Monomorium carbonarium (F. Smith) surviving indoors in NE Spain (Hymenoptera, Formicidae)

Xavier Espadaler
Universitat Autònoma de Barcelona. Unitat d'Ecologia & CREAF
08193 Bellaterra
xavier.espadaler@uab.es

Alberto Castillo
Avda. Manuel Girona, 26. 08860 Castelldefels
cortomaltes@wanadoo.es

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Abstract

Monomorium carbonarium is noted indoors at a Mediterranean coastal locality in NE Spain. They have survived during the last five years, without producing any notable nuisance to inhabitants. No special control measures have been taken.

Keywords: aliens; ants; exotics; Spain.

Resumen. Monomorium carbonarium *(F. Smith) sobrevive dentro de casa en el NE de España (Hymenoptera, Formicidae)*

Se ha detectado *Monomorium carbonarium* en una vivienda de una localidad costera del NE de España. Han sobrevivido durante los últimos cinco años, sin provocar molestias a los inquilinos. No se han tomado medidas especiales de control.

Palabras clave: foráneas; hormigas; exóticas; España.

Introduction

Transport - Introduction - Establishment - Spread. These are the stages in the invasive process of a successful exotic invader (Blackburn et al., 2011). Each stage, in turn, may be finely split into two or more steps. Establishment, for example, could be conceived as comprising Survival + Reproduction. Each stage has its own conditions, difficulties of appraisal, consequences, and opportunities for effective control. Here we note the presence of an exotic ant indoors at a coastal locality in Catalonia, NE Spain. The ants were identified following Bolton (1987), Collingwood (1985), Collingwood and Agosti (1996), and preserved dry material from Madeira (locality type).

Study material

Four workers. Locality: Castelldefels (Barcelona, Spain); April 2013; A. Castillo leg. One worker is deposited at the Museu de Ciències Naturals of Barcelona. The ants were detected in an attic, on the 7th floor of a building. The walls of the flat are entirely covered in wood. The origin of the trails has never been ascertained, although the ants come indoors either from the terrace or from the roof. The inhabitants recall the ants appearing in 2008 or 2009, in an already abundant number from the first year, which has remained steady. The inhabitants report frequent travelling (Egypt, Greece, Lebanon, Morocco, Syria, Yemen and Mexico). The ants appear in spring and remain active during summer, and show more enhanced foraging in hotter weather. In autumn and winter they do not show activity either outdoors or indoors. The kitchen is the main focus of indoor activity. Trails are formed whenever food is detected. Workers have been noted but not winged forms. Hence, *M. carbonarium* is established indoors in NE Spain. Reproduction is not proved although it is not to dismiss. In effect, several species in the group of small size *Monomorium* tramp species are polygynous (Passera, 1994) and have a tendency to become apterous, which is associated with colony fission and mating within the parent colony (Bolton, 1986). Mating flights have been observed in France (Galkowski, 2008). Furthermore, the genus contains some of the world's most successful and widely-distributed tramp species (Bolton, 1987; Wetterer, 2009, 2010). The ants are not declared to be a nuisance and no special control measures have been taken. A somewhat similar instance involving the exotic *Monomorium destructor* was noted in the Barcelona harbour (Espadaler, 2005) during a routine inspection of produce from Pusan (South Korea). The infested container was stopped at customs and returned to the country of origin.

Known distribution (in 2013): Azores (Wetterer et al., 2004), Madeira (Wetterer et al., 2007), the French Atlantic Coast (Galkowski, 2008), the Iberian Peninsula (Portugal: Collingwood & Prince, 1998; Spain: Espadaler & Collingwood, 2001). European localities were limited to the Atlantic coast, although it has recently been collected from the French Mediterranean coast (http://antarea.fr/identification/), which also shows to be receptive for this exotic species. Several localities of the Arabian Peninsula (Collingwood, 1985; Collingwood & Agosti, 1996) and Egypt (Mohamed et al., 2001) are known. The doubt remains if several citations from the New World (Fernández et al., 2002; Jaffe & Lattke, 1994) belong in *M. carbonarium* or in *M. ebeninum* Forel.

Note added in proof: The species has recently been collected outdoors at several localities in the north-eastern Iberian peninsula (Miravete et al., 2013), and also detected at Pineda de Mar (Barcelona; 27 August 2014; X. Espadaler leg.) in a lawn close to the sea. Therefore, we fully agree with Miravete et al. (2013) in considering the species as established outdoors and spreading in the Iberian Peninsula.

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Bibliographical references

Blackburn, T.M.; Pysêk, P.; Bacher, S.; Carlton, J.T.; Duncan, R.P.; Jarošík, V.; Wilson, J.R.U.; Richardson, D.M. 2011. A proposed unified framework for biological invasions. Trends Ecol. Evol. 26: 333-339.

Bolton, B. 1986. Apterous females and shift of dispersal strategy in the *Monomorium salomonis*-group (Hymenoptera: Formicidae). J. Nat. Hist. 20: 267-272.

Bolton, B. 1987. A review of the Solenopsis genus-group and revision of Afrotropical *Monomorium* Mayr (Hymenoptera: Formicidae). Bull. Br. Mus. nat. Hist. (Ent) 54: 263-452.

Collingwood, C.A. 1985. Hymenoptera: Fam. Formicidae of Saudi Arabia. Fauna Saudi Arabia 7: 230-302.

Collingwood, C.A.; Agosti, D. 1996. Formicidae (Insecta: Hymenoptera) of Saudi Arabia (Part 2). Fauna Saudi Arabia 15: 300-385.

Collingwood, C.; Prince, A.. 1998. A guide to ants of continental Portugal (Hymenoptera: Formicidae). Bol. Soc. Port. Entomol. Supl. 5: 1-49.

Espadaler, X. 2005. *Monomorium destructor*, la hormiga de Singapur, detectada y detenida en el puerto de Barcelona (Hymenoptera, Formicidae). ORSIS 20: 27-32.

Espadaler, X.; Collingwood, C.A. 2001. Transferred ants in the Iberian Peninsula (Hymenoptera, Formicidae). Nouv. Rev. Ent. (N.S.) 17: 257-263.

Fernández, J.L.; Sariol, H.; Vega, M.A.; Ricardo, S.; González, M.; Portuondo, E. 2002. Datos preliminares sobre la biodiversidad del orden Hymenoptera en la provincia Granma, Cuba. Bol. Soc. Ent. Arag. 31: 43-48.

Galkowski, C. 2008. Quelques fourmis nouvelles ou intéressantes pour la faune de France (Hymenoptera, Formicidae). Bull. Soc. Linn. Bordeaux 143 (N.S.) 36(4): 423-433.

Jaffe, K.; Lattke, J.E. 1994. Ant fauna of the French and Venezuelan islands in the Caribbean. In: Williams, D.F. (ed.). Exotic ants. Biology, impact, and control of introduced species. Westview Press. p. 181-190.

Miravete, V.; Roura-Pascual, N; Gómez, C. 2013. Presence of *Monomorium carbonarium* (F. Smith, 1858) (Hymenoptera, Formicidae) in the northeastern Iberian Peninsula. Bol. Soc. Ent. Arag. 53 : 339-340.

Mohamed, S.; Zalat, S.; Fadl, H.; Gadalla, S.; Sharaf, M. 2001. Taxonomy of ant species (Hymenoptera: Formicidae) collected by pitfall traps from Sinai and the delta region, Egypt. Egyptian J. Nat. Hist. 3: 40-61.

Passera, L. 1994. Characteristics of tramps species. In: D.F. Williams (ed.). Exotic ants: Biology, impact, and control of introduced species. Westview Press, 23-43.

Veitch, C. R.; Clout, M. N. (eds.) 2002. Turning the tide: the eradication of invasive species. IUCN SCC ISSG. IUCN, Gland, Switzerland.

Wetterer, J.K. 2009. Worldwide spread of the destroyer ant, *Monomorium destructor* (Hymenoptera: Formicidae). Myrmecological News 12: 97-108.

Wetterer, J.K. 2010. Worldwide spread of the flower ant, Monomorium floricola (Hymenoptera: Formicidae). Myrmecological News 13: 19-27.

Wetterer, J.K.; Espadaler, X.; Wetterer, A.L.; Cabral, S.G.M. 2004. Native and exotic ants of the Azores (Hymenoptera: Formicidae). Sociobiology 44: 265-297.

Wetterer, J.K.; Espadaler, X.; Wetterer, A.L.; Aguin-Pombo, D.; Franquinho-Aguiar, A.M. 2007. Ants (Hymenoptera: Formicidae) of the Madeiran Archipelago. Sociobiology 49: 265-297.