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Anthidium Oblongatum (Apoidea: Megachilidae) Confirmed as a Michigan Resident, with Notes on Other Michigan *Anthidium* Species

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Abstract

The Palearctic wool-carder bee, *Anthidium oblongatum* (Illiger) is newly documented in Michigan, with vouchers from Kent, Washtenaw, and Wayne Counties. Additional Michigan records are provided for *Anthidium manicatum* (L.) and the native *Anthidium psoraleae* Robertson.

***Anthidium (Proanthidium) oblongatum* (Illiger)** is a Palearctic wool-carder bee that was first collected in North America in 1994, and found to be present at various localities in New York, New Jersey, Maryland, and Pennsylvania (Hoebeke and Wheeler, Jr. 1999). Subsequently, the species has also been reported from northeast Ohio (Miller et al. 2002), Illinois (Tonietto and Ascher 2009), and Connecticut (Maier 2009). Since wool-carder bees are cavity-nesters, human-aided transport is suspected for the rapid expansion in range of this small anthidiine bee.

Specimens of *A. oblongatum* were collected at two sites by J. Monsma during an arthropod survey of Michigan green roofs. The predominant flowering plants on the roofs were *Sedum* spp., which are planted for their tolerance to extreme variations in heat and availability of water. Vouchers are labeled as follows: **MICHIGAN: Wayne Co.**, Dearborn, Ford Motor Company green roof, 42.3075°N x 83.1560°W, 14 July 2010 (5 specimens). **Kent Co.,** Grand Rapids, GRCC green roof, 42.9656°N x 85.6640°W, 7 June 2010 (1 specimen), 20 July 2010 (4 specimens). A third locality was found late in 2011: **Washtenaw Co.**, Matthaei Botanical Gardens, 42.304039°N x 83.66417°W, 13 Sept. 2011, C.L. Vernier (UM student collection). Specimens were captured with a standard insect net. These voucher specimens represent the first verifiable records for Michigan. A photographic record by Julie A. Craves was taken on 17 August 2007, also from Dearborn Michigan. This indicates that the species has been there for at least 3 years prior to our 2010 collections.

Miller et al. (2002) provided a key to Anthidium occurring in northeastern North America. There are now three species of *Anthidium* known from Michigan: *A. oblongatum*, *A. psoraleae* Robertson, and *A. manicatum* (L.). We provide additional information on the two latter species below.

***Anthidium psoraleae* Robertson,** a native *Anthidium,* is found from Colorado and North Dakota, eastward into the Great Lakes region (Hurd, Jr. 1979). While widespread, there appears to be a dearth of information, other than it appears to prefer legume flowers. The localities for Michigan specimens are presented here. **MICHIGAN: Barry Co.**, 24 June 1956, *Trifolium* flowers, R.W. Hodges (MSUC). **Berrien Co**., Warren Dunes State Park, 17 July 1982,

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M. & A. O'Brien. **Livingston Co**., E.S. George Reserve, 12 July 1972, flowers of *Vicia villosa* Roth, F.C. Evans; 12-16 July 1983, Malaise Trap, M. F. O'Brien. **Washtenaw Co.**, Dexter Twp., Stinchfield Woods, T1S-R4E-S11, Malaise Trap 17-21 June 1971; 28-30 June 1971, Peter Rush.

***Anthidium manicatum* (Linn.)**, the Wool Carder Bee, first recorded from Michigan at Hidden Lake Gardens near Tipton in Lenawee Co. in 2001 (Miller et al. 2002), is probably now widely distributed across the lower half of Michigan in suburban gardens. It appears to be a synanthropic species that requires cultivated plants in the genus *Lychnis* and *Stachys* for lining the nests. The senior author has monitored this species at his own garden in Ann Arbor for 9 years, and females are commonly seen gathering trichomes from the stems of rose campion [*Lychnis coronaria* (L.) Clairv.)]. Additional records are given here. **MICHIGAN**: **Allegan Co.**, 4 mi. E of Saugatuck, 10 August 2006, J.K. Tuell, et al. (MSUC). **Bay Co.**, Pinconning Rest Area off I-75N, 43.76163°N x 84.01777°W, 11.1 km SSW of Pinconning, 22 August 2007, 2 males at *Stachys byzantine* K. Koch flowers (visual record only, MFO). **Kent Co.**, Wyoming, 3 Sept. 2011, garden, on *Salvia farinacea* Benth. flowers, D.R. Swanson #47. **Ottawa Co.**, 2 mi NNE Agnew, 9 June 2005, J.K. Tuell et al. (MSUC). **Washtenaw Co.**, Ann Arbor, 10 June 2000 at flowers of *Digitalis purpurea* L.; 20 June 2000; 22 June 2000; 13 July 2000; Marjorie O'Brien. Ann Arbor, 19 June 2005; 20 June 2004; 8 August 2010; 18 Sept. 2004, Mark O'Brien. **Wayne Co.**, Dearborn, 42.3108°N x 83.1952°W, 7 August 2007, Julie A. Craves.

Discussion

These adventive species of Hymenoptera, not large and showy nor obviously injurious, are able to expand into new localities in North America for an indeterminate period before being discovered by entomologists. Their modes of nest construction in hollows of various materials which are easily transported by humans allow new populations to be established across North America in a very short time span. As has been documented with the megachilid bees *A. manicatum* (Gibbs and Sheffield 2009), *Megachile sculpturalis* Smith (Mangum and Brooks 1997, Hinojosa-Diaz et al. 2005, O'Brien and Craves 2008), and the pompilid wasp *Auplopus carbonarius* Scopoli (Kurczewski and O'Brien 1992), new populations are easily spread across great distances by human-aided transport. Another example of rapid expansion is the horn-faced bee, *Osmia cornifrons* (Radoszkowski) which was purposefully introduced for orchard pollination in Maryland by the U.S. Department of Agriculture (Batra 1979). It is now spreading across the United States due to its commercial use for pollinating various fruit orchards. For example, although introduced to Grand Traverse County, Michigan in 2005 for cherry orchard pollination (Rothwell 2006), "feral" populations have taken hold on their own in Ann Arbor, Michigan, over 320 km to the southeast (MFO unpubl. observations).

Urban arthropod surveys can reliably document the presence of these exotic species. Note that all of the records of *A. oblongatum* have thus far come from urbanized areas. Urban and suburban pollinator surveys have been conducted in the greater New York City area (Matteson et al. 2008, Fetridge et al. 2008) and indicate that species richness in suburban areas is comparable to that of mixed-habitat rural areas in the same region, while urban species richness is much reduced. However, exotic species appeared to be more abundant in urban gardens, constituting 27% of the specimens taken, compared to only 6% in suburban gardens. Such results indicate that some sort of coordinated citizen-science approach to pollinator sampling in urban gardens and arboreta would be very beneficial in monitoring for new arrivals and the spread of exotic bee species already found in Michigan.

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