

VIERAEA	Vol. 31	45-50	Santa Cruz de Tenerife, diciembre 2003	ISSN 0210-945X
---------	---------	-------	--	----------------

**Chorology of *Euphorbia bourgeauana* Gay ex Boiss.  
in D.C. in Teno massif (Tenerife, Canary Islands)  
(Euphorbiaceae)**

AURELIO ACEVEDO<sup>1</sup>, AIRAM RODRÍGUEZ<sup>2</sup>, BENEHARO RODRÍGUEZ<sup>3</sup>  
& ABEL HERNÁNDEZ<sup>4</sup>

<sup>1</sup> c/ San Agustín, Nº 41, Piso 5, Los Realejos, E-38410 S/C de Tenerife,  
España. aurelioacevedo@hotmail.com

<sup>2,3</sup> c/ La Malecita s/n, Buenavista del Norte, E-38480 S/C de Tenerife,  
España.

<sup>4</sup> c/ La Estrella Nº 54, Los Silos, E-38470 S/C de Tenerife, España.

ACEVEDO, A., A. RODRÍGUEZ, B. RODRÍGUEZ & A. HERNÁNDEZ (2003). Corología de *Euphorbia bourgeauana* Gay ex Boiss. in D. C. en el macizo de Teno (Tenerife, islas Canarias) (Euphorbiaceae). *VIERAEA* 31: 45-50.

RESUMEN: La presencia de *Euphorbia bourgeauana* Gay ex Boiss. in D.C. en el macizo de Teno ha sido objeto de controversia y confusión por diversos autores. En el presente trabajo se confirma la existencia de la especie en este macizo, aportándose información actualizada de su abundancia y corología. Palabras clave: distribución, corología, *Euphorbia bourgeauana*, macizo de Teno, Tenerife, islas Canarias.

ABSTRACT: The presence of *Euphorbia bourgeauana* Gay ex Boiss. in D.C. on the Teno massif has been a confused and controversial subject by some authors. In this paper we confirm the existence of the species in this site, and current information of its status and distribution is presented.

Keywords: Distribution, Chorology, *Euphorbia bourgeauana*, Teno massif, Tenerife, Canary Islands.

## INTRODUCTION

A total of 41 species of the genus *Euphorbia* L. have been cited in the Canary Islands; 9 of them are endemic to the archipelago and *Euphorbia atropurpurea* (Brouss.) Webb & Berth. and *E. bourgeauana* Gay ex Boiss. are only present in Tenerife (Acebes *et al.*, 2001). At the moment, the known distribution area of *E. bourgeauana* was the Ladera de Güímar and a small sector of the Anaga massif (Mesa, 1999). In both sites the populations are located in rocky and humid zones where the vegetation is constituted by

thermophilus forest, harbouring some species from the laurel forest too (*sensu* Rivas-Martínez *et al.*, 1993).

The taxonomic identity of *E. bourgeauana* and its distribution have been commented by some authors. From the taxonomic point of view, the species is included in the *E. atropurpurea* complex, and it is near *E. lambii* Svent., *E. atropurpurea* and *E. bravoana* Svent. Furthermore, some authors have suggested the inconsistency of features that support the segregation of *E. lambii* (endemic to La Gomera) and *E. bourgeauana* as different species (Santos, 1988; Molero *et al.*, 2002).

*Euphorbia bourgeauana* was described by Boissier (1862) based on material collected by Eugène Bourgeau, on 24 May 1855, at inaccessible rocky places of Barranco de Badajoz (Ladera de Güímar). Later on, other authors cited or confirmed this information (Bornmüller, 1904; Pitard & Proust, 1908; Burchard, 1929). However, Burchard (*op. cit.*) cited the species in La Ladera de Güímar and in Teno massif: «über Buenavista in Schluchten an dem risco Bujamé und risco de Teno, 250m; Los Silos, barranco de Agua und b. de las cuevas negras, 200-250m; Valle de Masca, Ladera de Güímar Seitenschluchten des barranco de Badajoz, 300m.».

Ceballos & Ortuño (1976), Bramwell & Bramwell (1983) and Voggenreiter (1974) mentioned the presence of *E. bourgeauana* in Teno according to the *EXSICCATA* ORT collected by Eric Sventenius or with the data of Burchard. However, Santos (1988) commented that information of the species for Teno was false, since the material collected by Eric Sventenius in this site belongs to *E. atropurpurea* (Brouss.) Webb & Berth. *f. lutea* Santos (with yellow flowers) (TENERIFE: roque del Fraile, 23/05/1944, Sventenius, ORT 14068; TENERIFE: Buenavista, roque del Fraile, 23/05/1944, Sventenius, ORT 14070; TENERIFE: roque del Fraile, 14/03/1948, Sventenius, ORT 2016; TENERIFE: Teno Camino al Bailadero 400m, 05/03/1950, Sventenius, ORT 14069, holotype of *Euphorbia atropurpurea* *f. lutea*) and supposed the same error for Burchard.

In the present contribution we confirm the presence of the species in Teno and current information about its distribution and abundance is presented.

## MATERIAL AND METHODS

During the period May-December 2002 all potential sites for the species (Mesa, 1999) of the Teno massif (Fig. 1) were prospected. Observation points were carried out from wide vision sites, using binoculars (7x35 and 10x42 magnifications). In the population areas of the species more precise examinations were made. Furthermore, vascular plant composition was noted. In all populations located, fresh material was collected and deposited in ORT herbarium (see Annex 1). For the identification, the material was compared with the original description of the species (Boissier, 1862) and with material collected in other localities, using a stereomicroscope (4x magnification).

## RESULTS

A total of 170 individuals of *E. bourgeauana* was counted in Teno massif, located in four localities (Fig. 1) and described as follows (Table I). In Barranco del Charco

Locality	1	2	3	4
Altitude (m a.s.l.)	550	475	585	510
Exposure	W	NE	NE	W
Area (m <sup>2</sup> )	300	300	300	100
<i>Davallia canariensis</i>	+	+	+	+
<i>Myrica faya</i>	-	-	+	-
<i>Gesnouinia arborea</i>	+	-	-	-
<i>Osyris quadripartita</i>	+	-	+	-
<i>Laurus novocanariensis</i>	+	-	+	+
<i>Apollonias barbujana</i>	+	+	-	-
<i>Aeonium urbicum</i>	+	+	-	+
<i>Monanthes laxiflora</i>	+	+	+	-
<i>Bencomia caudata</i>	-	-	+	-
<i>Rubus ulmifolius</i>	+	+	+	+
<i>Teline canariensis</i>	+	+	-	+
<i>Maytenus canariensis</i>	+	-	-	-
<i>Navaea phoenicea</i>	+	+	-	-
<i>Hypericum canariense</i>	+	-	+	+
<i>Visnea mocanera</i>	+	-	-	-
<i>Cistus monspeliensis</i>	+	-	-	-
<i>Sideroxylon marmulano</i>	+	+	-	-
<i>Erica arborea</i>	+	+	+	+
<i>Heberdenia excelsa</i>	+	-	-	-
<i>Pleiomeris canariensis</i>	+	+	+	-
<i>Picconia excelsa</i>	+	-	-	+
<i>Ceropegia dichotoma</i>	-	+	-	+
<i>Convolvulus volubilis</i>	+	-	-	-
<i>Convolvulus canariensis</i>	-	-	+	-
<i>Echium virescens</i>	-	+	-	-
<i>Sideritis kuegleriana</i>	-	+	-	-
<i>Sideritis cretica</i>	+	+	-	-
<i>Viburnum rigidum</i>	-	-	-	+
<i>Sonchus congestus</i>	+	+	+	+
<i>Kleinia neriifolia</i>	-	+	+	+
<i>Semele androgyna</i>	+	-	+	-

Table I. List of the vascular plants registered in the different localities of the Teno massiff where *Euphorbia bourgeauana* was detected (Localities: 1. Barranco del Charco, 2. Barranco de Chajabe, 3. Los Martínez, 4. Barranco de Los Cochinos). (+) Presence; (-) Absence.

(Buenavista del Norte) 20 individuals, the majority of them adults, were counted and located at an inaccessible zone with western orientation. In the headwaters of the Barranco de Chajabe (Buenavista del Norte) 61 plants are growing, the majority being adults, situated at the base of a large basaltic cliff oriented to north-west. In Los Martínez (Buenavista del Norte) a population of 81 individuals, with an excellent population structure, was estimated. These plants are situated on a slope oriented to the north-east

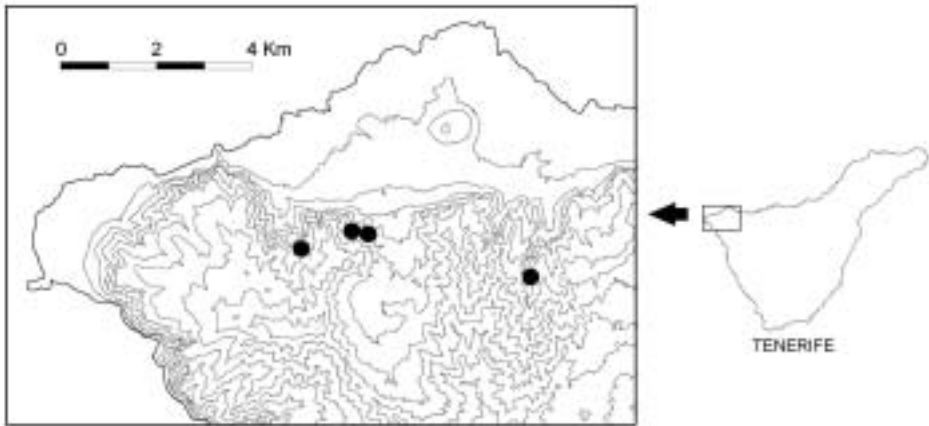


Fig. 1. Distribution of *Euphorbia bourgeauana* in Teno massif.

and some of them reach more than three meters high. The species is also present in Barranco de Los Cochinos (Los Silos), where 8 individuals (6 adults and 2 juveniles) were located in a rough zone near the ravine-bed with a western orientation.

Some of these populations, as Riscos de Bujamé, Riscos de Teno and Barranco del Agua, could be the same ones commented by Burchard (1929). However, although this author mentioned the presence of *E. bourgeauana* in Barranco de Cuevas Negras and in Masca valley, the observations performed during this survey have been unsuccessful. It is possible that the information referring to the last locality cited was confused with *Euphorbia atropurpurea* f. *lutea*.

All individuals detected are present from 475 to 585 m a.s.l., and their locations coincided with the transition of thermophilus forest and the laurel forest ecosystems. The species prefer the rocky and inaccessible zones, and is included in plant communities belonging to the Order *Rhamno crenulatae-Oleetea cerasiformis* Santos ex Rivas-Martínez 1987 and from the class *Pruno hixae-Lauretea novocanariensis* Oberdorfer corr. Rivas-Martínez *et al.* 2002; frequently there are rocky species included in the Class *Greenovio-Aeonietea* Santos 1976.

## DISCUSSION

It is possible that *E. bourgeauana* was more abundant in the past according to the current patchy distribution and its absence in potential areas. The recent discovery of individuals of the species in two sites of the Anaga massif (TENERIFE: Monte Aguirre, Anaga, 1-VII-1994, J. Esquivel, ORT 32310; TENERIFE: Roque Negro, Anaga, 28-V-2002, J. P. Oval, A. Acevedo & J. Matos, ORT s/n.) and the duplication of known localities –4 to 10– therefore makes a clear increase in the estimation of the total population, from 216 (Mesa, 1999) to 386 (without counting one of the Anaga population). Despite this new data, the conservation situation is alarming, at least, until the definitive confirmation of the taxonomic status of this plant is cleared up. We suggest that *E. bourgeauana* be

considered as endangered (EN - VV.AA., 2000) and included in legal protection lists (Catálogo Nacional de Especies Amenazadas, BOE 1998/191 and Catálogo de Especies Amenazadas de Canarias, BOC 2001/097).

The knowledge of only one locality of *E. bourgeauana* until recent times (Ladera de Güímar), did not help to explain its affinities with *E. lambii*. The current distribution (Anaga, Güímar and Teno) provides a new favourable framework to consider that *E. bourgeauana* and *E. lambii* are the same taxa. In this sense, there are obvious biogeographical relationships between La Gomera and the west of Tenerife, according to the presence of some endemic species of both sites such as *Aeonium decorum* Webb ex Bolle or *Dichranthus plocamoides* Webb.

Finally, morphological and genetic studies that clear up the taxonomic identity of *E. bourgeauana* and *E. lambii* are needed, according to the geographical differences between Anaga, Güímar, Teno and La Gomera.

#### ACKNOWLEDGEMENTS

This paper benefited from suggestions and information given by Ricardo Mesa, Manuel Marrero, Rubén Barone and Manuel Nogales. We are also grateful to Arnoldo Santos, «Director Conservador-Científico del Jardín Botánico de La Orotava», for his help and valuable comments during some parts of this work. We thank Jesús Alonso for carrying out the distribution map, and Aitor Arana, Cristian Armas and Sandra Santana for their help during fieldwork.

#### REFERENCES

- ACEBES GINOVÉS J. R., M. DEL ARCO AGUILAR, A. GARCÍA GALLO, M. A. LEÓN ARENCIBIA, P. L. PÉREZ DE PAZ, O. RODRÍGUEZ DELGADO & W. WILDPRET. (2001). División Pteridophyta and Spermatophyta. - pp. 100-140 in: I. Izquierdo, J. L. Martín, N. Zurita & M. Arechavaleta (eds). *Lista de especies silvestres de Canarias (hongos, plantas y animales terrestres) 2001*. Consejería de Política Territorial y Medio Ambiente, Gobierno de Canarias, S/C de Tenerife, 437 pp.
- BOISSIER, P.E. (1862). *Euphorbia* L.- pp. 1-188 in: A. De Candolle (ed.). *Prodromus systematis naturalis regni vegetabilis, vol. XV (2)*. Treutel et Würz, Paris, 108 pp.
- BORNMÜLLER, J. (1904). Ergebnisse zweier botanischer Reisen nach Madeira und der Kanarischen Inseln. *Botanische Jahrbücher* 33: 387-492.
- BRAMWELL, D. & Z. BRAMWELL (1983). *Flores Silvestres de las Islas Canarias*. (2ª ed). Ed. Rueda, Madrid, 284 pp.
- BURCHARD, O. (1929). Beiträge zur Ökologie und Biologie der Kanarempflanzen. *Bibliotheca Botanica* 98: 1-262.
- CEBALLOS, L. & F. ORTUÑO (1976). *Estudio sobre la Vegetación y Flora forestal de las Canarias Occidentales*. (2ª ed.). Excmo. Cabildo Insular de Tenerife, S/C de Tenerife. 433 pp.

- MESA, R. (1999). Seguimiento de la Flora Amenazada de la isla de Tenerife. Viceconsejería de Medio Ambiente, Gobierno de Canarias. Unpublished report.
- MOLERO, J., T. GARNATJE, A. ROVIRA, N. GARCIA-JACAS & A. SUSANNA (2002). Karyological evolution and molecular phylogeny in Macaronesian dendroid spurges (*Euphorbia* subsect. *Pachycladae*). *Plant Systematics and Evolution* 231: 109-132.
- PITARD, J. & L. PROUST (1908). *Les Îles Canaries. Flore de l'archipel*. Paris, 502 pp.
- RIVAS-MARTÍNEZ, S., W. WILDPRET, M. DEL-ARCO, O. RODRÍGUEZ, P.L. PÉREZ DE PAZ, A. GARCÍA-GALLO, J.R. ACEBES, T.E. DÍAZ & F. FERNÁNDEZ GONZÁLEZ (1993). Las comunidades vegetales de la isla de Tenerife. *Itinera Geobotanica* 7: 163-374.
- SANTOS, A. (1988). Notas sobre *Euphorbia bourgaeana* Gay ex Boiss. in DC. y especies afines. *Botánica Macaronésica* 16: 29-36.
- VOGGENREITER, V. (1974). Geobotanische Untersuchungen an der natürlichen Vegetation der Kanareninsel Tenerife (Anhang: Vergleiche mit La Palma und Gran Canaria) als Grundlage für den Naturschutz. *Dissertationes Botanicae* 26: 1-718.
- VV.AA. (2000). Lista Roja de la Flora Vascular Española (valoración según categorías UICN). *Conservación Vegetal* 6 (extra): 11-38.

Annex 1. *EXSICCATA*: Bco. de los Cochinos, Los Silos, Tenerife, 19/05/2002, A. Rodríguez, B. Rodríguez & A. Acevedo (ORT 36910, ORT 36907); Bco. del Charco, Buenavista del Norte, Tenerife, 22/06/2002, A. Hernández & A. Acevedo (ORT 36906); Los Martínez, Buenavista del Norte, Tenerife 18/08/2002, A. Acevedo & A. Arana (ORT 36909, ORT 36908); Bco. de Chajabe, Buenavista del Norte, Tenerife 26/10/2002, A. Rodríguez & A. Acevedo (ORT 36905).