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*Coleópteros plaga de calidad identificados en cultivos de
leñosas ornamentales en Galicia*

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Consultorías Noroeste S.C.

**Quality coleoptera species identified as pests on woody ornamental crops in Galicia.***Coleópteros plaga de calidad identificados en cultivos de 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–*Coleoptera* species identified as pests on woody ornamental crops of Galicia, as part of his independent consultancy service, carried out from 1999 to 2021. A total number of 5 different species on 15 different hosts, were identified: *Agelastica alni*, *Otiorhynchus sulcatus*, *Oxythirea funesta*, *Galerucella* sp. and *Phratora laticollis*. Considering only crop pests 4 of them had been referenced for the first time by the author, on previous papers, as pests on woody ornamental crops in Galicia.

Key words: *Agelastica alni*, *Otiorhynchus sulcatus*, *Oxysthirea fuunesta*, *Galerucella* sp., *Phratora laticollis*, Galicia, woody ornamental crops

Resumen

En el presente trabajo el autor relaciona la totalidad de especies de coleópteros de calidad –no cuarentenarios para la UE – identificadas en cultivos de especies leñosas ornamentales de Galicia, basándose en la información obtenida de su trabajo como consultor entomológico independiente, desde 1999 a 2021. Se identificaron las siguientes especies: *Agelastica alni*, *Otiorhynchus sulcatus*, *Oxysthirea fuunesta*, *Galerucella* sp. y *Phratora laticollis*. En condiciones de cultivo, 4 de las mismas fueron referenciadas por el autor, en artículos previos, como nuevas citas para Galicia.

Palabras clave: *Agelastica alni*, *Otiorhynchus sulcatus*, *Oxysthirea fuunesta*, *Galerucella* sp. y *Phratora laticollis*, Galicia, cultivos de leñosas ornamentales.

1. Introduction

The list of quality –not quarantine for the UE– coleoptera species referenced, up to the present moment, as pests of woody ornamentals in Galicia (NW Spain), is relatively short due to the lack of information and specialized paper, dealing with this matter: *Otiorhynchus sulcatus*, *Cneorrhinus dispar*, *Agelastica alni*, *Otiorhynchus sulcatus*, *Oxysthirea funesta*, *Galerucella* sp., *Phratora laticollis* (Salinero & Vela, 2004; López Pérez *et. al.*, 2016; Andrés, 2017).

The identification of the main species of these coleoptera, on woody ornamental crops, 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 Coleoptera species –*Meligethes aeneus*, *Leptinotarsa decemlineata*, *Psylliodes chrysocephala* and *Tribolium astaneum*– (IRAC, 2021). Their exact determination is also necessary, at the present moment, due to the increasing number of quarantine coleoptera 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, intermittently, from 1999 to 2020. The samples were obtained from 10 nurseries belonging to the following Galician provinces: 6 in Pontevedra, 3 in A Coruña and 1 in Lugo. The entomological monitoring of the pests was carried out every 15 or 30 days, sampling periodically in order to identify the Coleoptera species by means of classical entomological determination methods.

2.2. Sampling methods

The author checked the host plants of each nursery checking the roots of the damaged plants and sampling 10 larvae and/or adults on each date. The adults and larvae were sampled using plastic boxes for urine samples and carried to the entomological laboratory of CONSULTORÍAS NOROESTE S.C. for their taxonomical classification.

2.3. Taxonomical methods

The author used the Perrier taxonomical criteria to classify the pest (Perrier, 1998). The taxonomy was made with the aid of a stereomicroscope.

3. Results

List of identified pest species and hosts classified by family

FAMILY CHRYSOMELIDAE

3.1. *Agelastica alni* Linnaeus 1758

Host observed in Galicia: *Alnus glutinosa*.

Type of crop: soil.

Province: Pontevedra.

3.2. *Galerucella* sp.

Host observed in Galicia: *Gleditsia triacanthos*.

Type of crop: soil.

Province: Pontevedra.

3.3. *Phratora laticollis* Suffrian 1851

Host observed in Galicia: *Salix* sp.

Type of crop: soil.

Province: Pontevedra.

FAMILY SCARABAEIDAE

3.4. *Oxythyrea funesta* Mulsant 1842

Host observed in Galicia: *Callistemon citrinus*.

Type of crop: container.

Province: A Coruña.

FAMILY CURCULIONIDAE

3.5. *Otiorhynchus sulcatus* Fabricius 1775

Host observed in Galicia: *azalea*.

Type of crop: container.

Province: A Coruña.

3.6. *Otiorhynchus sulcatus* Fabricius 1775

Host observed in Galicia: *Camellia japonica*.

Type of crop: container.

Provinces: Pontevedra & A Coruña.

3.7. *Otiorhynchus sulcatus* Fabricius 1775

Host observed in Galicia: *Loropetalum chinensis*.

Type of crop: container.

Province: A Coruña.

3.8. *Otiorhynchus sulcatus* Fabricius 1775

Host observed in Galicia: *Metrosideros robusta*.

Type of crop: container.

Province: A Coruña.

3.9. *Otiorhynchus sulcatus* Fabricius 1775

Host observed in Galicia: *Osmanthus* sp.

Type of crop: soil.

Province: Pontevedra.

3.10. *Otiorhynchus sulcatus* Fabricius 1775

Host observed in Galicia: *Rhododendron* sp.

Type of crop: container.

Province: Pontevedra.

3.11. *Otiorhynchus sulcatus* Fabricius 1775

Host observed in Galicia: *Thuja plicata*.

Type of crop: container.

Province: Lugo.

3.12. *Otiorhynchus sulcatus* Fabricius 1775

Host observed in Galicia: *Araucaria araucana*.

Type of crop: container.

Province: Lugo.

3.13. *Otiorhynchus sulcatus* Fabricius 1775

Host observed in Galicia: *Cleyera* sp.

Type of crop: container.

Province: Pontevedra.

3.14. *Otiorhynchus sulcatus* Fabricius 1775

Host observed in Galicia: *Laurus nobilis*.

Type of crop: container.

Province: A Coruña.

3.15. *Otiorhynchus sulcatus* Fabricius 1775

Host observed in Galicia: *Leptospermum scoparium*.

Type of crop: container.

Province: A Coruña.

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 *Agelastica alni*, *Oxythirea funesta* and *Phratora laticollis* as pests of woody ornamental crops (Salinero & Vela, 2004; López Pérez et al., 2016; Andrés, 2017).

The list of *Coleoptera* species referenced on woody ornamentals in the rest of Spain is significantly longer, based on the work carried out by Villalva (1996):

Melasoma populi, *Galerucella luteola*, *Galerucella lineola*, *Psylliodes* sp., *Haltica* sp., *Saperda cacharias*, *Cryptorhynchus lapathi*, *Scolytus scolytus*, *Scolytus kirschii*, *Scolytus multistriatus*, *Ips* sp., *Tomicus* sp., *Hylurgus ligniperda*, *Pissodes notatus*, *Melolontha* sp. and *Agriotes* sp.

The data presented in this paper have significant contrast with those obtained by other authors on other countries with atlantic climate, such as the UK, where the list of coleoptera species considered pests to woody ornamental species is long and includes the following families: Scarabeidae with 4 species, *Byturidae* with 1 species, *Chrysomelidae* with 17 species, *Attelabidae* with 7 species, *Curculionidae* with 27 species and *Scolytidae* with 4 species. (Table 1). It is important to mention that this publication is mainly based on garden pests in contrast with the data presented in this paper based mainly on nursery pests (Alford, 1995).

Following the information supplied by EPPO *Otiorhynchus sulcatus* is the only quarantine pest, considered as such in Argentina, Brazil, Mexico, Paraguay, Uruguay and Israel (EPPO, 2021).

There are no references of resistance of any of the species described in this paper to insecticides, up to the present moment (IRAC, 2021). The curculionid *Otiorhynchus sulcatus* is the most frequent pest of this order in Galician woody ornamental nurseries due to its complex biological cycle with multiple generations at the same time and with a difficult location of the larvae of this species for efficient conventional chemical management (Andrés, 2016)

The situation described in this paper is valuable for the design of effective and sustainable plant protection as well as integrated pest management programs.

TABLE 1. WOODY ORNAMENTAL COLEOPTERA REFERENCED BY ALFORD (1995) (I)

FAMILY	SPECIES	HOST
Scarabeidae	<i>Melolontha melolontha</i>	Nursery trees and shrubs
	<i>Amphimallon solstitialis</i>	Nursery trees
	<i>Cetonia aurata</i>	<i>Viburnum</i> , <i>Rosa</i>
	<i>Serica brunnea</i>	<i>Picea abies</i>
Byturidae	<i>Byturus tomentosus</i>	<i>Crataegus</i> , <i>Prunus</i> , <i>Syringa vulgaris</i>
Chrysomelidae	<i>Chrysolina polita</i>	<i>Tilia</i> & <i>Salix</i>
	<i>Chrysomela populi</i>	<i>Populus</i> & <i>Salix</i>
	<i>Chrysomela aenea</i>	<i>Salix</i>
	<i>Chrysomela tremula</i>	<i>Populus tremula</i>
	<i>Phyllodecta vitellinae</i>	<i>Populus</i>
	<i>Phyllodecta laticollis</i>	<i>Populus</i> & <i>Salix</i>
	<i>Phyllodecta viminalis</i>	<i>Salix</i>
	<i>Phyllodecta vulgatissima</i>	<i>Populus</i> & <i>salix</i>
	<i>Galerucella lineola</i>	<i>Salix</i>
	<i>Galerucella luteola</i>	<i>Ulmus</i> , <i>Zelkova</i> & <i>Aesculus</i>
	<i>Pyrrhalta viburni</i>	<i>Viburnum</i>
	<i>Lochmaea caprea</i>	<i>Salix</i> , <i>Betula</i> , <i>Populus</i>
	<i>Lochmaea crataegi</i>	<i>Crataegus</i>
	<i>Agelastica alni</i>	<i>Alnus</i> , <i>Fagus</i> , <i>Corylus</i> , <i>Carpinus</i> , <i>Tilia</i> .
	<i>Chalcoides aurata</i>	<i>Salix</i> , <i>Populus</i>
	<i>Chalcouides aurea</i>	<i>Populus</i> , <i>Salix</i>
Attelabidae	<i>Attelabus nitens</i>	<i>Quercus</i> , <i>Alnus</i> , <i>Corylus</i> , <i>Castanea</i>
	<i>Apoderus coryli</i>	<i>Corylus</i> , <i>Fagus</i> , <i>Carpinus</i> , <i>Alnus</i>
	<i>Rhynchites aequatus</i>	<i>Crataegus</i> , <i>Prunus</i> , <i>Malus</i> , <i>Sorbus</i>
	<i>Byctiscus betulae</i>	<i>Corylus</i> , <i>Populus</i> , <i>Alnus</i> , <i>Betula</i> , <i>Ulmus</i> , <i>Salix</i>
	<i>Byctiscus populi</i>	<i>Populus</i>
	<i>Deporaus betulae</i>	<i>Betula</i> , <i>Carpinus</i> , <i>Corylus</i> , <i>Fagus</i>
	<i>Deporaus tristis</i>	<i>Acer</i> , <i>Fagus</i> , <i>Quercus</i>
	Curculionidae	<i>Otiorhynchus clavipes</i>
<i>Otiorhynchus ovatus</i>		<i>Picea abies</i>
<i>Otiorhynchus singularis</i>		<i>Rhododendron</i> , <i>Rosa</i> , <i>Wisteria</i> , <i>Taxus</i> , <i>Tsuga</i> , <i>Prunus</i> , <i>Clematis</i>
<i>Otiorhynchus sulcatus</i>		<i>Camellia</i> , <i>Cotoneaster</i> , <i>Eleagnus</i> , <i>Erica</i> , <i>Rhododendron</i>
<i>Otiorhynchus crataegi</i>		<i>Syringa</i> , <i>Ligustrum</i>
<i>Otiorhynchus rugosostriatus</i>		<i>Syringa</i> , <i>Ligustrum</i>
<i>Phyllobius argentatus</i>		<i>Alnus</i> , <i>Fagus</i> , <i>Betula</i> , <i>Prunus</i> , <i>Crataegus</i> , <i>Sorbus</i>
<i>Phyllobius maculiformis</i>		<i>Fagus</i> , <i>Betula</i> , <i>Crataegus</i>
<i>Phyllobius oblongus</i>		<i>Ulmus</i> , <i>Tilia</i> , <i>Acer</i> , <i>Populus</i> , <i>Salix</i> , <i>Malus</i> , <i>Prunus</i>

TABLE 1. WOODY ORNAMENTAL COLEOPTERA REFERENCED BY ALFORD (1995) (II)

FAMILY	SPECIES	HOST
<i>Curculionidae</i>	<i>Phyllobius pyri</i>	<i>Alnus, Fraxinus, Fagus, Ulmus, Crataegus, Aesculus, Prunus, Sorbus</i>
	<i>Phyllobius roboretanus</i>	<i>Quercus</i>
	<i>Phyllobius viridiaeris</i>	Trees and shrubs
	<i>Polydrusus sericeus</i>	<i>Alnus, Ulmus, Corylus, Quercus, Populus, Salix</i>
	<i>Polydrusus pterygomalis</i>	<i>Crataegus, Quercus, Prunus, Salix</i>
	<i>Barypeithes araneiformis</i>	<i>Betula, Aesculus, Quercus</i>
	<i>Barypeithes pellucidus</i>	Seedling trees
	<i>Strophosomus melanogrammus</i>	<i>Fagus, Betula, Rhododendron, Corylus</i>
	<i>Barynotus obscurus</i>	<i>Rosa</i>
	<i>Stereonychus fraxini</i>	<i>Fraxinus, Syringa, Phillyrea</i>
	<i>Cryptorrhynchus lapathi</i>	<i>Populus, Salix, Alnus, Betula</i>
	<i>Dorytomus taeniatus</i>	<i>Salix</i>
	<i>Rhynchaemus alni</i>	<i>Ulmus, Alnus, Corylus</i>
	<i>Rhynchaemus fagi</i>	<i>Fagus</i>
	<i>Rhynchaemus populi</i>	<i>Populus, Salix</i>
	<i>Rhynchaemus quercus</i>	<i>Quercus</i>
	<i>Rhynchaemus rusci</i>	<i>Betula</i>
<i>Rhynchaemus salicis</i>	<i>Salix</i>	
<i>Scolytidae</i>	<i>Scolytus scolytus</i>	<i>Ulmus Fraxinus, Quercus, Populus</i>
	<i>Scolytus mali</i>	<i>Chaenomeles, Prunus, Cotoneaster, Crataegus, Sorbus</i>
	<i>Scolytus multistriatus</i>	<i>Ulmus, Quercus, Populus</i>
	<i>Scolytus rugulosus</i>	<i>Prunus and ornamentals</i>

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