

Present distribution of *Philanthus triangulum* (Hymenoptera, Crabronidae) on the Canary Islands

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Resumen

Desde su descubrimiento en Tenerife por SMIT & DE BOER (2008), *Philanthus triangulum* se ha expandido considerablemente por la isla, así como por otras islas del archipiélago, tal y como atestiguan los recientes hallazgos en las islas de La Gomera, La Palma, Gran Canaria y Lanzarote.

Summary

Since its first discovery on Tenerife by SMIT & DE BOER (2008) *Philanthus triangulum* apparently has considerably expanded its range on this island and also to several other islands of the archipelago as attested by recent finds on the islands of La Gomera, La Palma, Gran Canaria and Lanzarote.

Zusammenfassung

Seit der ersten Entdeckung auf Teneriffa von SMIT & DE BOER (2008) hat sich *Philanthus triangulum* augenscheinlich auf dieser Insel und auf mehreren anderen Inseln des Archipels ausgebreitet, wie jüngste Funde auf den Inseln La Gomera, La Palma, Gran Canaria und Lanzarote offenbarten.

1 Methods

All authors are hobby macro-photographers with a special interest in insects, so they are frequently out of doors looking for natural history objects to photograph. During these many trips and walks, *Philanthus triangulum* (abbreviated PT below) was encountered sooner or later. As this species cannot be confused with anything else and can be easily identified from photos alone, it was not necessary to take specimens.

Additionally the internet was searched for photos documenting finds of PT on the Canary Islands and one of the authors (T) contacted Canarian beekeepers to include their records.

2 Results

2.1 Observations on Lanzarote (J)

All observations were made during a stay at the Finca “Lomos Altos” near Puerto del Carmen on Lanzarote from Dec. 23rd, 2012 to Jan. 6th, 2013.

On the 1st day, Dec. 23rd a territorial male PT was observed and photographed (Fig.1) sitting on a leaf of a young Drago *Dracaena draco* in the garden of Casa Romerito (belonging to the Finca).

On Dec. 24th several honeybee workers were seen collecting pollen from an *Agave attenuata* inflorescence in a front garden along the road from Macher to Puerto del Carmen. Later a female PT holding a paralysed *Apis mellifera* worker (abbreviated AM below) was encountered on a boardwalk in Puerto Calero (Fig.2). Interestingly, the wasp was too small or weak to carry her prey on the wing. Instead she was progressing slowly in short wing-supported hops, frequently interrupted by stops. A nest could not be found along the concrete boardwalk so must have been either far away or well hidden.

In the garden of Casa Romerito a prey-searching female PT and single pollen-collecting honeybee worker were seen at flowers of Orange Bells *Tecoma x smithii*. The wasp was checking the flowers individually by hovering in front of them. The honeybee frequently disappeared completely into the long corollar tubes and was not found by the wasps during the observation.

On Dec. 26th a female PT was observed at an extensive planted stand of Rosemary *Rosmarinus officinalis* at the Finca Lomos Altos. One or two female PT were present there on all following days during the observation period. Only once I saw a single AM there visiting the Rosemary flowers. In contrast, *Eristalis tenax* and *Eristalinus* (syn. *Eristalodes*) *taeniops* were regular visitors. Several times a PT female inspected a feeding hoverfly by hovering behind but no attack was observed. The *Rosmarinus* pollen was collected by *Lasioglossum* (*Evylaeus*) *morio* and *Amegilla quadrifasciata* females. The PT females did react to neither of them.

From Dec. 28th on a score of AM regularly came to the garden of Casa Romerito at sunrise (ca. 7:45 a.m. GMT) to visit three *Agave attenuata* plants that had started flowering. No PT females were seen hunting them.

On the same day the author (J) was shown two small hives of “Abeja Negra de Canarias” the local race of the Canary Islands, by the farm manager. This race is different from European and African races morphologically as demonstrated by PADILLA & al. (1997, 1998, 2001, and 2004) and genetically by DE LA RÚA & al. (2001). The hives had been present on the Finca for a few months only.



Fig.1: Male *Philanthus triangulum* on territorial perch, a leaf of a young *Dracaena draco*.
Photo taken in Macher/Lanzarote (J).



Fig.2: Female *Philanthus triangulum* with prey, a worker of the Canarian black honeybee.
Photo taken in Puerto Calero/Lanzarote (J).

From Dec. 29th on one or two female PT were seen daily at a long row of planted Sweet Basil *Ocimum basilicum*. The wasps were taking nectar from the flowers. No AM was ever seen visiting the Basil flowers, only the occasional *Amegilla quadrifasciata*.

On several excursions to other parts of Lanzarote (Haria, Tabayesco etc.) neither PT nor AM was seen, even though due to good November rains many plants were in full flower.

During two previous visits (by **J**) in 1998/1999 and over Easter in 1991 neither *Philanthus triangulum* nor a single honeybee *Apis mellifera* was ever encountered.

The Beewolf was not recorded either during a trip (by **R**) to Lanzarote and Fuerteventura in 2011.

no.	Date	observer	locality	n, sex	Observations
1	23/12/2012-05/01/2013	J	Macher, Puerto Calero	1♂+ ♀♀	see text above

2.2 Observations on Tenerife (T, R & al.)

no.	Date	observer	locality	n, sex	Observations
1	08.10.2007	SMIT & DE	San Eugenio	2♂	
2	14.10.2007	BOER (2008)	San Eugenio	3♂	
3	14.12.2007	T	Candelaria	1♂	sitting on <i>Plocama pendula</i>
4	11.12.2008	Anselmo Rodríguez	La Laguna	1♂	Sitting
5	01.09.2009	Antonio Bentabol (pers. com)	Chío	♀?	around beehives
6	01.11.2009		Fasnia	♀?	around beehives
7	11.03.2009	T	Malpaís de Güímar	1♂	sitting on <i>Plocama pendula</i>
8	08.11.2009	R	Callao Salvaje, 28° 7'58.81"N 16°46'19.48"W	1♂	nectaring on yellow Composite flowers
9	21.12.2009	T	Amarilla Golf	10-20 ♂+ ♀	around a hedge that borders golf course; possible nesting area.
10	11.03.2010	T	Acantilado de La Hondura	1♂	sitting on <i>Plocama pendula</i>
11	01.09.2010	Antonio Bentabol (pers. com)	P.N. del Teide	♀?	around beehives
12	27.11.2011		Fasnia	♀?	around beehives
13	05.12.2011		Tejina	♀?	around beehives
14	11.12.2011		Vilaflor	♀?	around beehives
15	19.01.2012		Guía de Isora	♀?	around beehives
16	19.01.2012		La Hidalga, Arafo	♀?	around beehives
17	14.02.2012		Guargacho	♀?	around beehives
18	05.03.2012		Valle Tahodio, St ^a Cruz	♀?	around beehives
19	01.08.2012	T	Fasnia	1♂	sitting on <i>Yucca elephantipes</i>
20	01.11.2012	T	Fasnia	1♀	nectaring on <i>Atalanthus capillaris</i>
21	04.11.2012	T	Fasnia	1?	nectaring on <i>Atalanthus capillaris</i>
22	09.11.2012	T	Barranco Herques	3♂, ♀	nectaring on <i>Atalanthus capillaris</i>

23	15.11.2012	T	Fasnia	1♂	nectaring on <i>Argyranthemum frutescens</i>
24	24.11.2012	T	Barranco Eres de La Palma	1?	nectaring on <i>Schizogyne sericea</i>

2.3 Observations on Gran Canaria (L, M & al.)

One author (M) found PT on small palm trees, dry bushes or feeding on flowers at Sardina, Gáldar, close to the shore where the ambient is very dry, from 5 to 50mts above sea level. The PT males observed seemed to patrol the plant they were on, but didn't bother any *Amegilla* sp. or *Thyreus* sp. (bees most usual there) when they passed by. Beewolves were usually seen on hot days, around midday in full sun.

Males were observed to be much more abundant than females, only one or two burrows were seen in the ground.

no.	Date	observer	locality	n, sex	Observations
1	15.08.2008	Juan Santana (juances)	San Agustin	1♂	
2	31.12.2008	Juan Santana (juances)	San Agustin	1♂	
3	Aut. 2009	José Florido (pers.com.)	Tecén	♀	attacking honeybees near hives
4	31.10.2009	Antonio Díaz	Jardín Canario, Las Palmas	1♂	nectaring on <i>Limonium</i> sp.
5	13.02.2010	Ricardo Vega	Santa Brígida	1♂	sitting on <i>Salvia canariensis</i>
6	18.04.2010	M	Sardina, Gáldar	1♂	see below
7	24.07.2010	Soraya Pino	?	1♂	nectaring on <i>Bystropogon</i> sp.
8	24.08.2010	Juan Santana (juances)	San Agustin	1♂	
9	25.10.2010	M	Sardina, Gáldar	1♂	see below
10	17.10.2010	Carlos Suarez	Firgas	1♂	nectaring on <i>Euphorbia balsamifera</i>
11	06.11.2010	L	El Castillo del Romeral	1♂	
12	19.02.2011	Antonio Díaz	Juncalillo	1♂	
13	14.10.2011	L	Jardin Bot., Las Palmas	♂♀	
14	23.11.2011	Las Noticias de Canarias		2♀	
15	29.11.2011	Pablo MDS (BlezSP)		1♂	
16	07.01.2012	(aetven)		1♂	
17	24.02.2012	Pablo MDS (BlezSP)		1♂	
18	06.04.2012	Marcos Benito	San Bartolomé de Tirajana	1♀	capturing honeybee
19	21.06.2012	M	Sardina, Gáldar	1♂	see below
20	13.09.2012	(CayeAlpha)	Montaña de Lasso, San Cristóbal	1♂	
21	15.09.2012	M	Sardina, Gáldar	1♂	see below
22	23.09.2012	(Corsadero)	Las Palmas, Altos de Santa Maria de Guia	1♀	attacking honeybees near hives, nesting in soil
23	14.10.2012	Juan Emilio	Jardín Canario, Las	♂♀	

		Checa	Palmas		
24	12.11.2012	Guillermo Santana	San Lorenzo, Las Palmas	♀	nest site
25	20.01.2013	Antonio Díaz	?	1♀	nectaring on <i>Teline</i> sp.
26	02.03.2013	Antonio Díaz	Jardín Canario, Las Palmas	1♂	nectaring on <i>Euphorbia regis-jubae</i>
27	17.03.2013	Antonio Díaz	Las Palmas	1♂	

2.4 Observations on La Palma

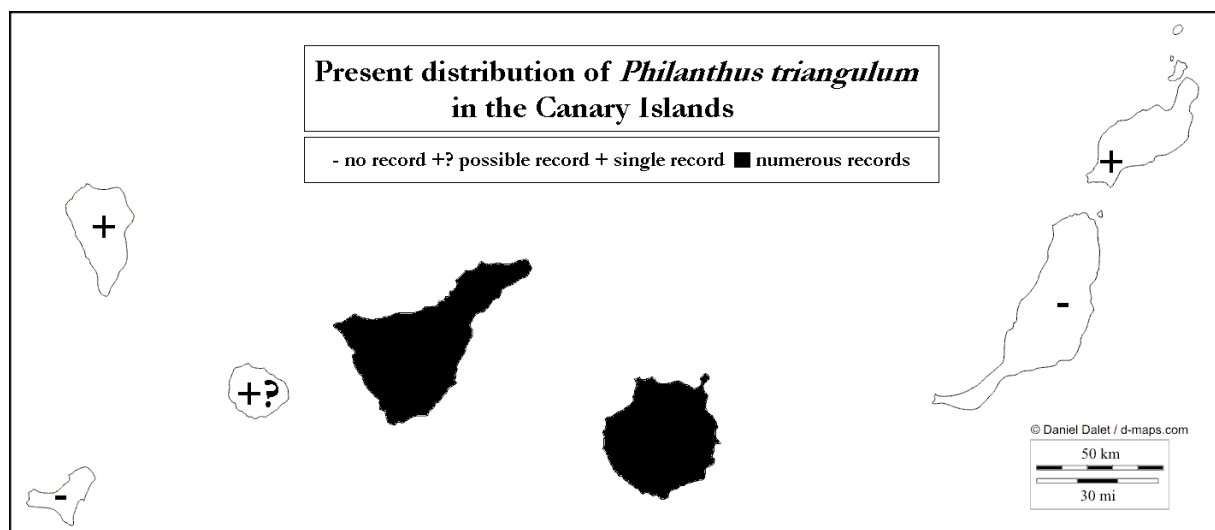
no.	Date	observer	locality	n, sex	Observations
1	23.01.2011	Antonio Camacho (antonioacamacho)		1♂	

2.5 Observations on Gomera

There is only a single possible record for Gomera. The caption to a series of photos on <http://www.insectoid.info/wasps/sphecoid-wasps/bee-wolf/> reads: "... (photographed on Gomera)". The owner of the website did not respond to our enquiry, so we regard this record as likely but unconfirmed.

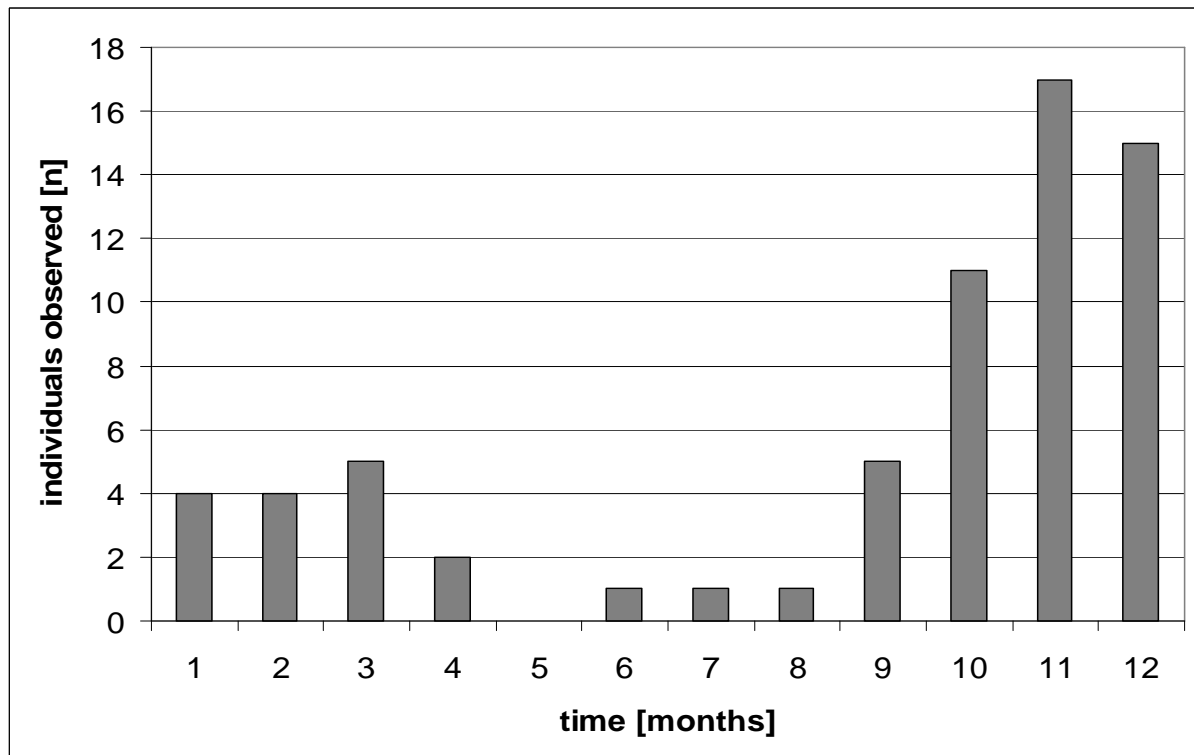
no.	Date	observer	locality	n, sex	Observations
1	unknown	unknown		♀	

2.6 Distributional Map



3 Discussion

3.1 Phenology of *Philanthus triangulum* on the Canary Islands



To illustrate the phenology in a diagram (above), we cumulated all finds from Tenerife and Gran Canaria ($n = 66$) month-wise, irrespective of sex, as in some observations no sex was given. From observations where a range was given instead of a definite number, we chose the lower figure. Both sexes seem to have a similar phenology, though.

Beewolves were recorded in all months of the year except May (see above). The beewolves were seen most numerous in November and December when the ambient temperatures are lower and the likelihood of rain is higher. The few data from La Palma and Lanzarote fit well into this general pattern.

3.2 Why do males dominate the record?

Few observers on the Canary Islands noticed PT females. While male PT spend their days occupying and defending territorial look-out perches on vegetation bordering on open spaces at or below human eye level, females go about their business much more secretive. Hunting is done in part well above head height of potential human observers in flowering shrubs, trees and palms where their prey congregates, which may be why they are seriously under recorded.

3.3 Where did the Beewolf colonists come from?

All individuals of PT photographed on the Canary Islands showed the red forelegs and plain golden yellow metasoma of the North African form *Ph. tr. abdelcader*. Future studies will have to demonstrate whether or not this form represents a subspecies. The first finds of SMIT & DE BOER (2008) were of the same form/subspecies. As these authors have pointed out already this strongly suggests a Maghrebian origin of the founder individuals.

3.4 How did the Beewolf colonists reach the Canary Islands?

OLBERG (1953) states: "...the ability to migrate is very low in digger wasps, caused by the special breeding site requirements and their philopatry. Even rather narrow barriers are able to impede any attempt of range expansion. Accidental transport of pre-imaginal stages is impossible in soil-nesters." (p. 55, translation from the German by J)

With respect to the Canarian Beewolves both claims are not entirely convincing. The distance between the Canaries and the NW-African coast minimally is about a hundred kilometres.

African species of dragonflies like the Vagrant Emperor *Anax ephippiger* regularly cross the channel between Morocco and Lanzarote (or between West-Sahara and Fuerteventura) from East to West in periods of "Calima" (Easterly winds bringing a lot of dust from the Sahara) to reach the easternmost Canaries in just a few hours. It does not seem impossible altogether for a female Beewolf to do likewise. Neither can accidental transport of Beewolf brood cells in the potting substrate of an imported palm or ornamental plant be excluded. Many North African countries have banned imports of palms but export them freely, thus spreading diseases and pests like the Red Palm Weevil *Rhynchophorus ferrugineus*.

3.5 Does the sequence of finds reflect the order of colonisation of the Canary Islands by the Beewolf?

The first discovery of PT on Tenerife in 2007 (SMIT & DE BOER, 2008) does not necessarily imply this island has been the one first colonized. The chronological order of first observations on the other island is: Gran Canaria, La Palma, (possibly) Gomera, Lanzarote.

If the first colonists arrived from Morocco or West Sahara on their own wings one would expect them to have hit Gran Canaria first. If they instead arrived in the soil of imported palm trees by ship, the chances for Tenerife would have stood at least as good as for Gran Canaria, as palms are commonly planted around newly build hotels

and upper class villas. In any case, the Beewolf was found on Gran Canaria only 10 months later. La Palma was next, two and a half years later early in 2011. The find in Lanzarote followed two years later again, end 2012.

3.6 Could the colonization have happened long before their discovery in 2008?

Had not two entomologists happened to run into PT on Tenerife in 2007, the presence of the wasp might have gone unnoticed for a further while. Vice versa, accidental introduction to of the wasp to an island with reliable honeybee population (like Tenerife) could have happened several years before 2007. On the other hand honeybees were present on the western Canary Islands for time immemorial, long enough to form a local race, and any significant loss of hive bees to a conspicuous predatory wasp would not have gone unnoticed for very long. So we conclude colonization and discovery probably were not separated by any extended period of time.

3.7 Why did the Beewolf apparently not colonize the Canaries successfully before 2008?

The easternmost Canary Islands Fuerteventura and Lanzarote were free of honeybees until recently. DE LA RÚA & al. (2001) write on p.1734: "At present, Lanzarote and Fuerteventura do not have honeybee populations due to the climate conditions." This obviously has changed since, beekeeping started on Fuerteventura in 2007 (MONTSERRAT, 2007) and only a few years later on Lanzarote, too.

Previously PT females riding the Calima winds were unable to reproduce if they succeeded to reach Fuerteventura or Lanzarote in good condition. In 2007 this barrier fell as now AM prey to provision brood cells and successfully reproduce were present, if patchily distributed and in relatively low numbers. The next season offered a chance for offspring females to cross the next (inter-island) barrier, riding the same winds that brought their progenitors. Though this sounds credible, there is no record of PT from Fuerteventura so far, which of course, does not mean it is not present there. Hierro lies a bit to the South off the usual Calima course which is approximately ENE, so would be harder to reach for a PT from the nearest neighbouring island Gomera (where PT is present). This might explain why no PT was found on Hierro so far.

3.8 Beewolves as potential pollinators of endemic flowering plants

As the genus name implies (philanthos (gr.) = lover of flowers) the Beewolves are regular and frequent flower visitors of a wide variety of native and cultivated plant species. In the observations documented above visits to the flowers of the following Canarian endemic plants have been recorded: *Argyranthemum frutescens*, *Atalanthus*

capillaris, *Bystropogon* sp., *Euphorbia balsamifera*, *Euphorbia regis-jubae*, *Limonium* sp., *Plocama pendula*, *Salvia canariensis*, *Schizogyne sericea*, *Teline* sp.

To assume a contribution by the Beewolves to pollination resulting in seed set in native species of Canarian endemic flowering plants thus seems very likely.

4 Acknowledgements

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5 Literature cited

- DE LA RÚA, P.; GALIÁN, J.; SERRANO, J. & MORITZ R.F.A. (2001): Genetic structure and distinctness of *Apis mellifera* L. populations from the Canary Islands. - *Molecular Ecology* **10**: 1733–1742.
- MONTSERRAT, D. (2007): Apicultura Ecológica. Las Mieles de Maxorata. - Im Internet unter: <http://www.canarias7.es/articulo.cfm?id=71270>
- OLBERG, G. (1953): Bienenfeind *Philanthus* (Bienenwolf). - *Neue Brehm-Bücherei* **94**: 1-88.
- PADILLA, F. & al. (1997): Estudio biométrico de las abejas domésticas de la isla de La Palma. - *Arch. Zootec.* **46**: 21-30.
- PADILLA, F. & al. (1998): Estudio morfológico de abejas melíferas del archipiélago canario. - *Arch. Zootec.* **47**: 451-459.
- PADILLA, F. & al. (2001): Estudio biométrico de la abeja melífera de la isla de La Palma del archipiélago canario. - *Zool. Baetica* **12**: 23-35.
- PADILLA, F. & HERNÁNDEZ, R. (2004): Estudio de las relaciones morfológicas existentes en las abejas domésticas de las Islas Canarias. - *Arch. Lat. Prod. Anim.* **12** (4): 7-11.
- SMIT, J. & DE BOER, R. (2008): *Philanthus triangulum* (Hymenoptera; Crabronidae) new for the fauna of the Canary Islands. - *Linzer biol. Beitr.* **40** (1): 897-900.

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