Copia para www.um.es/orquideas

23.08.2008

Versión simplificada para la web Orquídeas silvestres de la Región de Murcia (www.um.es/orquideas) del artículo *The orchids of the Region of Murcia, Spain*, publicado en *Journal Europäischer Orchideen* en el vol. 38 (4) de 2006.

Consideraciones:

- Los datos presentados en este artículo corresponden a la información disponible de las orquídeas de la Región de Murcia en mayo de 2006.
- La coordenadas UTM 1 × 1 km de han sido simplificadas a 10 × 10 km.
- Sólo las páginas 799 a 806 no han sido modificadas.
- La páginación a partir de la pág. 807 no se corresponde con la edición original.

Jour. Eur. Orch.
38 (4): 799 – 865. 2006.

José A. López Espinosa & P. Sánchez Gómez

The orchids of the Region of Murcia, Spain

Keywords
Orchidaceae; Flora of Spain; Flora of Murcia; Distribution; Mapping; Conservation; Orchids with hypochromatose flowers; *Epipactis microphylla*.

Summary
López Espinosa, J. A. & P. Sánchez Gómez (2006): The orchids of the Region of Murcia, Spain. - A contribution to the OPTIMA project »Mapping of Mediterranean Orchids«. - Jour. Eur. Orch. 38 (4): 799-865.
The distribution of the *Orchidaceae* (30 taxa) of the Region of Murcia (south-east of Spain), are mapped on 1 × 1 km UTM coordinates, scaled to 3:1, on a UTM 10 × 10 km grid. The database of this cartography is presented in Appendix 1. This information, which includes new and unpublished records, is avalaible and updated on Internet, in www.um.es/orquideas/bd. The revised check-list of the orchids of Region of Murcia is given in Table 1.

Zusammenfassung
López Espinosa, J. A. & P. Sánchez Gómez (2006): Die Orchideen der Region Murcia, Spanien. - Ein Beitrag zum OPTIMA-Projekt »Kartierung der mediterranen Orchideen«. - Jour. Eur. Orch. 38 (4): 799-865.
Die Kartierung der Familie der Orchideen (30 Taxa) der Region Murcia (Spanien) wird vorgestellt. Alle Fundorte aus rezenten Geländearbeiten, persönlichen Mitteilungen, Herbarbelegen und Literaturzitaten werden angegeben. Die Kartierung erfolgt im UTM-Raster mit 10 km Seitenlänge. Die UTM-Koordinaten der Fundorte werden mit einer Genauigkeit von 1 km angegeben. Dieses 1 km-Raster wird in einem Maßstab von 3:1 wiedergegeben, um die Anschaulichkeit zu erhöhen. Die Datenbank wird im Anhang 1 vorgestellt. Diese Informationen, die neue und unveröffentlichte Belege aufführen, können über das Internet konsultiert werden

www.um.es/orquideas/bd. Der überarbeitete Katalog der Orchideen der Region Murcia ist in Tabelle 1 enthalten.

Resumen

López Espinosa, J. A. & P. Sánchez Gómez (2006): Las orquídeas de la Región de Murcia, España. - Contribución al proyecto OPTIMA »Cartografía de las orquídeas mediterráneas«. - Jour. Eur. Orch. 38 (4): 799-865.

Se presenta la cartografía de la familia *Orchidaceae* (30 táxones) de la Región de Murcia (España). Se indican las localidades de presencia obtenidas en muestreos recientes, comentarios personales, pliegos de herbario y citas bibliograficas. Se representan sobre un mapa con una rejilla de 10 km de lado, en el que los puntos se precisan en cuadrículas UTM de 1 × 1 km, los cuales se han representado a una escala 3:1. La base de datos se presenta en el Apendice 1. Esta información, que incluye registros novedosos e inéditos, puede consultarse y se actualiza a tráves de Internet, en www.um.es/orquideas/bd. El catálogo revisado de las orquídeas de Murcia se presenta en la Tabla 1.

* * *

Introduction

The Region of Murcia is located on the south-east of the Iberian Peninsula (Plate 1, upper). It has an area of about 11,313 km^2 and 250 km of coastline, with two seas, the Mar Menor coastal lagoon and Mediterranean Sea.

It is a very mountanious region, geologically situated in the morphologic unit of the Baetic Cordillera, where we can be recognize three zones or big sets of mountains alignments, from north to south: Pre-Baetic, Sub-Baetic and Baetic zone, all of them with clear orientation from south-west to north-east. In the inland of the Region of Murcia the highest points are Revolcadores, in Sierra Seca (2,014 m), Peña de Moratalla, in Sierra de Taibilla (1,968 m), Villafuerte (1,743 m), Mojantes (1,611 m), Espuña (1,583 m), Cambrón (1,529 m), El Gigante (1,493 m), El Carche (1,372 m), La Pila (1,266 m), Salinas (1,238 m), Cabezo de la Jara (1,247 m), Almeces, in the Sierra de Ricote (1,122 m), Carrascoy (1,056 m), etc. In the coastland the elevations of Talayón, in Sierra de Almenara (879 m) stand out, and Peñas Blancas in the mountains of Cartagena (625 m).

This heterogeneous relief is completed with the plains of the Campo de Cartagena, Huerta de Murcia, Campo del Cagitán, Llano de Tornajuelos, the corridor of Guadalentín's valley, the fields of the Altiplano, etc. The hydrographic net is vertebrated by the valley of the Segura river, whose main tributary river in Murcia is Guadalentín. The rivers Alhárabe or Benamor, Argos, Quipar and Mula end in its right margin. At its left margin three important ramblas, del Judío, del Moro, Rambla Salada and Río Chícamo spill. Among the riverbeds that die directly to the sea, the ramblas of Ramonete and las Moreras end to the Mediterranean Sea and the rambla of Albujón ends to the Mar Menor coastal lagoon.

The main geological materials in the Region of Murcia are limestones and marls. The first ones preform most of the great heights (Noroeste mountain ranges, Espuña...) while the second ones are present at the hot basins of the inland (Mula, Abanilla...). Siliceous lands are predominant at the south-west quadrant (Aguilas and Lorca mountain ranges) and become very unusual at the rest of the region, where usually appear associated with the contact metamorphism (Sierra de Carrascoy, Cartagena mountain ranges). There are also some little mountains as a result of recent vulcanism, very punctual, distributed mainly at the coastal zone (for example, the islands of the Mar Menor area) and at the inland, but less frequenly. The same happens with the dolomitical sedimentary deposits, that are found occasionally and associated with great limestones heights (Sierra de Villafuerte).

As for as climate is concerned, this territory is identified by mild temperatures, even in winter, with an average of over 18ºC, and semiarid conditions, over 60% of the region, below 300 mm of annual precipitation. The exception is present at some localities in the inland mountains, mainly at the Noroeste area, where the orography is propitious, so the tempearature average is slightly lower and precipitations reach, in some places, up to 600 mm/m^2 per year (Sierra de la Muela in Moratalla).

Finally, regarding some socio-economical facts, we can see the main factors that generate wealth in Region of Murcia such as tourism and agriculture (fruits, vegetables, flowers, olive oil and excellent wines). Taking into acount, the registered population in this territory, of about 1,335,792 habitants in 2005, we must consider that nearly the third part belongs to the capital, the city of Murcia (409,810 hab.), seventh metropolitan area of Spain.

Check-list of Region of Murcia orchids

The previous research carried out in the zone about the orchids of Murcia (SÁNCHEZ GÓMEZ ET AL. 1998) compiles 23 taxa, complemented with four addenda: *Barlia robertiana*, *Orchis purpurea*, *Ophrys incubacea* and *Serapias lingua.*

Later, in the Flora of Murcia check-list published at «Nueva Flora de Murcia, Plantas Vasculares» (SÁNCHEZ GÓMEZ & GUERRA 2003) a list of 29 orchids was presented (we did not consider *Dactylorhiza* aff. *incarnata*, that now, in this work, is considered under *D. elata*). The additions respect the previous study (SÁNCHEZ GÓMEZ ET AL. 1998) corresponds to *Epipactis cardina*, *Orchis cazorlensis* and *Himantoglossum hircinum*.

Table 1: List of species, number of 10 × 10 km and 5 × 5 km records

Specie	10 × 10 km records	5 × 5 km records
Aceras anthropophorum (L.) W. T. Aiton	2	2
Anacamptis pyramidalis (L.) Rich.	12	10
Barlia robertiana (Loisel.) Greuter	6	7
Cephalanthera damasonium (Mill.) Druce	5	6
Cephalanthera longifolia (L.) Fritsch	8	9
Cephalanthera rubra (L.) Rich.	5	6
Dactylorhiza elata (Poiret) Soó (incl. *D. incarnata* (L.) Soó)	8	14
Epipactis cardina Benito Ayuso & Hermosilla	4	4
Epipactis kleinii M. B. Crespo, M. R. Lowe & Piera	24	33
Epipactis tremolsii Pau	2	2
Epipactis microphylla (Ehrh.) Sw.	1	1
Himantoglossum hircinum (L.) Spreng.	2	2
Limodorum abortivum (L.) Sw.	15	18
Listera ovata (L.) R. Br.	3	4
Neotinea maculata (Desf.) Stearn	12	11
Ophrys apifera Huds.	20	28
Ophrys fusca Link s.l. (incl. *O. lupercalis* Devillers-Tersch. & Devillers, *O. bilunulata* Risso)	44	61
Ophrys incubacea Bianca ex Tod.	4	4
Ophrys lutea Cav.	27	43
Ophrys scolopax Cav. s.l. (incl. *O. picta* Link)	16	19
Ophrys speculum Link	55	74
Ophrys tenthredinifera Willd.	30	41
Orchis cazorlensis Lacaita	1	1
Orchis collina Banks & Sol. ex Russell	18	29
Orchis coriophora L. s.l. (incl. *O. fragans* Pollini)	4	4
Orchis olbiensis Reut. ex Gren.	13	14
Orchis papilionacea L. var. *grandiflora* Boiss.	7	12
Orchis purpurea Huds.	3	6
Serapias lingua L.	1	1
Serapias parviflora Parl.	1	1

The list presented in Flora of Murcia (SÁNCHEZ GÓMEZ & GUERRA 2003) was the first step of the works that finish in the check-list of Region of Murcia orchids we have elaborated for this study (Table 1). The main newness is the recently location of *Epipactis microphylla*, very unusual and few cited in the south-east of Spain, and the numerous new records for several species, among them, some of the most important are remarked at the complementary information that accompany the maps. The exhaustive work that gather and check the records of the orchids of Murcia, more than 850 records, is presented for the first time in this paper (Appendix 1, Figure 31), and is the base for the cartography (Figures 1 - 31) and the check-list presented (Table 1).

The diversity of the orchids of Murcia, presented in intervals of species for each UTM 10 × 10 km grid is given on Figure 31 (Plate 1, upper). The zones without or with few records mostly reflect the intensive agriculture, urban lands or lands with habitats unsuitable for orchids.

Hybrids and variability of Region of Murcia orchids

In the Region of Murcia no hybrids have ever been detected, only *Ophrys* ×*minuticauda* Duffort (*O. apifera* × *O. scolopax*) has been recorded in Jartus, province of Albacete, in the nearby territories to province of Murcia.
In the same way, anomalous forms in flowers have been very rarely observed in Murcia, only plants with aberrant flowers in *Ophrys tenthredinifera* are known, in the mountains range of Cartagena.

In Murcia the presence of spots in the leaves is only a common character of some exemplars of *Neotinea maculata*, where these spots are observed with some frequence. This characteristic is very unusual but is also present in other taxons, even for those not indicated in the consulted bibliography (AEDO & HERRERO 2005, DELFOGE 2002). In the region a single individual of *Orchis olbiensis* with maculated leaves is known (Plate 1, lower), in the Sierra de Carrascoy, and some of *Dactylorhiza elata*, at the surroundings of Sierra de Villafuerte.

The plants with hypochromatose flowers, completely decoloured, white or greenish-yellow, no more than various outlines, remaining from the original colour, are less frequent, but are present at some species of the genus *Orchis* and *Ophrys*, also in *Anacamptis* and *Barlia*.
In the Region of Murcia, orchids with hypochromatose flowers are known in 10 species, a third from the total: *Anacamptis pyramidalis*, *Barlia robertiana*,

Ophrys apifera, *O. scolopax* (Plate 2, upper right), *O. speculum*, *O. tenthredinifera*, *Orchis collina* (Plate 2, upper left), *O. coriophora*, *O. papilionacea*, *O. purpurea*. Also plants with decoloured flowers have been detected in *Dactylorhiza elata* and *Orchis olbiensis.*

In this sense, if there is something singular and exclusive in the orchids of Murcia (if we compare them to the orchids of Europe) is the hypochromatose form of *Orchis collina* (Plate 2, upper left), usually under var. *flavescens* Soó., that is only known from the spanish provinces of Murcia and Almería in Europe and from the north of Africa. That is, even with orchids, there is an evident link between the south and south-east of Spain with the mediterranean area in North Africa. Both territories share environmental conditions, and also they have in common, several flora features.

Conservation

The totality of the spontaneous orchids of Murcia are under legal protection by means of the Decreto n. 50/2003 (BORM n. 131) at the Annexes I and II. In Annex I, at the Vulnerable «Vulnerable» category are included: *Aceras anthropophorum*, *Barlia robertiana*, *Cephalanthera rubra*, *Dactylorhiza elata*, *Himantoglossum hircinum*, *Listera ovata*, *Orchis cazorlensis*, *O. purpurea*, *Serapias lingua* and *S. parviflora*; at the Special Interest «De Interés Especial» appear: *Epipactis cardina* and *Ophrys incubacea.*
The rest of the species are found under the Annex II, Species whose use requires previous administrative authorization «especies cuyo aprovechamiento requiere autorización administrativa previa».

Regarding this, it can be found wider information in SANCHEZ GÓMEZ ET AL. (2002), at the regional Red Data Book «Libro rojo de la flora silvestre protegida de la Región de Murcia», that represents the divulgative base of the regional check-list of threatened wild flora of the Region of Murcia (Decreto n. 50/2003, BORM n. 131).

At territorial level some spaces denominated Microreserves of Flora are proposed, where it is considered specially the abundance in number of orchid species and the presence of the less frequent (SÁNCHEZ GÓMEZ ET AL. 2005a).

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We are especially grateful to Alejandro Ordoñez for the translation of this paper into English, and Laura Parreño for the revision of the translation. In the same sense, to Rosa María Ros and Olaf Werner for the translation of the abstract into German. To each person who gave us some information about orchids in the Region of Murcia, especially to our colleagues of the research group E005/07 of the University of Murcia and to the forest rangers of the Region of Murcia.
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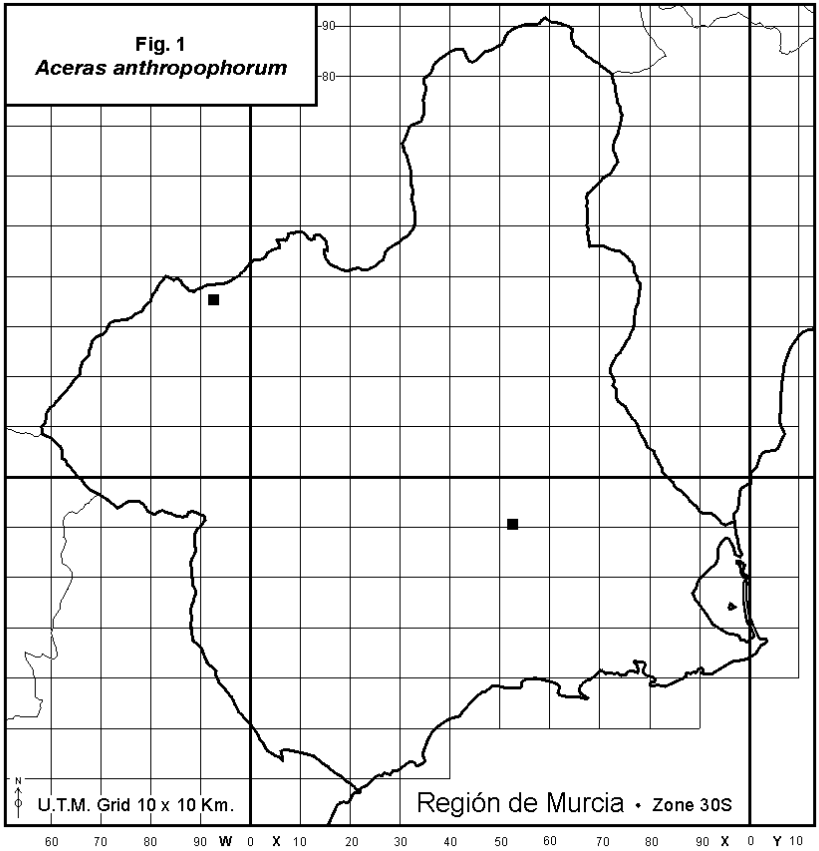
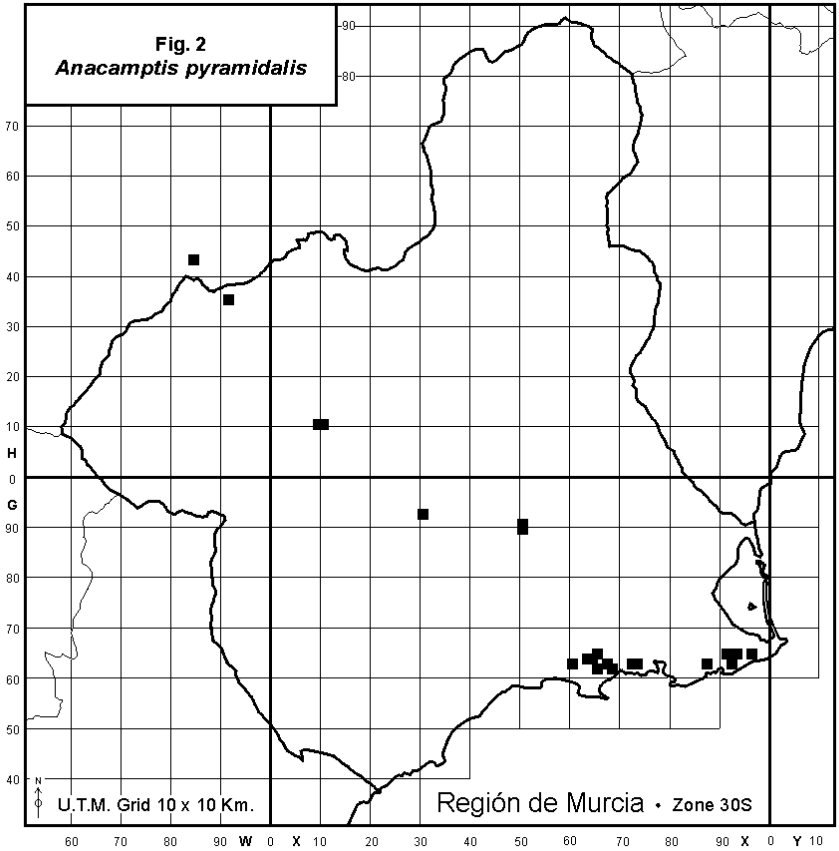


Main representative records of *Aceras anthropophorum*:
30SXG59, Alhama, Sierra de Carrascoy: F.J. López-Espinosa & J.A. López-Espinosa (SURESTE 4354). Record cited for the first time in this work.

Most frequent ecology and altitude range:
Grassland, above 1,000 m

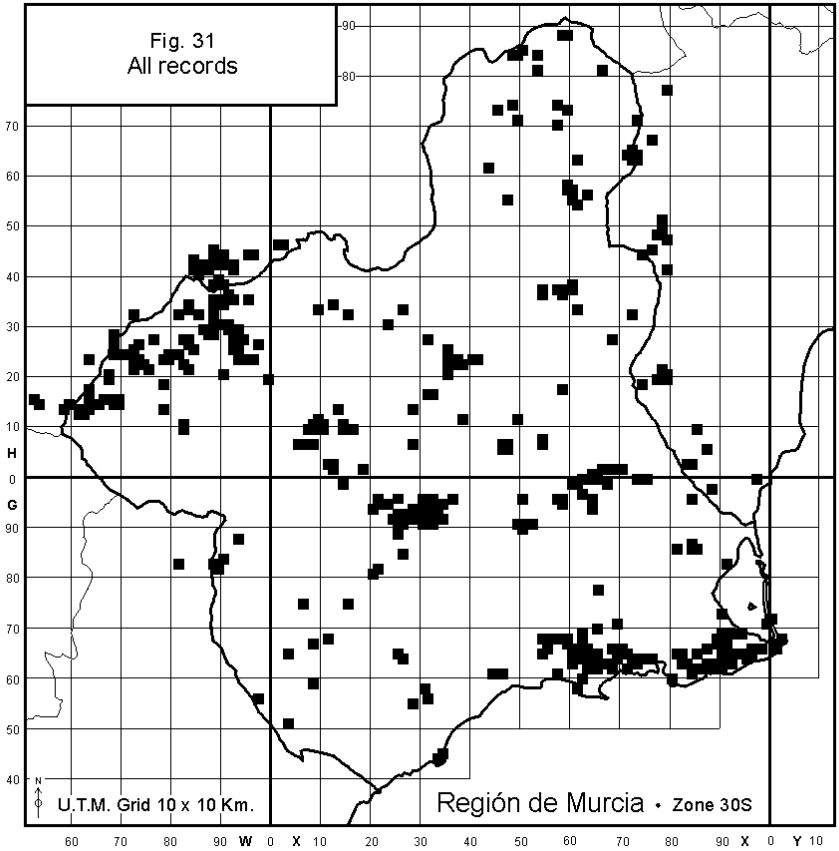
Peak flowering time:
Last days of April



Variability in *Anacamptis pyramidalis*. Plants with hypochromatose flowers:
30SXH11, Cehegín, Sierra de Burete: J.A. Gómez
30SXG96, Cartagena, Atamaría: F.J. López-Espinosa & J.A. López-Espinosa (SURESTE 4355). Plate 2, lower right, population of this locality.

Most frequent ecology and altitude range:
Grassland, 0-1,300 m

Peak flowering time:
Two last weeks of May



*En esta versión simplificada del artículo se presenta sólo cartografía de dos especies (*Fig. 1 y 2*) y mapa con todos los registros (*Fig. 31*)*

Appendix 1. List of all records from Region of Murcia and nearby territories

For each specie the following data is presented:

UTM coordinates, municipality, locality, altitude, date: publication or recorder (shorted by municipality and UTM coordinates; ** UTM discarded, * UTM approximated).

Aceras anthropophorum

Murcia:
30SXG59, Alhama, Sierra de Carrascoy, 1.000 m, 30.04.06: F.J. López-Espinosa & J.A. López-Espinosa
30SWH93, Moratalla, Sierra de la Muela, 1.280 m, 04.97: P. Sánchez-Gómez & A. Hernández

Anacamptis pyramidalis

Albacete:
30SWH84, Férez, Cortijo del Cerezo, 890 m: P. Sánchez-Gómez

Murcia:
30SXG39, Alhama, Sierra Espuña, La Perdiz, 700 m: A. Robledo
30SXG58*, Alhama, Sierra de Carrascoy, 990 m: ESTEVE 1973
30SXG59*, Alhama, Sierra de Carrascoy, 750 m: ESTEVE 1973
30SXG66, Cartagena, Cabezo de la Panadera: J.M. Bermúdez
30SXG66, Cartagena, subida a Peñas Blancas: J.A. López-Espinosa
30SXG66, Cartagena, Barranco de la Víbora, 320 m, 09.05.98: M.Á. Carrión
30SXG66, Cartagena, Morra de los Garabitos: B.S. Martínez
30SXG66, Cartagena, Cabezo del Calderón, 28.07.03: J.A. López-Espinosa & A. Hernández
30SXG66, Cartagena, Los Montoros, 06.06.98: E. Anca, P. Madrid & M. Murcia
30SXG66, Cartagena, Sierra de la Muela, 420 m: B.S. Martínez
30SXG76, Cartagena, Cabezo Roldán: B.S. Martínez
30SXG76, Cartagena, Cabezo Roldán: B.S. Martínez
30SXG86, Cartagena, pr. El Gorguel, 100 m: J.A. López-Espinosa
30SXG96, Cartagena, Atamaría, Huerta Calesa, 220 m: A. Hernández
30SXG96, Cartagena, subida al Monte de las Cenizas: J.A. López-Espinosa, J.B. Vera & C. López-Romero
30SXG96, Cartagena, Atamaría, Casa de las Cenizas, 250 m: J.A. López-Espinosa
30SXG96, Cartagena, Atamaría, Casa de las Cenizas, 14.05.03: P. Sánchez-Gómez, J.A. Devesa, M.Á. Carrión & J.A. López-Espinosa
30SXG96, Cartagena, Atamaría, 140 m, 16.05.04: J.A. López-Espinosa & A. Ordóñez
30SXG96, Cartagena, Atamaría, 140 m, 07.05.06: F.J. López-Espinosa & J.A. López-Espinosa
30SXG96, Cartagena, Casas de Atamaría, 100 m: J.A. López-Espinosa
30SXG96**, Cartagena, Atamaría, Huerta Calesa, 26.05.85: F. Alcaraz
30SXG96, Cartagena, Cabezo de la Fuente, 250 m: P. Sánchez-Gómez
30SXH09, Cehegín, Sierra de Burete: J.A. Gómez

En esta versión simplificada del artículo se presenta sólo una página del Appendix 1

Legend of images

Plate 1 (p. 863)

A. Upper

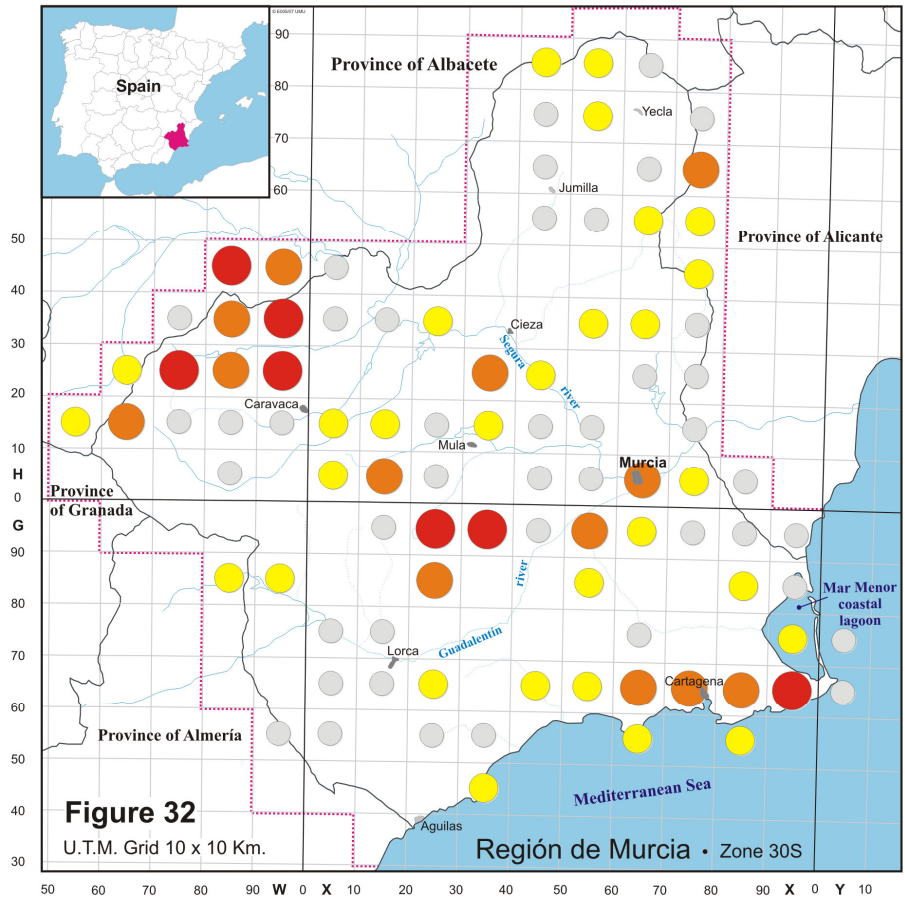
Diversity map of Region of Murcia orchids. The main diversity is found, from north-west to south-east, in mountain range of Moratalla, Sierra Espuña and mountain range of Cartagena.

Magenta discontinuous line indicates treated area, Region of Murcia and nearby territories. Circles indicates the diversity of orchid species registered in an UTM 10 x 10 Km. grid: grey 1-2, yellow 3-5, orange 6-9, red more than 10.

B. Lower

Rarely maculate leaves in *Orchis olbiensis*, Alhama de Murcia, Sierra de Carrascoy, 30SXG59, 1000 m, 30.04.2006.

(photo J.A. López-Espinosa)


Spain
Province of Albacete
Yecla
Jumilla
Province of Alicante
Cieza
Segura river
Caravaca
Mula
Murcia
Province of Granada
Mar Menor coastal lagoon
Guadalentín river
Lorca
Cartagena
Province of Almería
Mediterranean Sea
Aguilas
Figure 32
U.T.M. Grid 10 x 10 Km.
Región de Murcia • Zone 30S
H
G
W
X
Y

Legend of photographs

Plate 2 (p. 865)

A. Upper left
Completely hypochromatose flower
Orchis collina
Cartagena, Galifa
30SXG76 100 m 19.02.2006
(photo J.A. López-Espinosa)

B. Upper right
Partially hypochromatose flower
Ophrys scolopax
Alhama de Murcia, Sierra Espuña
30SXG39 700 m 13.04.2006
(photo J.A. López-Espinosa)

C. Lower left
Dry grassland in semiarid ombrotype with
Himantoglossum hircinum
Alhama de Murcia, Barranco de Gebas
30SXG39 350 m 1.05.2005
(photo J.A. López-Espinosa)

D. Lower right
Dry grassland in semiarid ombrotype with
Anacamptis pyramidalis
Cartagena, Atamaría
30SXG96 140 m 16.05.2004
(photo J.A. López-Espinosa)