais do Pico, among costal rocks at the harbour, 1987. In the Azores earlier known only from Corvo.

Trifolium scabrum L. (Fabaceae): On rocks above Ribeiras, E. of Lajes do Pico, 1987.

Glechoma hederacea L. (Lamiaceae): Cais do Pico, established in forest S. of the town, 1987. In the Azores hitherto known only from S. Miguel.

Fuchsia boliviana Carr. (Onagraceae): Cais do Pico, on road-side above the town, 1987.

Oenothera laciniata HILL (Onagraceae): Cais do Pico, in waste place, 1987.

- *Oenothera suaveolens* and *O. erythrosepala* BORBAS are most likely the same taxon with the name *O. glazoviana* (DIETRICH 1988).

Catapodium rigidum (L.) C.E. Hubb. (Poaceae): Cais do Pico, in waste place, 1987.

Vulpia muralis (KUNTH) Nees (Poaceae): Near Lagoa do Capitão, 1987.

Vulpia myurus (L.) C.C. Gmelin (Poaceae): Cais do Pico, in waste place, 1987.

Rumex acetosella L. ssp. *angiocarpus* (MURB.) MURB. (Polygonaceae): Near Lagoa do Capitão, 1987; now found on all Azores-Islands.

Hebe salicifolia (G. FORST.) Penn. (Scrophulariaceae); Santo Amaro, escaped from cultivation; earlier known from S. Miguel and S. Jorge.

Veronica peregrina L. (Scrophulariaceae): Cais do Pico, a garden-weed, 1987.

Species new to S. Jorge:

Asplenium adiantum-nigrum L. (Aspleniaceae): Calheta Harbour, on walls, 1987.

Pteris vittata L. (Pteridaceae): Calheta Harbour, on walls, 1987.

Tanacetum parthenium (L.) Sch. Bip. (Asteraceae): Topo, on road-side, 1987.

Anredera cordifolia (TEN.) Steenis (Basellaceae): Calheta, 1987.

Lobularia maritima (L.) Desv. (Brassicaceae): Velas and other localities, in waste places, 1987.

Euphorbia peplus L. (Euphorbiaceae): Urzelina, 1987,

Medicago polymorpha L. (Fabaceae): Topo, at the harbour, 1987.

Trifolium incarnatum L. (Fabaceae): Sete Fontes, 1987.

Trifolium scabrum L. (Fabaceae): Near the lighthouse at Topo, 1987.

- Luzula multiflora* (RETZ.) Lej. (Juncaceae): Sete Fontes and Topo, 1987.
- Clinopodium vulgare* L. (Lamiaceae): Pico de Esperança, 1987.
- Allium vineale* L. (Liliaceae): Sete Fontes, 1987.
- Papaver somniferum* L. (Papaveraceae): Velas, in waste place, 1987.
- Phalaris aquatica* L. (Poaceae): Sete Fontes, 1987.
- Polygonum viridis* (GOUAN) Breistr. (Poaceae): Calheta, at the harbour, and in other localities, 1987.
- Setaria adhaerens* (FORSSK.) Chiov. (Poaceae): Urzelina and Velas, 1987.
- Setaria geniculata* (LAM.) PB. (Poaceae): Queimada, a garden-weed and in Velas, in waste place, 1987.
- Stenotaphrum secundatum* (WALT.) O.Ktze. (Poaceae): Velas, a field-weed, 1987.
- Muehlenbeckia sagittifolia* (ORT.) Meissn. (Polygonaceae): Calheta, at the harbour, 1987.
- Consolida ambigua* (L.) P.W. BALL (Ranunculaceae): Queimada, 1987.
- Kickxia elatine* (L.) Dum. ssp. *crinita* (Mab.) W. Greuter (Scrophulariaceae): Velas, 1987.
- Salpichroa origanifolia* (LAM.) Baill. (Solanaceae): Topo, at the lighthouse, 1987.
- Soleirolia soleirolii* (REQ.) Dandy (Urticaceae): Sete Fontes, 1987.
- Species new to Faial:**
- Coreopsis lanceolata* L. (Asteraceae): Established in an old quarry at Capelinhas, 1987.

Matricaria recutita (L.) RAUSCH. (Asteraceae): Horta, in waste place, 1987.

Setaria geniculata (LAM.)PB. (Poaceae): Ribeira de Flamengos, 1981, leg. E.CLEMENT.

During my stay in Faial in July 1987 a climb of the rest of the volcano-cone at Capelinhos, formed during the eruption in 1956/57, was undertaken. The cone is much eroded and nearly without vegetation; only 6 species of higher plant could be seen. They are: *Cyrtomium falcatum*, *Carpobrotus edulis*, *Gnaphalium luteo-album*, *Spergularia azorica* (endemic), *Plantago coronopus* and *Polyopogon maritimus*.

Another New *Grammitis*-species from the Azores

In 1974 the German botanists H. and K.RASBACH published a find in 1973 of a small fern, *Grammitis jungermannioides* (KLOTZSCH) Ching, on the Island of Pico, as new to the Azores - and, for that matter, also new to Europe. Only a single specimen with about 60 fronds was found then. Their sole locality on the northwestern slope of the Pico-volcano (ca. 850 m) is marked rather precisely on a map in their paper, and following this the present author together with a colleague, P.WIND, on July 6th. 1987 searched there for the fern. We were lucky and soon found the tiny fern on the stems of *Juniperus brevifolius*, *Erica scoparia var. azorica* and *Vaccinium cylindraceum*; furthermore, later the same day we discovered several specimens on the same trees in 4 other localities situated near the Lagoa do Caiado, on both sides of the "Estrada Longitudinal", some kilometers eastwards from the first locality mentioned. Thus we may conclude that this fern most likely is no rarity in the said region - once acquainted with its biotope in the "Misterios"-region you will find it a common fern!

Moreover in the first locality mentioned (near Furna de Frei Matias) we detected another *Grammitis*-species, only a single specimen with several fronds, on *Juniperus brevifolius* and clearly different from *G. jungermannioides* in having its fronds black-bordered. But certainly there are more specimens present in this region! It has been determined as *G. ebenina* (Maxon) Tardieu (evt. synonym *G. quaerenda* Bolle 1863 from the Canary Islands, but no material seems to exist today, see Maxon (1915), a native of the island of St. Helena (evt. present also on St. Thomé and in Guinea (Tardieu-Blot, 1953)). Cronk (1988 and 1989) mentions it from St. Helena with these words after Burchell's "Flora Insulae Sanctae Helenae": *Insuper truncos et ramos arborum montium altissimorum*, on the Bastard Cabbage Tree (the endemic *Melanodendron integrifolium*, Asteraceae); this author calls it a rare, endemic plant.

The genus *Grammitis* includes about 150 pantropical species, distributed in several sections; *G. ebenina* belongs to section *Grammitis*, while *G. jungermannioides* belongs to section *Grammitastrum*, whose section was recently been translated into a new genus: *Ceradenia* L.E.BISHOP (1988). *G. jungermannioides* is a native of Mexico, Central America, some West Indies Islands and Columbia (S.America).

Santa Maria: In 1985 the Swiss botanist C. SIMON published a find of *Trifolium fragiferum* L. from the Isle of Santa Maria (near the village Santana, collected 8/8-1983), then new to the Azores. Already in 1979 the author to these lines could collect it in the area just East of the Airport, near the Airport-hotel.

Which *Polygala*?

From the Azores 2 *Polygala*-species, *P. vulgaris* L. from Pico and *P. serpyllifolia* Hose from Terceira and Pico, have been given, but apparently very little material on the plants exists (PALHINHA, 1966). FRANCO (1971) does not mention any *Polygala*-species from the Azores at all! SJÖGREN (1973) mentions only *P. vulgaris* as found on Pico. In 1987 the author got some material collected on Pico: NW-scrree of the volcano, at about 1000 m, and this material is clearly *P. serpyllifolia*.

Plants New to Madeira and Porto Santo and New Records of Rare Plants

Adiantum reniforme L. (Adiantaceae): Porto Santo, Pico Branco, ca.450 m, leg. L.FRANQUINHO; new to this island.

Gomphrena celosoides MART.(Amaranthaceae): As new to Madeira published in 1987 by the author after having been observed in some streets in Funchal. In 1988 also met in pavement at a restaurant near the Airport.

Conium maculatum L.(Apiaceae): Ca. 3 km East of Funchal in a cultivated area near the mainroad to the Airport, 1984, leg. A.da COSTA and L.FRANQUINHO, and again in the same area 1988, leg. R.VIEIRA (in a non-cultivated area at Caniçal). New to Madeira; known from the Canary Islands (C,T,G,H,P) and from the Azores (S,M,T).

Aster x versicolor WILLD. (*A.laevis* x *novi-belgii*) (Asteraceae): Camacha, on road-side, 1988, most likely a garden-escape.

Dahlia coccinea CAV. (Asteraceae): Camacha, on road-side, 1988, a garden-

escape and new to Madeira.

Malcolmia maritima (L.)R.Br. (Brassicaceae): A weed in lawn at Quinta do Palheiro, 1989, *leg.* H. VARE, new to Madeira.

Atriplex halimus L. (Chenopodiaceae): Formerly this plant was known only from P. Santo, but in 1988 it was observed at Cabo Girão, Madeira, *leg.* L. FRANQUINHO (perhaps planted).

Chenoleoides tomentosa (LOWE) Botsch. (*Bassia t.* (LOWE) Maire & Weill.) (Chenopodiaceae): Above Caniçal, Península Ponta de S. Lourenço, 1988. From Madeira hitherto known only from the easternmost islands Ilheu dos Desembarcadouros and Ilheu de Fora.

Chenopodium giganteum D.DON (Chenopodiaceae): A giant specimen at Monte above Funchal, at the entrance to a tunnel, 1988. The first record of this from Madeira was given by SIMON (1983).

Citrullus lanatus (L.) Schrad. (Cucurbitaceae): In waste place in Vila, P. Santo, 1988. New to the Madeira Archipelago.

Lotus argyrodes Murray (*L. argenteus* Webb non Boiss, *Pedrosia argentea* (Webb) Lowe) (Fabaceae): In 1991 observed along the foot-path from Fajã de Ovelha to Paul do Mar by L.FRANQUINHO; a rare, endemic species known from a single locality on both Madeira (Boaventura) and on P. Santo (Pico do Facho), and finally from Ilhéu Chão and Bugio (Desertas).

Allium neapolitanum CYR. (Liliaceae): Quinta do Palheiro, in a lawn, 1989, *leg.* H. VARE; hitherto known only from Funchal and Camacha.

Allium triquetrum L. (Liliaceae): São Vicente-Town, North-coast, at base of a steep slope behind a restaurant, 1989, *leg.* H. VARE. A rare plant in Madeira.

Bromus hordeaceus L. ssp. *hordeaceus* (Poaceae): At the power-station in Serra d'Água, Ribeira Brava Valley, 1976, *leg.* the author, and on roadside in Machico, 1984, *leg.* R. M. PAYNE. New to Madeira (ssp. *molliformis* is well-known from the Archipelago).

Lolium rigidum GAUD. (Poaceae): Vila, P. Santo, in waste place, 1988, new to

this island.

Phragmites australis (CAV.) Trin. (Poaceae): A rare plant in Madeira and P. Santo; recent localities are Caniçal (1967), Tabúa (1988), between Ponta do Sol and Madalena do Mar (1987), Paul do Mar (1988); on P. Santo a single locality in Vila (1987).

Plants new to the Canary Islands

Amaranthus standleyanus Parodi ex Covas (Amaranthaceae): Hierro, at the harbour of la Restinga; a native of South America (Argentina).

Crassula multicava LEM. (*C. quadrifida* BAK.) (Crassulaceae): An established garden-escape in Puerto de La Cruz, Tenerife, leg. J. TOLONEN, 1988, and on Gomera: Hermigua and in other places, on roadsides, 1989, leg. the author.

Carex pseudocyperus L. (Cyperaceae): Tenerife, Playa de las Americas, a weed along the street near Hotel Las Palmeras, April 1987, leg. T. LAHTONEN. In 1990 the author searched for this characteristic Sedge, widespread in Europe and North America, in the said place, but without any success. This find apparently has been an one-time phenomenon!

Medicago turbinata (L.) All. var. *aculeata* MORIS (Fabaceae): Gomera, Barranco de la Villa, 1990, leg. the author, and Roque Agando, 1975, leg. G. KUNKEL (in herb. C.).

Leonotis nepetifolia (L.) R. Br. in Ait. F. (Lamiaceae): Tenerife, established in Barranco Martianez, Puerto de La Cruz, 1987, leg. F. SKOVGÅRD. A native of S. Africa, but has become a pantropical weed (IVARSSON, 1985); annual or short-lived perennial, slender herb up to 3m high, inflorescence of spherical verticils with many flowers with orange-coloured corolla.

Oenothera jamesii TORR. & GRAY (Onagraceae): A collection of *O. suaveolens* Desf. from Orotava-Aguamanza, Tenerife, from 1969, leg. the author, has been changed to *O. jamesii*, determined by W. DIETRICH, Düsseldorf, Germany. A native of N. America (from Oklahoma to Mexico), and a new alien for the Canary Islands.

Oenothera parodiana MUNZ (ssp. *parodiana*) (Onagraceae): This name seems to be the correct name for *O. indecora* Camb. published from La Palma in

September 1972 (HANSEN, 1973); the only record from the Canary Islands. It is a native of S. America (S. Brazil, Uruguay and Argentina); as an adventive plant known also from Europe (France, the Netherlands and Germany) and from S. Africa.

Elionurus royleanus NEES ex A. Rich. (Poaceae): Gran Canaria, ca. 2km NW. of Puerto Rico, among rocks in 2 localities, February 1989, *leg.* F. SKOVÅGRD. Known from the Cape Verde Islands. This genus has about 15 species, mostly in Tropical Africa, but also in N. and S. America and Australia (RENVOIZE, 1978).

Species new to Lanzarote

Hypochoeris glabra L. (Asteraceae): MASDACHE 1978, *leg.* the author. Previously known from C, T, G, H, P.

Petrorhagia nanteuillii (BURNAT) BALL & HEYW. (Caryophyllaceae): La Corona near Mirador del Rio, 1978, *leg.* the author. Now known from all Canary Islands except Fuerteventura.

Astragalus polyactinus BOISS. (Fabaceae): Rubicon N. of Playa Blanca, 1978, *leg.* the author, another locality is El Golfo, 1989, *leg.* S. GROVE (herb. C). Besides Lanzarote, found also on Fuerteventura.

Vicia sativa L. ssp. *nigra* (L.) Ehrh. (*V. angustifolia* L.) (Fabaceae): Playa Famara above Haria, 1978, *leg.* the author.

Arrhenatherum elatius (L.) PB. ex J. & C. PRESL ssp. *bulbosum* (WILLD.) SCHÜBL. & MART. (Poaceae): Above Haria 1978, *leg.* the author.

Setaria adhaerens (FORSSK.) Chiov. (Poaceae): Playa del Carmen, E. coast, 1978, *leg.* the author.

Pelletiera wildpretii VALDÉS (Primulaceae): This tiny plant - earlier in the Canary Islands stated to be *Asterolinum linum-stellatum*, sometimes included in *Lysimachia* - has been discovered on Fuerteventura, G. Canaria, Tenerife, La Palma and Hierro (VALDÉS, 1980; SHORT, 1988). In 1978 it was collected by the author at Fames on Lanzarote, and some other localities on Fuerteventura: SW. of Corralejo, 1986 and in the Muda Mountains, northern slope SW. of La Oliva, 1988, can be added.

Species new to Fuerteventura

A general view of the flora of Fuerteventura has been given by KUNKEL (1977), who counted about 600 species of higher plants. In 1985 SANTOS and FERNANDEZ published 13 species new to the island, and in the same year KUNKEL (1985) added another 3 new species to its plant-list.

Amaranthus viridis L. (Amaranthaceae): Puerto del Rosario, a weed in streets, 1985; Airport, a weed in flowerbeds, 1985; Corralejo, at the harbour, 1985; W. of Punta del Bajo, in ravine, 1985; Valleverde, NE. of Oliva, on roadside, 1985; Gran Tarajal, 1986; Tuineje, at service-station, 1986; Las Playites, a garden-weed, 1988; Morro Jable-Town, in waste places, 1989 and Playa del Matorral, common in flower-boxes in hotels, 1989. So far known from C, T, G, P.

Torilis bifrons (POMEL) Jafri (*Caucalis b.* (Pomel) Maire (Apiaceae): Riscos del Carnicero, 1988 and 1989; in Jandia Peninsula (Cofete, Barranco del Ciervo, Barranco del Mal Nombre, 1986, 1988, 1989). A species apparently confused with *T. leptophylla*; known also from Lanzarote.

Torilis webbii S.L. JURY (Apiaceae): El Alto, NW. of P. del Rosario, 1988; between Betancuria and Vega de Rio Palmas, 1988 and on Muda Mountain SW. of Oliva, 1988. A recently described species closely related to *T. nodosa* (Jury, 1987); found also on Tenerife.

Scorzonera laciniata L. (*Podospermum l.* (L.) DC.) (Asteraceae): In formerly cultivated area along the road between La Amouyente and Antigua, 1989. So far known from L,C,T, and a native of C.,S. and SE. Europe.

Coronopus didymus (L.) J.E.Sm. (Brassicaceae): In waste place at Punta del Matorral, Jandia Peninsula, 1988. Known from all the rest of the Canaries.

Loeflingia hispanica L. (Caryophyllaceae): The existence of this tiny plant of the Canary Islands was stated for the first time by J. DUVIGNEAUD, who collected it on Lanzarote in April 1976 (E. of Playa Blanca, southernmost part of the island, DUVIGNEAUD 1977). In 1985 and again in 1988 the present author could collect it on Fuerteventura: In sandy fields at Majanicho, N. coast, opposite Lanzarote, as new to this island. - Since WEBB & BERTHELOT (1836/50) a species of the genus *Minuartia*, *M. montana* L., has been mentioned as a Canarian plant, found on Tenerife without any statement of localities and never found again. In Herb. C.

among the plants collected by CHR. SMITH, who visited the Canary Islands in 1815 (Tenerife, G.Canaria, La Palma and Lanzarote, see HANSEN 1977), a sheet with so-called *Minuartia montana* exists, determined by J. HORNEMANN, who received a part of the SMITH-collections from the said islands. The single, tiny plant on this sheet has now been identified as being *Loeflingia hispanica*! There is no statement on the sheet as to which island this specimen was collected from, but - as *Loeflingia hispanica* is an annual occurring in spring - it could very well come from Tenerife, where CHR. SMITH stayed from May 6th. until June 28th. (his stay in G.Canaria, La Palma and Lanzarote took place after this time). Thus *Minuartia montana* is possibly identical with *Loeflingia hispanica* and may be cancelled from the plant-list of the Canary Islands!

Silene colorata POIR. (Caryophyllaceae): Corralejo, 1986; known also from Lanzarote.

Ipomoea indica (Burm.f.) Merr. (*I. acuminata* (Vahl) R. & S. (Convolvulaceae): Corralejo, 1986, as a garden-escape. Hitherto known from C,T,G,P.

Euphorbia aphylla BROUSS. (Euphorbiaceae): Lajita, flowering in a dry riverbed and most likely escaped from cultivation, but well established, 1989. Known from C,T and G as an endemic Canarian plant.

Cyperus longus L. (Cyperaceae): Introduced into the "Stella Canaria-Garden" or Park in Playa del Matorral, Jandia Peninsula, 1989. Known from C,T,G,P.

Trifolium scabrum L. (Fabaceae): On roadside at Morro de la Cruz, NE. of Betancuria, 1985, and in Muda Mountains, SW. of La Oliva, 1988. Mentioned from Fuerteventura by BOLLE (1892) without localities, and ignored by KUNKEL (1977) as a doubtful species for this island.

Vicia villosa ROTH (Fabaceae): Barca Quebrada, S. of Corralejo, 1985.

Oxalis latifolia KUNTH (Oxalidaceae): A weed in Corralejo, 1988; hitherto known only from C and T.

Sclerophylax spinescens MIERS (Solanaceae). Waste place in coastal sands at Morro Jable or Punta del Matorral, Jandia, 1988 and 1989. Known from G. Canaria at least since 1971 and a native of S. America (Paraguay-Argentina).

Additional remarks on Fuerteventura-plants

Ammodaucus leucotrichus COSS. & DUR. (Apiaceae): Mentioned for the first time from Fuerteventura (NW. of Gran Tarajal) by KUNKEL (1977). In 1989 it was observed by the author in the area between Tarajalejo and Lapita; the Fuerteventura-material belongs to ssp. *nanocarpus* BELTRÁN.

Astydamia latifolia (L.f.) Baill. (Apiaceae): 6 specimens were observed near the lighthouse at Punta de Toston, 1985, in 1986 3 specimens and in 1988 25 specimens in the same area. KUNKEL (1977) knew it only from Punta de Jandia.

Asteriscus hierochunticus (MICHON) Winkl. (*Odontospermum pygmaeum* (Coss. & Dur.) O. Hoffm.) (Asteraceae) has been known only from a single find on Fuerteventura (KUNKEL 1977), but in 1976 KUNKEL collected the same plant near Betancuria (No. 18910 in herb. C.)

Asteriscus spinosus (L.) Sch.Bip.(Pallenis s.(L.)Cass.) (Asteraceae) has also been known from only a single locality on Fuerteventura: Barranca de Antigua (Kunkel 1977); in 1985 and 1988 it was observed on a roadside near Betancuria and on the Tegu Mountain, N. of Betancuria.

Reichardia famarae BRAMWELL & KUNKEL ex GALLEGO de TALAVERA (1980, described illegitimate by BRAMWELL & KUNKEL in 1973!)(Asteraceae). Found only on Fuerteventura and Lanzarote with Alegranza. From Fuerteventura known only from the Jandia Peninsula (Pico del Fraile); in 1989 observed in the same locality and also on the ridge of Las Pilas, some 5 km to the west from Pico del Fraile.

KUNKEL (1977) mentions 4 annual species of the genus *Senecio* (Asteraceae) from Fuerteventura, viz. *S. crassifolius* WILLD., *S. flavus* (DECNE.) Sch.Bip., *S. gallicus* CHAIX and *S. vulgaris* L. While *S. flavus* and *S. vulgaris* are well and easily recognized, the other 2 species are more troublesome. They cover most likely the following, annual 3 species: *S. glaucus* L. ssp. *coronopifolius* (MAIRE) Alexander, *S. leucanthemifolius* POIR. (*S. crassifolius* WILLD.) and *S. massaicus* (Maire) Maire, but more material from the island (and from Lanzarote too) are needed for further studies (see ALEXANDER, 1979 and KADEREIT, 1984).

Mairetis microsperma (BOISS.) I.M. Johnst. (Boraginaceae) has been given for the first time by KUNKEL (1977), who collected it in Barranco las Cabras near the Airport. Yet it is hardly rare in Fuerteventura; in 1985-89 it could be collected from

the following localities: W. of Tarajalejo, Corralejo, Barranco del Pecenescal, Jandia. It is common on Lanzarote and known also recently from Gran Canaria (since 1964) and from Tenerife (1990), and it belongs to the NW. African flora-element in the Eastern Canary Islands.

Ogastemma pusilla (COSS. & DUR. ex BONNET & BARATTE) Brummitt (1982): This small, easily overlooked plant with a somewhat intricate nomenclature (syn.: *Megastoma p.* (Benth. & Hook. f.) Bonnet & Baratte 1895, *Eritrichum sventenii* Sunding 1977) was collected for the first time on Fuerteventura in April 1912 by O. BURCHARD, whose locality was "*In arenosis prope portum Tarajaleco*" (herb. K.). In February 1973 another find was made by A. ALRIDGE on the Islet of Lobos off Corralejo (Fuerteventura-NE, in herb. BM; BRUMMITT *in litt.*). In 1980 S. GUERRA & F. GALVÁN published some finds made by the late E. SVENTENIUS, who visited Fuerteventura in March 1946 and April 1955; his localities were Gran Tarajal, Jandia and Barranco Vinamar. In 1988 and 1989 the present author could state 2 further localities for this plant in the area between Tarajalejo and Lajita, both places of dry, sandy plains near the sea (flooded in the winter by heavy showers). Thus, this plant seems to have a wider distribution in the southernmost part of Fuerteventura. *Ogastemma pusilla* is distributed in N.Africa (Mauritania, S. Morocco, Algeria, Tunisia, Egypt (Sinai) and in E.Arabia. In the Canary Islands found so far on Fuerteventura, but it could very likely be present also on Lanzarote with the Islets Graciosa and Alegranza.

Sclerocephalus arabicus BOISS. (Caryophyllaceae): In waste place near Palmar Hotel, Playa del Matorral, Jandia, 1988 and 1989. Mentioned for the first time from Fuerteventura by KUNKEL (1977): Esquinzo, ca. 150 m, 6-7 km from Matorral.

Atriplex suberecta VERD. (Chenopodiaceae): In waste place at Playa del Matorral and in several other places on the Jandia Peninsula, 1989, KUNKEL (1977) mentions it only from Betancuria; now it is probably spread all over Fuerteventura. A native of Australia.

Biserrula pelecinus L. (Fabaceae): Valle de Esquinza, Jandia Peninsula, where it seems to be fairly common. Given for Fuerteventura for the first time in 1980 by SANTOS & GALVAN (with finds by SVENTENIUS from Lobos and the Corralejo-region).

Commicarpus helenae (J.A.SCHULTES) Meikle (*C.stellatus* (WIGHT & ARN.)Berh.). (Nyctaginaceae): Given from Fuerteventura only at Tarajalejo (KUNKEL

1977). Observed by the author in coastal sands W. of Taralejo in 1986 and 1988, and at Lajila, Punta Padron, 1989. According to MEIKLE (1971, 1978) *C. helenae* is the correct name for this plant. KUNKEL calls it a "probably introduced plant", yet it seems quite a native species!

Plantago phaeostoma BOISS. & HELDR. (Plantaginaceae): This tiny *Plantago* species was collected for the first time in the Canary Islands on Fuerteventura 1946 (3 unknown localities), on Lobos in 1955 and 1956 and from Lanzarote (5 localities) 1953, 1954 and 1957, all collected by E. SVENTENIUS (SANTOS, 1981). In 1986 and 1989 the present author collected it in Costa Calma and Barranco del Penecescal, Jandia Peninsula, Fuerteventura (in sandy, dry river-beds). Its area, besides L. and F., includes N. Africa (Libya, Egypt) and Sinai.

Lophochloa pumila (DESF.) Bor (Poaceae): This annual grass is mentioned with a single locality from Fuerteventura by KUNKEL, (1977). In 1985, 1986, 1988 and 1989 the author collected it in 7 new localities spread from Corralejo in the North to Jandia in the South.

Setaria adhaerens (FORSSK.) Chiov. (Poaceae): Mentioned by KUNKEL (1977) from Antigua and Tarajalejo only, but now it has become more common, e. g. observed in Corralejo and in several localities in the Jandia Peninsula.

Sphenopus divaricatus (GOUAN) H.G.L. REICHENB. (Poaceae): This very delicate, halophilous grass was found in a very limited, sandy area near the sea in the western outskirts of Corralejo, N. coast, in April 1985. Because of the still expanding town it is seriously threatened. In the Canaries known only from Fuerteventura with a first find by PITARD & PROUST at Puerto de Cabras, probably an old name of Puerto del Rosaria ("pres des vieux murs ou sud de la ville, dans les sable litoraux, ou il est assez abondant", 1909) and from Lobos (KUNKEL, 1970). May be more common on F and possibly also present on Lanzarote. A grass spread in the Mediterranean area; its true name is possibly *S. gouanii* TRIN.

Rumex bipinnatus L.f. (Polygonaceae): The first record of this plant from the Canary Islands was made by E. SVENTENIUS: Morro Jable on Fuerteventura in 1949 (SANTOS & GALVÁN, 1977). As new to Lanzarote it was published by LID (1967) with 3 localities (2 finds at San Bartolomé and one on the summit of M. Zonzanos, 1954). An annual plant from W. Morocco and Tunis (RECHINGER, 1954) and closely related to *R. pictus* FORSSK. from Egypt, Palestine and Transjordan and sometimes considered a subspecies of this species, *ssp. bipinnatus* (L.f.) MAIRE. DUVIGNEAUD

(1977) mentions it from a new locality on Lanzarote, and the present author collected it in two additional localities on Lanzarote in 1978.

Zannichellia palustris L. (Zannichelliaceae): First find in Fuerteventura was made by SANTOS & FERNÁNDEZ at Vega de Rio Palma in 1979 (SANTOS & FERNÁNDEZ, 1984). In 1985 the author collected it in a water-tank, W. of Punta del Bajo, E. coast. Probably not rare on Fuerteventura, but perhaps a recent immigrant from North Africa. Known also from C. and T. (on T. with the name *Z. pedunculata* RCHB.).

Additions to the Flora of Lobos

On March 20th., 1988 a visit was paid to this small Island (6 km²) off the coast at Corralejo, Fuerteventura-NE. Its flora has been fairly well investigated by KUNKEL (1970), who counted some 133 species of vascular plants inhabiting the islet. Only a few people live in Lobos (Las Casas near the harbour on the southernmost part of the islet), and some "Urbanization-plans" started in 1967-68 very fortunately seem to have been abandoned again! During a walk for ca. 5 hours on the southern part of the isle about 65 species - nearly half the number of the species counted by KUNKEL - were observed, and among them the following species are new to Lobos: *Calendula tripterocarpa* RUPR. and *Sonchus bourgeauii* SCH. BIP., at the peer, west-coast (Asteraceae); *Mairetis microsperma* (BOISS.) I.M. JOHNST. (Boraginaceae); *Plantago aschersoniana* BOLLE (Plantaginaceae) and *Castellia tuberculosa* (MORIS) Bor and *Phalaris minor* RETZ. (Poaceae).

Species new to Gran Canaria

Anacyclus radiatus LOIS. (Asteraceae): Seems to be new to G. Canaria, collected in April, 1963, but without statement of the exact locality on this island, leg. P. HOLM JOENSEN (herb.C.).

Carex canariensis KÜTZ. (Cyperaceae): Published in 1983 by SANTOS & GALVÁN with two finds by E. SVENTENIUS: S. Brigida (1947) and Aldea S. Nicolas (1950) and then new to G. Canaria. In 1976 L. & V. DALGAARG collected it in a laurel forest in Barranco de la Virgen near Valsendero. Now known from C, T, G, H, P.

Species new to Tenerife

Mairetis microsperma (BOISS.) I.M. JOHNST. (Boraginaceae): Punta Roja SW.

of El Medano, S. coast, 1990, collected by the author. In the Canaries now known from L, F, C, T.

Sclerocephalus arabicus BOISS. (Caryophyllaceae): Teno and Los Christianos, August 1988, leg. HELGE NIELSEN. A procumbent herb, heads densely spiny of transformed inflorescence-bracts, like a *Medicago*-fruit. A North-African species, from the Canary Islands earlier known from Fuerteventura (Jandia Peninsula) since 1977.

Trigonella stellata FORSSK. (Fabaceae): Tenerife, Punta del Bocinegro, SW. of El Medano, S.coast, 1990, leg. H. H. BRUUN; earlier known from L, F, C.

Pelargonium inquinans (L.) l'Hér. in Aiton (Geraniaceae). This South African species has escaped from cultivation on a large scale East of Los Silos, North-coast, 1990, leg. S. GROVE. Earlier known from C and P.

Species new to Gomera

Trifolium cherleri L. (Fabaceae); Agula, leg. the author; previously known from C, T, P.

Trifolium obscurum SAVI ssp. *aquidentatum* (PÉREZ LARA) Viciosa (Fabaceae): El Negrin, S. of Garajonay 1990, leg. H. H. BRUUN. This plant was mentioned by KUNKEL (1980) from Gran Canaria as new to the Canaries; by a mistake it has been placed under T = Tenerife in 3. edition of the "Checklist" (HANSEN & SUNDING, 1985), and so it is now known only from C and G.

Vicia villosa ROTH (Fabaceae): El Negrin S. of Garajonay, 1990, leg. H. H. BRUUN, and Igualero, 1985, leg. K. GELTING.

Lemna gibba L. (Lemnaceae): In small pond in Barranco de la Villa, 1990, leg. the author; previously known from C, T, P.

Pennisetum setaceum (FORSSK.) Chiov. (Poaceae): On roadsides in Barranco de Chejelmis, NW. of S. Sebastian, 1990; previously known from C, T, P.

Schismus barbatus (L.) THELL. (Poaceae): Between Crio Quise and Caldera, ca. 300 m, 1990, leg. H. H. BRUUN.

Species New to Hierro

Aptenia cordifolia (L.f.) SCHWANTES (Aizoaceae): VALVERDE 1991; known from L, F, C, T, G.

Amaranthus lividus L. (Amaranthaceae): Punta de Zamora, North-coast, 1991, a weed in Pineapple-cultures. Now found on all Canary Islands.

Amaranthus viridis L. (Amaranthaceae): La Restinga at the harbour, 1991; hitherto known from C, T, G, P.

Aster squamatus (SPRENG.) Hier. (Asteraceae): On road-sides in Valverde, 1991, and now known from all 7 Canary Islands.

Gomphocarpus fruticosus (L.) R. Br. (Asclepiadaceae): On road-sides in Mocanal, 1991; now found on all Canary Islands.

Launaea arborescens (BATT.) Murb. (Asteraceae): A single specimen observed at the Airport (parking-area). It seems to have never been recorded from this island, and it may have reached the island by means of the airport traffic. Now known from the whole of the Canary Islands.

Senecio angulatus L.f. (Asteraceae): A garden-escape in Mocanal. 1991. Hitherto observed in C and T.

Anredera cordifolia (TEN.) Steenis (*Boussingaultia c.* Ten.) (Basellaceae): VALVERDE 1991; known earlier from F,C,T,G,P.

Euphorbia serpens KUNTH (Euphorbiaceae): Punta de Zamora, North-coast, a weed in Pineapple-fields, 1991. Earlier known from L,F,C,T,G.

Lens nigricans (M.BIEB.) Godron (Fabaceae): Montana del Julian, 1990, *leg.* T. MYNDEL PEDERSEN. Hitherto only known from La Palma.

Trifolium cherleri L. (Fabaceae): Tinor, SW. of VALVERDE, 1991. Previously known from C,T,G,P.

Orobanche minor J. E. SM. (Orobanchaceae): Parasitic on *Euphorbia* and *Schizogyne*, Punta de La Dehesa, 1990, *leg.* T. MYNDEL PEDERSEN, and Arenas

Blancas, 1991, *leg.* the author.

Phalaris aquatica L. (Poaceae): VALVERDE, 1991; previously known from C,T,P.

Solanum luteum MILL. (Solanaceae): VALVERDE and N. of Las Toscas (Tigaday), 1991. Now known from all islands except Lanzarote.

Volutaria-species

According to G. WAGENITZ (1989) *Volutaria tubuliflora* (Murb.) Sennen should be present on the Canary Islands (L,F,T - C can be added here, Herb.C.), while typical *V. lippii* (L.) MAIRE against the present opinion should be cancelled from the Canarian flora or perhaps belongs to a new, undescribed species. It seems to the author more appropriate to understand *V. lippii* in the Canary Islands as involving 2 subspecies: *V. lippii* (L.) MAIRE ssp. *lippii* and ssp. *tubuliflora* (MURB.) MAIRE, see QUEZEL & SANTA (1963), even if they are by no means clear cut.; ssp. *lippii* is most likely spread on all Canary Islands.

Apium leptophyllum (PERS.) MUELL. ex BENTH. (*A. tenuifolium* (MOENCH) THELL.). (Apiaceae), is found in all Macaronesian Island-groups as an established alien, origin: South America. As its relation to the genus *Apium* is much in doubt, it would be better regarded as its own genus, viz. *Ciclospermum* SPRAGUE, with 3 species, one of which is *C. leptophyllum* (PERS.) Sprague, Proc. Linn. Soc. London 1921/22:51 (CONSTANCE, 1990).

A New Name for *Erigeron cabreræ* M. DITTRICH

In 1981 M. DITTRICH, Genève, described a new, endemic *Erigeron*-species from Tenerife (Las Cañadas, at ca.2050 m, July 1976, *leg.* R. & M. DITTRICH no 3028, typus in herb.G., Candollea 36:243, 1981). It was given the name *E. cabreræ* in honour of the well-known Argentine Asteraceae-specialist prof., dr. A. L. CABRERA.

Unfortunately another *Erigeron cabreræ* SOLBRIG (named after the same botanist A. L. CABRERA) is already in existence, given to quite another species from Argentina (SOLBRIG, 1955). According to the nomenclature-rules the *E. cabreræ* M. DITTRICH-name is invalid, and a new name should be given to the Tenerife-plant. I herewith propose the name *Erigeron calderæ* A. HANSEN (syn.: *E. cabreræ* M. DITTRICH *nom. illeg., non E. cabreræ* SOLBRIG, Bot. Soc. Argent. Bot. 6:21, 1955). This plant is endemic to the Las Cañadas-area on Tenerife.

It can be added that *Erigeron cabreræ* SOLBRIG in 1971 was reduced to a synonym of *E. andicola* DC., Prodr. 5:287, 1836, by M. N. CORREA: Flora Patagonica 7:63, 1971, but, all the same, *E. cabreræ* DITTRICH is still a *nom. inval.*

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