

One more country in the worldwide spread of the woolly ant: *Tetramorium lanuginosum* in Algeria (Hymenoptera: Formicidae)

Ghania BARECH, Mourad KHALDI, Salaheddine DOUMANDJI & Xavier ESPADALER



Abstract

Tetramorium lanuginosum MAYR, 1870 is reported for the first time from Algeria and is considered as an exotic species in this country. It was found in an irrigated green within the installations of the Institut National Agronomique at El Harrach, Algiers. This is the eighth exotic ant species noted in Algeria.

Key words: Algeria, exotic, first record, *Tetramorium lanuginosum*.

Myrmecol. News 14: 97-98 (online 1 October 2010)

ISSN 1994-4136 (print), ISSN 1997-3500 (online)

Received 20 May 2010; revision received 5 July 2010; accepted 6 July 2010

Ghania Barech (contact author) & Mourad Khaldi, Institut National Agronomique El-Harrach, 12 Avenue Hassen Badi El Harrach Alger, Algeria; Département d'Agronomie, Pôle Universitaire de M'sila, 28000 M'sila, Algeria.

E-mail: barechghania@gmail.com

Prof. Dr. Salaheddine Doumandji, Institut National Agronomique El-Harrach, 12 Avenue Hassen Badi El Harrach Alger, Algeria.

Prof. Dr. Xavier Espadaler, Ecology Unit and CREAM, Autonomous University of Barcelona, 08193 Bellaterra, Spain.

Introduction

Exotic ant species are currently given considerable worldwide attention, reflecting their increasing economic and agricultural impact, health effects on humans, displacement of native species, and disruption of natural ecosystems (WARD & al. 2006). These species are a growing component of urban faunas both in tropical and temperate areas (WILLIAMS 1994, GÓMEZ & ESPADALER 2004, WETTERER 2009a, WETTERER & al. 2009, WETTERER 2010a, b). Albeit the term exotic does not directly imply invasiveness, it is undeniable that invasive species belong in a subset of exotic species (WILLIAMSON & FITTER 1996). The three phases – arrival, establishment and spread – into which are usually divided the invasive processes are qualitatively different in the possibilities to exert control upon them (DOBSON & MAY 1986, HENGEVELD 1989, SHIGESADA & KAWASAKI 1997). Therefore, a detailed knowledge of the presence and / or arrival of exotic species in different countries is useful for a precautionary management of possible invaders. Each case merits, of course, its own attention since general rules for possible invaders are difficult to agree on.

The ant fauna of Algeria is still poorly known. In particular, knowledge of exotic ants is scant, a search over published references leading to the following species: 1. *Monomorium destructor* (JERDON, 1851), mentioned by ANDRÉ (1883: 333; as *M. gracillimum*) without any locality name, and by BERNARD (1967: 337; as *M. gracillimum*) from Tassili n'Ajjer; 2. *Monomorium pharaonis* (LINNAEUS, 1758), noted in Oran by BERNARD (1967: 169); 3. *Linepithema humile* (MAYR, 1868) by FRISQUE (1935) without precise locality; 4. *Paratrechina longicornis* (LATREILLE, 1802), by CAGNIANT (1970); 5. *Pheidole megacephala* (FABRICIUS, 1793) by CHOPARD (1919); 6. *Tetramorium guineense*, noted by BERNARD (1960) from gardens at Djanet –

this ant is now recognized as *T. bicarinatum* (NYLANDER, 1846) and this record was missed in the recent review by WETTERER (2009b); 7. *Tetramorium simillimum* (FR. SMITH, 1851), from the oasis at Djanet (BERNARD 1967). Here we report a further species, *Tetramorium lanuginosum* MAYR, 1870, for the first time in Algeria.

Methods

We did a general hand collecting survey (1.IV.2009; leg. G. Barech) in a park ranging between the facilities of the Institut National Agronomique at El Harrach (INA), Algiers, Algeria, 36° 43' N, 3° 8' E, at 50 m altitude. *Tetramorium lanuginosum* was identified (X.E.) using keys by BOLTON (1976). Precipitation in Algiers is variable, with a mean of 646 mm and ranging between 333 and 884 mm/year. Temperatures range from 10.5 to 26.7°C, with an annual mean of 18.24°C. Vegetation is a highly diverse (> 130 plant species) mixture of different plants, native and exotic, the latter originating from French introductions during the first half of the last century (1905 - 1962). Grasses, bushes and trees originating from different biogeographical regions are found usually mixed, in experimental plots in which different phytotechnical management practices (irrigated or dry plots) and hydraulic and botanic experiments are conducted as well.

Results and Discussion

A single worker of *Tetramorium lanuginosum*, a now cosmopolitan species (WETTERER 2010b), was captured in a green of the garden of INA. The nest of the worker was not detected, so we have no data on population size. Other ant species from the same survey are: *Aphaenogaster depilis* SANTSCHE, 1911, *Messor barbarus* (LINNAEUS, 1767), *Cre-*

matogaster scutellaris (OLIVIER, 1792), *Pheidole pallidula* (NYLANDER, 1849), *Tapinoma nigerrimum* (NYLANDER, 1856), *Tapinoma simrothi* KRAUSSE, 1911, *Plagiolepis* sp. (near *P. maura*), *Cataglyphis viaticus* (FABRICIUS, 1787), and *Camponotus truncatus* (SPINOLA, 1808). This truly mixed ant fauna reflects the variety of microhabitats (dry vs. irrigated) and nesting sites (soil, trees) within the park. The species is certainly not in the spread phase of invasive species because when exotic ants invade, they come to dominate a frequently large area (HÖLLDOBLER & WILSON 1990). This is not the case for *T. lanuginosum* within the garden of INA. Indeed, the existence of other native ants such as *Messor barbarus*, *Aphaenogaster depilis*, *Crematogaster scutellaris* and *Pheidole pallidula*, may play a role limiting the spread of *T. lanuginosum*. Contrary to the present case, CARPINTERO & al. (2007) note that once introduced, the exotic and invasive species *Linepithema humile* interacts with other ant species altering their density and behaviour. The same result is noted by WHEELER (1908) (in WETTERER & al. 2006) for *Pheidole megacephala* (FABRICIUS, 1793) which exterminated all other ant species in Culebrita (Puerto Rico). In contrast, because of its exigency of high humidity (WETTERER 2010b), we believe that *T. lanuginosum* may never reach the spread phase in natural habitats in Algeria.

Based on data from WETTERER (2010b) on the origin and spread of *T. lanuginosum* in the world (77 geographic areas), including the tropical and subtropical regions of Asia, we assume that this ant has been introduced jointly with exotic plant species to INA. Possible culprit examples could be *Melia azedarach* LINNAEUS, 1753 (originating from India), *Populus alba* LINNAEUS, 1753 (originating from western Asia, Central and Southern Europe) or *Stenotaphrum americanum* SCHRANK (originating from tropical islands and the coast of the Western Indian Ocean). It will be interesting to investigate the presence of *T. lanuginosum* in other botanical gardens, such as the experimental garden of Hamma in Algiers.

Only Morocco is lacking (CAGNIANT 2006) to complete the presence of *T. lanuginosum* in all southern Mediterranean countries. A dedicated search in irrigated gardens from agriculture teaching or research centres and tourist facilities is needed to enhance the too scarce knowledge of the exotic component of the Algerian myrmecofauna.

Acknowledgements

To J.K. Wetterer and an anonymous reviewer for constructive and useful comments. GB thanks Mr. Seghiri K. (Département de Biologie, Université M'sila) for samples and logistic support and Mr. Zedam A. (Département d'Agronomie, Université M'sila) for his identification of plant species from INA. XE is currently supported by MEC-FEDER CGL2007-64080-C02-01 and Consolider-Ingenio Montes CSD2008-00040.

Zusammenfassung

Tetramorium lanuginosum MAYR, 1870 wird erstmals für Algerien gemeldet und wird als in diesem Land exotische Art betrachtet. Die Art wurde auf einer bewässerten Grünfläche in den Anlagen des Institut National Agronomique in El Harrach, Algier, gefunden. Dies ist der Nachweis der achten exotischen Ameisenart für Algerien.

References

ANDRÉ, E. 1883: Species des Hyménoptères d'Europe et d'Algérie. Tome Deuxième. – Beaune: Edmond André, 919 + 48 pp.

- BERNARD, F. 1960: Notes écologiques sur diverses fourmis sahariennes. – Travaux de l'Institut de Recherches Sahariennes 19: 51-63.
- BERNARD, F. 1967 [1968]: Faune de l'Europe et du Bassin Méditerranéen. 3. Les fourmis (Hymenoptera Formicidae) d'Europe occidentale et septentrionale. – Masson, Paris, 411 pp.
- BOLTON, B. 1976: The ant tribe Tetramoriini (Hymenoptera: Formicidae). Constituent genera, review of smaller genera and revision of *Triglyphothrix* FOREL. – Bulletin of the British Museum (Natural History) Entomology 34: 281-379.
- CAGNIANT, H. 1970: Deuxième liste de fourmis d'Algérie, récoltées principalement en forêt (Deuxième partie). – Bulletin de la Société d'Histoire Naturelle de Toulouse 106: 28-40.
- CAGNIANT, H. 2006: Liste actualisée des fourmis du Maroc (Hymenoptera: Formicidae). – Myrmecologische Nachrichten 8: 193-200.
- CARPINTERO, S., RETANA, J., CERDA, X., REYES-LÓPEZ, J. & ARIAS DE REYNA, L. 2007: Exploitative strategies of the invasive Argentine Ant (*Linepithema humile*) and native ant species in a southern Spanish pine forest. – Environmental Entomology 36: 1100-1111.
- CHOPARD, L. 1919: Description d'une espèce nouvelle du genre *Myrmecophila* (Orth. Gryllidae) et remarques sur la sexualité chez les espèces de ce genre. – Bulletin de la société entomologique de France 24: 339-346.
- DOBSON, A.P. & MAY, R.M. 1986: Patterns of invasions by pathogens and parasites. In: MOONEY, H.A. & DRAKE, J.A. (Eds.): Ecology of biological invasions in America and Hawaii. Ecological Studies 58. – Springer-Verlag, New York, pp. 68-76.
- FRISQUE, K. 1935: La Fourmi d'Argentine *Iridomyrmex humilis* MAYR dans les serres en Belgique. – Annales de la Société Entomologique de Belgique 75: 148-153.
- GÓMEZ, K. & ESPADALER, X. 2004: Exotic ants (Hymenoptera: Formicidae) in the Balearic Islands. – Myrmecologische Nachrichten 8: 225-233.
- HENGVELD, R. 1989: Dynamics of biological invasions. – Chapman & Hall, London, 180 pp.
- HÖLLDOBLER, B. & WILSON, E.O. 1990: The ants. – Harvard University Press, Cambridge, MA, 732 pp.
- SHIGESADA, N. & KAWASAKI, K. 1997: Biological invasions: theory and practice. – Oxford University Press, Oxford, 205 pp.
- WARD, D.F., BEGGS, J.R., CLOUT, M.N., HARRIS, R.J. & O'CONNOR, S. 2006: The diversity and origin of exotic ants arriving in New Zealand via human-mediated dispersal. – Diversity and Distributions 12: 601-609.
- WETTERER, J.K. 2009a: Worldwide spread of the destroyer ant, *Monomorium destructor* (Hymenoptera: Formicidae). – Myrmecological News 12: 97-108.
- WETTERER, J.K. 2009b: Worldwide spread of the penny ant, *Tetramorium bicarinatum* (Hymenoptera: Formicidae). – Sociobiology 54: 811-830.
- WETTERER, J.K. 2010a: Worldwide spread of the pharaoh ant, *Monomorium pharaonis* (Hymenoptera: Formicidae). – Myrmecological News 13: 115-129.
- WETTERER, J. K. 2010b: Worldwide spread of the wooly ant, *Tetramorium lanuginosum* (Hymenoptera: Formicidae). – Myrmecological News 13: 81-88.
- WETTERER, J.K., ESPADALER, X., WETTERER, A.L., AGUIN-POMBO, D. & FRANQUINHO-AGUIAR, A.M.F. 2006: Long-term impact of exotic ants on the native ants of Madeira. – Ecological Entomology 31: 358-368.
- WETTERER, J.K., WILD, A.L., SUAREZ, A.V., ROURA-PASCUAL, N. & ESPADALER, X. 2009: Worldwide spread of the Argentine ant, *Linepithema humile* (Hymenoptera: Formicidae). – Myrmecological News 12: 187-194.
- WILLIAMS, D.F. 1994: Exotic ants. Biology, impact, and control of introduced species. – Westview Press, Boulder, CO, 332 pp.
- WILLIAMSON, M. & FITTER, A. 1996: The varying success of invaders. – Ecology 77: 1661-1666.