

SHORT COMMUNICATION

New data on armoured scale insects (Hemiptera, Coccoidea, Diaspididae) from the Azores Islands

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The Azores are located about 1,600 km east of continental Europe (Portugal). The archipelago comprises nine volcanic islands spread throughout 600 km along a NW-SE axis, arranged in three groups: Eastern Group (São Miguel and Santa Maria), Central Group (Terceira, Graciosa, São Jorge, Pico and Faial) and Western Group (Flores and Corvo). The islands are the superficial expression of a much larger structure named Azores Plateau, with a triangular shape defined roughly by the 2000 m depth isobath. The Plateau is a complex tectonic region that encompasses the triple junction between the American, Eurasia and Nubian plates. One of the most important structures in the region is the Mid-Atlantic Ridge (MAR), which crosses the plateau roughly in a north-south direction and separates the American Plate, where Flores and Corvo islands are located, from the other two plates where the rest of the islands are rooted. (França et al. 2009; Ribeiro 2011). The oldest island in the Azores Archipelago is Santa Maria, estimated to be between 8.12 and 3.2 Ma. S. Miguel is about 4 Ma. The Central Island Group presents younger ages than in the Oriental Island Group, reflecting a regional tendency for the westward migration of volcanism. Terceira Island presents the oldest known age, 3.52 Ma while Graciosa has a maximum of 2.5 Ma. The oldest known age in Faial and Pico islands are 0.73 Ma and 0.27 Ma, respectively. The

islands located west of the MAR were also dated and Flores seems to be older with a maximum age of 2.2 Ma while Corvo could have approximately 1.5 Ma and seems to reflect a regional tendency for the eastward migration of volcanism (Ribeiro 2011).

This short communication presents new records of four species of armoured scale insects (Diaspididae) which were recently collected from the Azores Islands. Two of these species, indicated below by an asterisk, are here reported for the first time from these islands. Voucher specimens of these records are deposited in the Coccoidea Collection of the first author.

The scale insect species (Hemiptera: Coccoidea) currently known from the Azores are listed in ScaleNet (Ben-Dov et al. 2011) and this includes 34 species in 7 families, as follows, Coccidae (9 species), Dactylopiidae (1), Diaspididae (14), Eriococcidae (1), Monophlebidae (1), Ortheziidae (2) and Pseudococcidae (6 species).

The 14 species of armoured scale insects listed in ScaleNet were as follows: *Carulaspis juniperi* (Bouché), *Carulaspis minima* (Signoret), *Chrysomphalus dictyospermi* (Morgan), *Chrysomphalus pimulifer* (Maskell), *Diaspis bromeliae* (Kerner), *Epidiaspis leperii* (Signoret), *Furchadaspis zamiae* (Morgan), *Hemiberlesia rapax* (Comstock), *Kuwanaspis bambusicola* (Cockerell), *Lepidosaphes beckii* (Newman), *Melanaspis*

bromiliae (Leonardi), *Melanaspis smilacis* (Comstock), *Oceanaspidiotus spinosus* (Comstock), *Unaspis citri* (Comstock). All these species are highly polyphagous and widely distributed in the Palaearctic region as well as in the Nearctic and Neoteric zoogeographical region.

NEW RECORDS:

***Chrysomphalus dictyospermi* (Morgan)**

This highly-polyphagous species was previously recorded from almost all zoogeographical regions of the world, including the Canary Islands (Ben-Dov et al. 2011).

Material examined: Ponta Delgada, São Miguel Island, on *Strelitzia reginae* (Strelitziaceae). Coll. Isabel Borges and António Soares, 10.iv.2011.

*** *Leucaspis pusilla* (Löw)**

This pine-infesting species is widely distributed in the western Palaearctic region (Balachowsky 1953).

Material examined: Ponta Delgada, São Miguel Island, on *Pinus* sp. (Pinaceae), 10.iv.2011, Coll. Isabel Borges and António Soares.

***Lindingaspis rossi* (Maskell)**

This armoured scale insect occurs in most tropical and subtropical regions of the world (Miller & Davidson 2005). It has been previously recorded from the Canary Islands (Ben-Dov et al. 2011).

Material examined: Ponta Delgada, São Miguel Island, on *Acacia melanoxylon* (Fanaceae), Coll. António Soares, 10.iv.2011.

*** *Odonaspis ruthae* Kotinsky**

The Bermuda grass scale or couch scale is here recorded for the first time from the Azores. The species is widely distributed in tropical and subtropical territories of the Afro tropical, Austral-

asian, Nearctic, Neotropical, Oriental and Palaearctic regions (Ben-Dov 1988). This armoured scale develops almost exclusively on various species of the Poaceae, and the record from the Azores was taken off Bermuda grass, *Cynodon dactylon*, which is the most common hostplant in all regions.

Material examined. Santa Maria Island, on *Cynodon dactylon*, Coll. Antonio Soares, 1.vii.2010; Penais-da-Luz, on *Cynodon dactylon* (Poaceae), Coll. António Soares, 14.vii.2011

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