



## **Quality Hymenoptera & Diptera species identified as pests on woody ornamental hosts in Galicia.**

*Himenópteros y dípteros plaga de calidad identificados en especies leñosas ornamentales en Galicia.*

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### **Abstract**

In the present paper the author carries out a list with the quality – not quarantine for the UE - *hymenoptera* & *diptera* species identified as pests on woody ornamental hosts of Galicia, as part of his independent consultancy service, carried out from 1999 to 2022. A total number of 8 different species on 10 different hosts, were identified: *Dryocosmus kuriphilus*, *Megachile centuncularis*, *Andricus curvator*, *Allantus cinctus* and *Arge rosae* between the hymenoptera species and *Rabdophaga salicis*, *Arnoldiola quercus* & *Bradysia sp.* among the Diptera species. Considering only crop pests 6 of them are referenced for the first time, in this paper, as pests on woody ornamental hosts in Galicia, and two of them are first references on woody ornamental hosts in Spain.

Key words: *Dryocosmus kuriphilus*, *Megachile centuncularis*, *Andricus curvator*, *Allantus cinctus*, *Arge rosae*, *Rabdophaga salicis*, *Arnoldiola quercus*, *Bradysia sp.*, Galicia, woody ornamental hosts.

### **Resumen**

En el presente trabajo el autor relaciona la totalidad de especies de himenópteros y dípteros de calidad – no cuarentenarios para la UE - identificadas por el mismo en especies leñosas ornamentales de Galicia, basándose en la información obtenida de su trabajo como consultor entomológico independiente, desde 1999 a 2022. Se identificaron las siguientes especies: *Dryocosmus kuriphilus*, *Megachile centuncularis*, *Andricus curvator*, *Allantus cinctus* entre las especies de himenópteros y *Arge rosae*, *Rabdophaga salicis*, *Arnoldiola quercus* y *Bradysia sp.* entre las de dípteros. En condiciones de cultivo 6 de las 8 especies incluidas en el artículo son nuevas citas para Galicia, y dos de ellas son primeras referencias para toda España.

Palabras clave: *Dryocosmus kuriphilus*, *Megachile centuncularis*, *Andricus curvator*, *Allantus cinctus*, *Arge rosae*, *Rabdophaga salicis*, *Arnoldiola quercus*, *Bradysia sp.*, Galicia, especies leñosas ornamentales.



## 1. Introduction

The list of quality –not quarantine for the UE– *Hymenoptera* and *Diptera* species referenced, up to the present moment, as pests of woody ornamental hosts –we don't consider the species identified on forests– in Galicia (NW Spain), is very short due to the lack of information and specialized papers dealing with this matter. Belonging to the order *Hymenoptera* we must list the following one: *Megachile centuncularis* & *Dryocosmus kuriphilus* (Andrés, 2017; Pérez-Otero & Mansilla, 2014). Belonging to the order *Diptera* the list is the following one: *Arnoldia quercus*, *Rabdophaga regeeri*, *Bradysia sp.*, *Bradysia paupera* (Andrés, 2017, Mansilla *et al.*, 2001).

The list of *Hymenoptera* and *Diptera* species referenced as pest of ornamental hosts in other parts of Spain is longer due to the specific entomological works carried out on garden conditions: *Arge sp.*, *Cladius sp.*, *Caliroa sp.*, *Megachile centuncularis*, *Diprion pini*, *Neodiprion sertifer*, *Arge pagana*, *Arge rosae*, *Caliroa aethiops*, *Caliroa cerasi* and *Cladius pectinicornis*, are the main *Hymenoptera* species (Villalva, 1996; De Liñán, 1998) and *Rabdophaga saliciperda*, *Mayetiola rigidiae*, *Cynips tozae*, *Monarthropalpus buxi*, *Liriomyza trifolii*, *Dryomia lichtensteini* and *Rhodites sp.* are the main referenced pest species belonging to the *Diptera* order (Villalva, 1996, De Liñán, 1998; Martín Gil *et al.*, 2020).

The identification of the main species of these *Hymenoptera* & *Diptera* on woody ornamental hosts is specially useful for the design of sustainable plant protection programs due to the problem of resistance to insecticides referenced, up to the present moment, on different ornamental species (IRAC, 2022). Their exact determination is also necessary, at the present moment, due to the increasing quarantine *Hymenoptera* and *diptera* number of species for certain countries of the world.

## 2. Material & methods

### 2.1. Production centres where the study was performed

The study was carried out only on woody ornamental production centres of Galicia as well as on private and public parks of Pontevedra (Galicia), intermittently, from 1999 to 2022. The entomological

monitoring of the pests was carried out sampling periodically in order to identify the *Hymenoptera* and *Diptera* species by means of classical entomological determination methods.

### 2.2. Sampling methods

The adults, larvae and galls were sampled using plastic boxes for urine samples and carried to the entomological laboratory of Consultorías Noroeste S.C. for its taxonomical classification.

### 2.3. Sampling methods

The author used the following descriptions and taxonomical criteria for the species determinations: Alford (1995), De Liñán (1998), Pérez-Otero & Mansilla (2014), Skuhrová *et al.*, (2014). The taxonomy was made with the aid of a stereomicroscope. All of the species included in the paper were confirmed as pest of the specified host by the author.

### 2.4. Sampling methods

Some of these species were referenced on a technical visual guide written, edited and published by the author of this paper. We have decided to include them in this paper as the previous publication was not strictly considered a scientific paper. In order to difference these species from the rest we have decided to include their reference on the results section.

## 3. Results

### List of identified pest species and hosts classified by family

#### ORDER HYMENOPTERA

##### Family Cnypidae

#### 3.1. *Dryocosmus kuriphilus* Yasumatsu

Host observed in Galicia: *Castanea sativa*.

Type of crop: soil on a private garden.

#### 3.2. *Andricus curvatur* Hartig

Host observed in Galicia: *Quercus robur*.

Type of crop: soil on a public park.

## Family *Megachilidae*

### 3.3. *Megachile centuncularis* Linnaeus

Host observed in Galicia: *Frangula alnus*, *Arbutus unedo*, *Punica granatum* & *Rosa canina*.

Type of crop: container on woody ornamental nurseries and soil on public parks.

(Andrés, 2017)

## Family *Tenthredinidae*

### 3.4. *Allantus cinctus* Linnaeus

Host observed in Galicia: on *Rosa canina*.

Type of crop: container.

## Family *Argidae*

### 3.5. *Arge rosae* Linnaeus

Auctorum – *Arge ochrorum* (Gmelin in Linnaeus)

Host observed in Galicia: on *Rosa canina*.

Type of crop: container.

## ORDER *DIPTERA*

## Family *Cecidomyiidae*

### 3.6. *Rabdophaga salicis* Schrank

Host observed in Galicia: *Salix* sp.

Type of crop: soil on public park.

(Andrés, 2017)

Note: Andrés classified it initially as *Rabdophaga degeerii* (Bremer) (Andrés, 2017).

### 3.7. *Arnoldiella quercus* (Binnie)

Host observed in Galicia: *Quercus robur*.

Type of crop: soil on public park.

(Andrés, 2017)

## Family *Sciaridae*

### 3.8. *Arnoldia quercus* (Binnie)

Host observed in Galicia: *Dianthus caryophyllus*.

Type of crop: container.

## 4. Discussion

It is important to mention that this paper, as well as the former publication on 2017, are the first references for Galicia (NW Spain) of the species *Megachile centuncularis*, *Allantus cinctus*, *Arge rosae*, *Rabdophaga salicis* and *Arnoldiella quercus* as pests of woody ornamental hosts. It is also important to mention that some of these species are also first references for Spain as pests of ornamental crops: *Megachile centuncularis* as well as *Allantus cinctus* (Villalva, 1996; de Liñán, 1998). We must also mention that, *Megachile centuncularis*, *Andricus curvatus*, *Allantus cinctus*, *Arnoldiella quercus* as well as *Bradysia* sp. have been already cited as pests of ornamental crops in the United Kingdom, a country with similar climate to Galicia (Alford, 1995). *Dryocosmus kuriphilus*, *Arge rosae* as well as *Rabdophaga salicis* are also recorded in this country but not specifically as woody ornamental pests (EPPO, 2022 a; BIOINFO, 2022).

Some of the species referenced in this paper are considered quarantine pests in some parts of the world. This fact is increasing in importance due to an increasing internationalized plant material market. Following the information supplied by EPPO *Dryocosmus kuriphilus* is considered a quarantine pest in Chile, USA, Russia, Turkey, Ukraine, EAEU and certain protected zones of the EU –Ireland– (EPPO, 2022 b).

## 5. Literature References

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