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**POSSIBLE PATHWAY OF INTRODUCTION
OF ECONOMICALLY IMPORTANT INSECT PESTS
OF ORNAMENTAL AND WOODY PLANTS
FROM NORTH AMERICA INTO ITALY**

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**ВОЗМОЖНЫЙ ПУТЬ ИНТРОДУКЦИИ
ЭКОНОМИЧЕСКИ ЗНАЧИМЫХ НАСЕКОМЫХ –
ВРЕДИТЕЛЕЙ ДЕКОРАТИВНЫХ И ЛЕСНЫХ ДРЕВЕСНЫХ РАСТЕНИЙ
ИЗ СЕВЕРНОЙ АМЕРИКИ В ИТАЛИЮ**

Блюммер А.Г.

Первые находки многих экономически значимых насекомых-дендрофагов, интродуцированных из Северной Америки в Европу за период с 60-х годов XX века до середины первого десятилетия текущего века были сделаны на севере Италии, преимущественно в регионах Венето и Ломбардия. Позднее, через разные промежутки времени, все эти инвайдеры были найдены в разных районах Европейской части России - преимущественно в Краснодарском крае. В Венето первые обнаружения были чаще происходили в окрестностях городов, составляющих условный треугольник Падуя - Виченца - Тревизо. Вблизи упомянутых городов находятся военные объекты армии США (более 20), включая базу "Кэмп Эдерле", существующую с 1955 г. Можно говорить о завозе североамериканских представителей энтомофауны военно-

транспортной авиацией, совершающей полёты с авиабаз на востоке США на военные базы в Европе. Насекомые на разных стадиях развития могут находиться на крупномерном посадочном материале декоративных и сортовых лесных древесных растений, завозимых из Соединённых Штатов с целью посадки на военных объектах, многие из которых отличаются разнообразной дендрофлорой североамериканского происхождения (см. фото). Подобная практика является устоявшейся.

В связи с имеющимися фактами, необходимо коренным образом изменить сложившуюся ситуацию. Национальные организации по карантину и защите растений стран размещения военных объектов армии США должны получить право на фитосанитарный досмотр грузов растительного происхождения, привозимых из-за океана. В противном случае в обозримом будущем возможна интродукция на европейский континент исключительно опасных вредителей лесобразующих хвойных: ели, лиственницы, сосны, пихты. Речь идёт о неарктических хвоевёртках рода *Chorystoneura* (Tortricidae).

Since the middle of the twentieth century to present, hundreds of species of herbivorous insects have introduced to Europe from Asia, America, Africa, Australia and other regions of the planet. Italy has the largest volume of foreign entomofauna in Europe. Between 1945 and 2019 more than 300 species of invasive insects were found in this country.

A considerable part of the alien entomofauna in Italy originates from the New World. Among the economical important species capable of causing considerable damage to the dendroflora in Italy and other European countries the following insects should be mentioned: bugs – *Corythucha ciliata*, *C. arcuata* (Tingidae), *Leptoglossus occidentalis* (Coreidae); cicadas – *Metcalfa pruinosa* (Flatidae) and *Acanalonia conica* (Acanaloniidae); leaf gall midges – *Obolodiplosis robiniae* and *Dasineura gleditchiae* (Cecidomyiidae), maining true midges (*Parectopa robiniella*) and *Macrosaccus robiniella* (Gracillariidae). The first findings of all the above mentioned phytophagous insects in Europe were registered in northern Italy, mainly in the administrative regions Veneto, Friuli-Venezia-Giulia and Lombardy. *C. ciliata* and *O. robiniae* (Padua, 1964 and 2003, respectively). *M. Pruinos*a (Treviso, 1979), *L. occidentalis* (Vicenza, 1999) were found in Veneto; *D. gleditchiae* (1980) was found in the region of Friuli-Venezia-Giulia. The first European populations of *C. arcuata* (2000) and *P. robiniella* (1970) was found in Milan and its surroundings (Lombardy region). Having formed stable populations, most of these invaders widely spread across the countries bordering on Italy, gradually moving far beyond Southern Europe.

Table 1 – Localization and the years of the first detections in Europe are the dangerous insects dendrofagous, introduced from North America

Latin name	Place and time of the first detection	Reference
<i>Corythucha ciliata</i>	Padua (Veneto), 1964	Servadei, 1966
<i>Parectopa robiniella</i>	Milan (Lombardy), 1970	Vidano & Sommatìs, 1972
<i>Dasineura gleditchiae</i>	Friuli - Venice-Djuly, 1980	Bolchi & Volonté, 1985; EPPO, 2011
<i>Metcalfa pruinosa</i>	Treviso (Veneto), 1979	Zangheri & Danadini, 1980
<i>Leptoglossus occidentalis</i>	Vicenza (Veneto), 1999	Bernardinelli & Zandigiacomo, 2001; Taylor & Tescari, 2001
<i>Corythucha arcuata</i>	Milan (Lombardy), 2000	Bernardinelli, 2000
<i>Obolodiplosis robiniae</i>	Padua (Veneto), 2002	Duso & Skuhrava, 2004; Shukrava et al., 2007
<i>Acanalonia conica</i>	Padua (Veneto), 2003	D'Urso & Uliana, 2004

Currently, *C. ciliata*, *C. arcuata*, *M. pruinosa*, *O. robiniae*, *P. robiniella*, *D. gleditchiae*, *L. occidentalis* are found in the Russian Federation. In Krasnodar, Rostov, Voronezh and other areas they cause considerable damage to hybrid plane trees, locust trees, oaks, Norway maples and other valuable tree species both introduced and indigenous.

The phenomenon of Italy as a country with a high risk of introduction of alien organisms is traditionally explained by its exceptional geographical location - in the center of the Mediterranean region at the crossroads of transport and freight flows from America to Europe and Asia, a developed tourist industry, and a variety of climatic conditions (Fig. 1). However, it is difficult to explain the fact that concentration of the first findings in the region of Veneto, in the provinces of Vicenza, Padua and Treviso. The findings of alien species near the sole international airport in Veneto - "Marco Polo" (Venice) have not been reported, the vast majority of overseas tourists visit only Venice and Verona, the volume of imports of U.S. goods is extremely low.

There should be other pathways for the introduction of Nearctic dendrophagous insects into the region. One of these pathways can be with U.S. Air Force military transport aircraft with cargoes for civil purposes delivered to Italy from the U.S.A. Insects may be at different stages of development on the large-sized planting material of ornamental and varietal forest woody plants for the purpose of planting on military facilities, which is a common army practice. Veneto region in Italy has the greatest concentration of the U.S. military facilities - Dal Molin airbase and Camp Ederle base in Vicenza (has existed since 1955), radar centers, warehouses of weapons in the provinces of Treviso, Padua, Verona (in total – more than 20 facilities).

It is known that representatives of the National Plant Protection Organization of the USA – Animal and Plant Health Inspection Service (APHIS), and Italy – National Phytosanitary Service (Repubblica Italiana Servizio Fitosanitario Nazionale) do not carry out phytosanitary inspections of military cargoes.

The current situation requires effective measures to be taken by the Italian NPPO. It is necessary to achieve the possibility to conduct phytosanitary inspection of imported military goods, at least those of non-military character and to tighten control over the areas where the primary outbreaks of invaders are likely to appear in Veneto. All that would imply regular year-round surveys of tree plantations and forest stands, especially carefully performed in areas adjacent to military facilities located in Vicenza, Padua, Treviso, Venice, etc. Upon detection of alien species, eradication of their primary outbreaks should be immediately carried out.

Due to the available facts, it is necessary to radically change the current practice. National plant protection and quarantine organizations should be entitled to phytosanitary inspection of plant-origin cargo transported by military by air and water over Intercontinental distances. Otherwise, the introduction of extremely dangerous North American pests of forest-forming conifers to the European continent is possible in the foreseeable future. We are talking about Nearctic tortricids of the genus *Chorystoneura*.

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**ОЦЕНКА ВОЗМОЖНОСТИ ИНТРОДУКЦИИ
В РОССИЮ БРОНЗОВОЙ БЕРЁЗОВОЙ ЗЛАТКИ (*AGRILUS ANXIUS*)
И МЕРЫ, КОТОРЫЕ НЕОБХОДИМО ПРЕДПРИНЯТЬ
ДЛЯ ЕЁ РАННЕГО ОБНАРУЖЕНИЯ**

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**ASSESSMENT OF THE POSSIBILITY OF INTRODUCTION
TO RUSSIA OF THE BRONZE BIRCH BORER
(*AGRILUS ANXIUS*) AND ME**

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The bronze birch borer is an economically significant pest of birch in its pure and mixed forest stands, in roadside and Park stands in most of the United States and in many provinces of Canada. There is a possibility of