

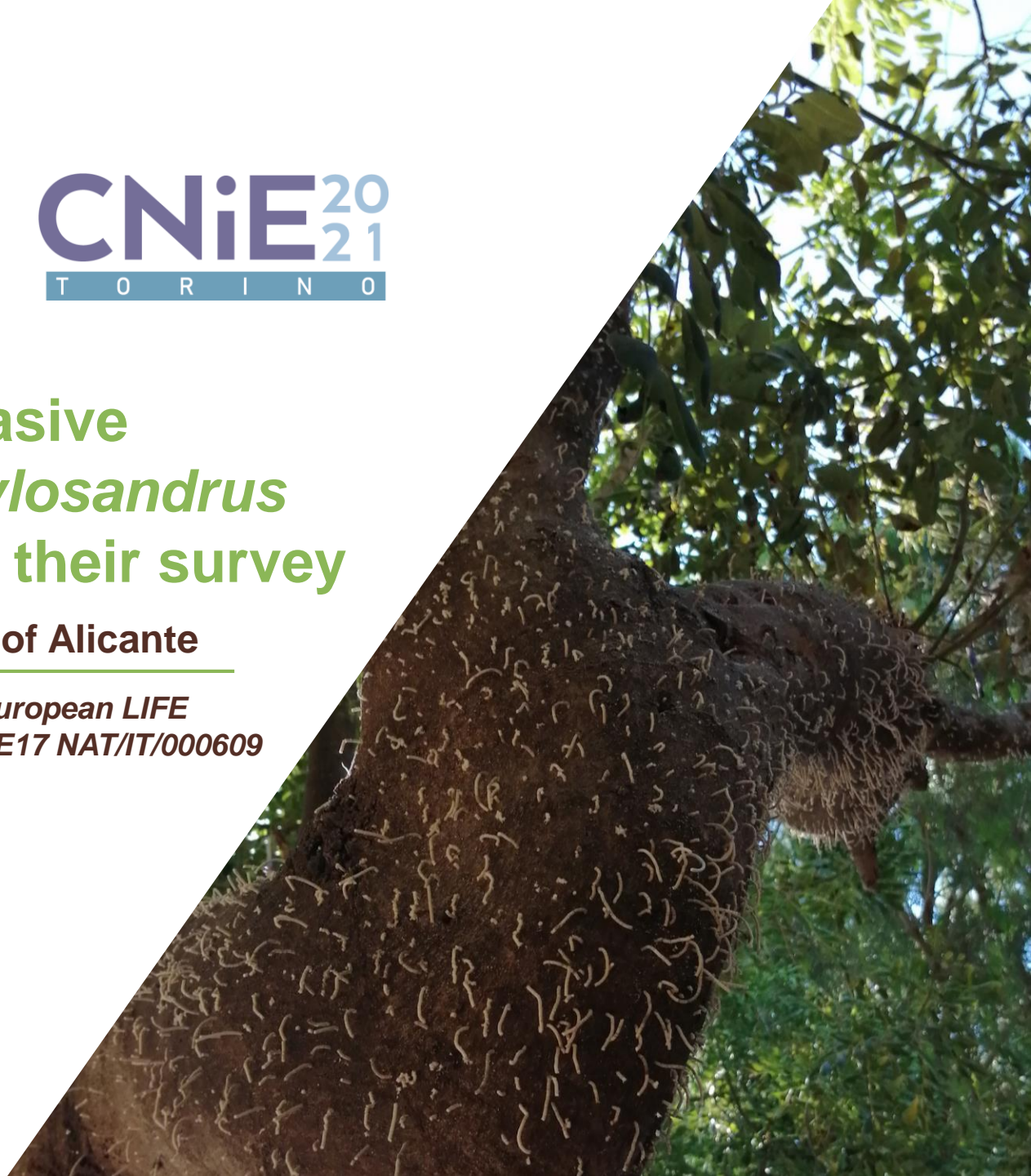


Expansion of invasive populations of *Xylosandrus* spp. in Spain and their survey

Diego Gallego, University of Alicante

LIFE SAMFIX, co-funded by the European LIFE Programme Grant Agreement LIFE17 NAT/IT/000609

www.lifesamfix.eu



The *Xylosandrus* genus is composed by around 54 species, worldwide distributed, mainly in tropical areas, although also occurs in temperate areas.



Xylosandrus compactus

Xylosandrus germanus

Xylosandrus crassiusculus

Anisandrus dispar

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In Spain are present three species:
Xylosandrus germanus,
Xylosandrus crassiusculus and
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All three are exotic species.

The closer native species is
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Xylosandrus germanus

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Xylosandrus compactus

Xylosandrus germanus

Xylosandrus crassiusculus

Anisandrus dispar



The knowledge of the distribution of the exotic species in Spain is fragmented, mainly due to **random detections**.

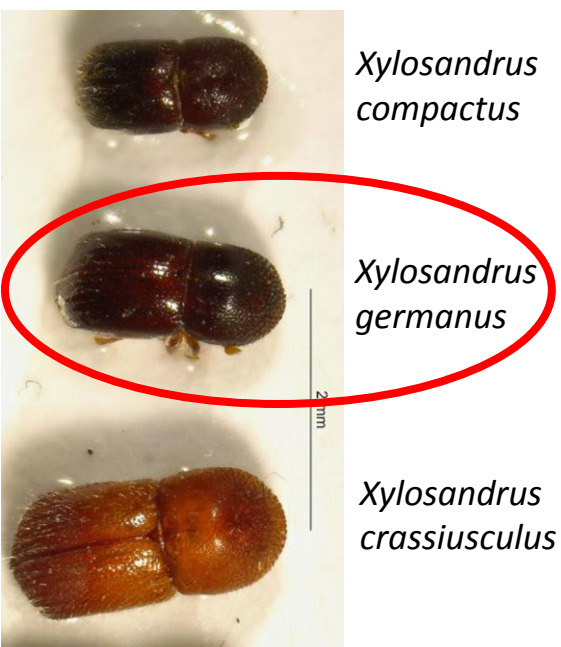


*Xylosandrus
compactus*

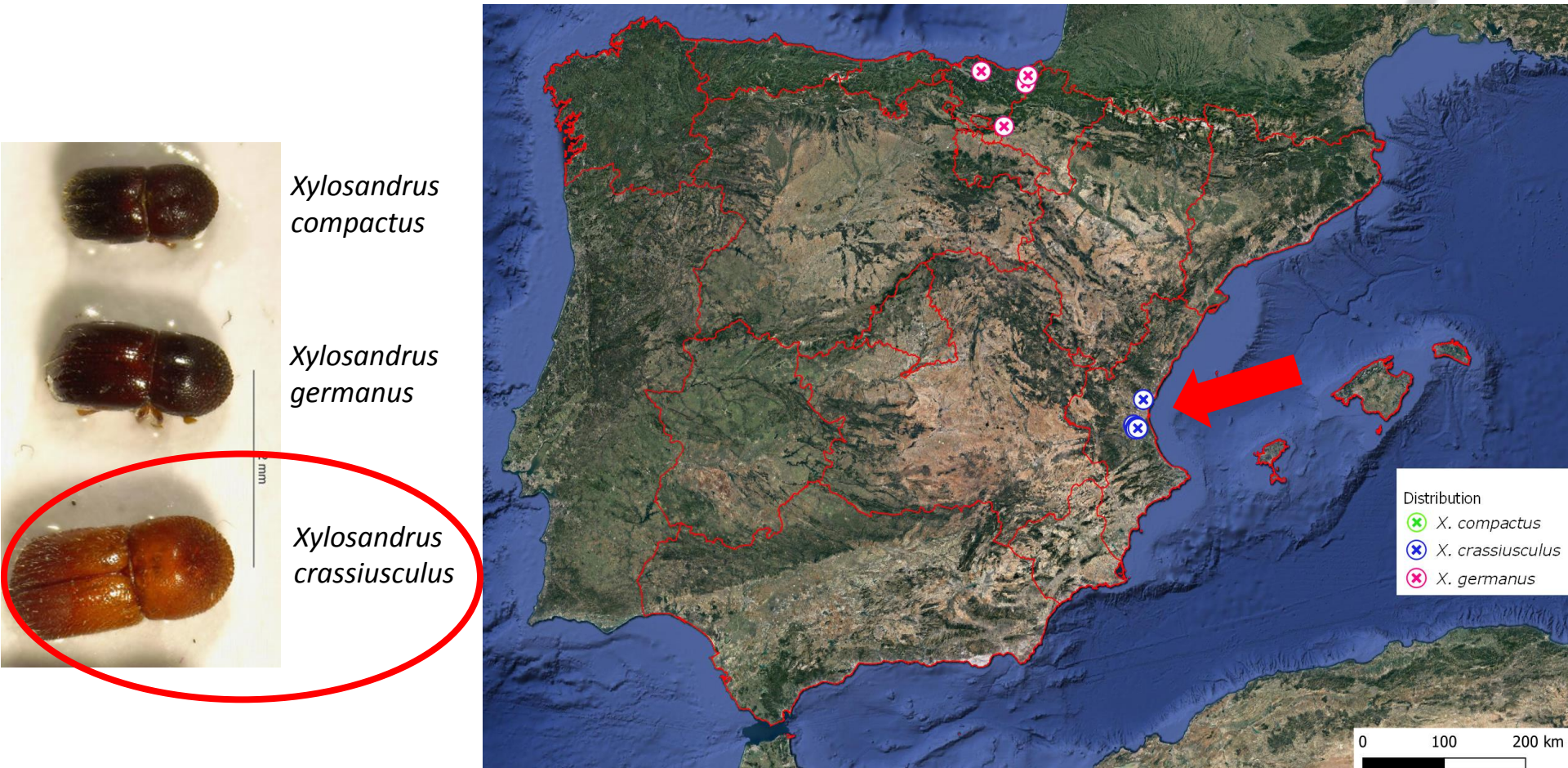
*Xylosandrus
germanus*

*Xylosandrus
crassiusculus*

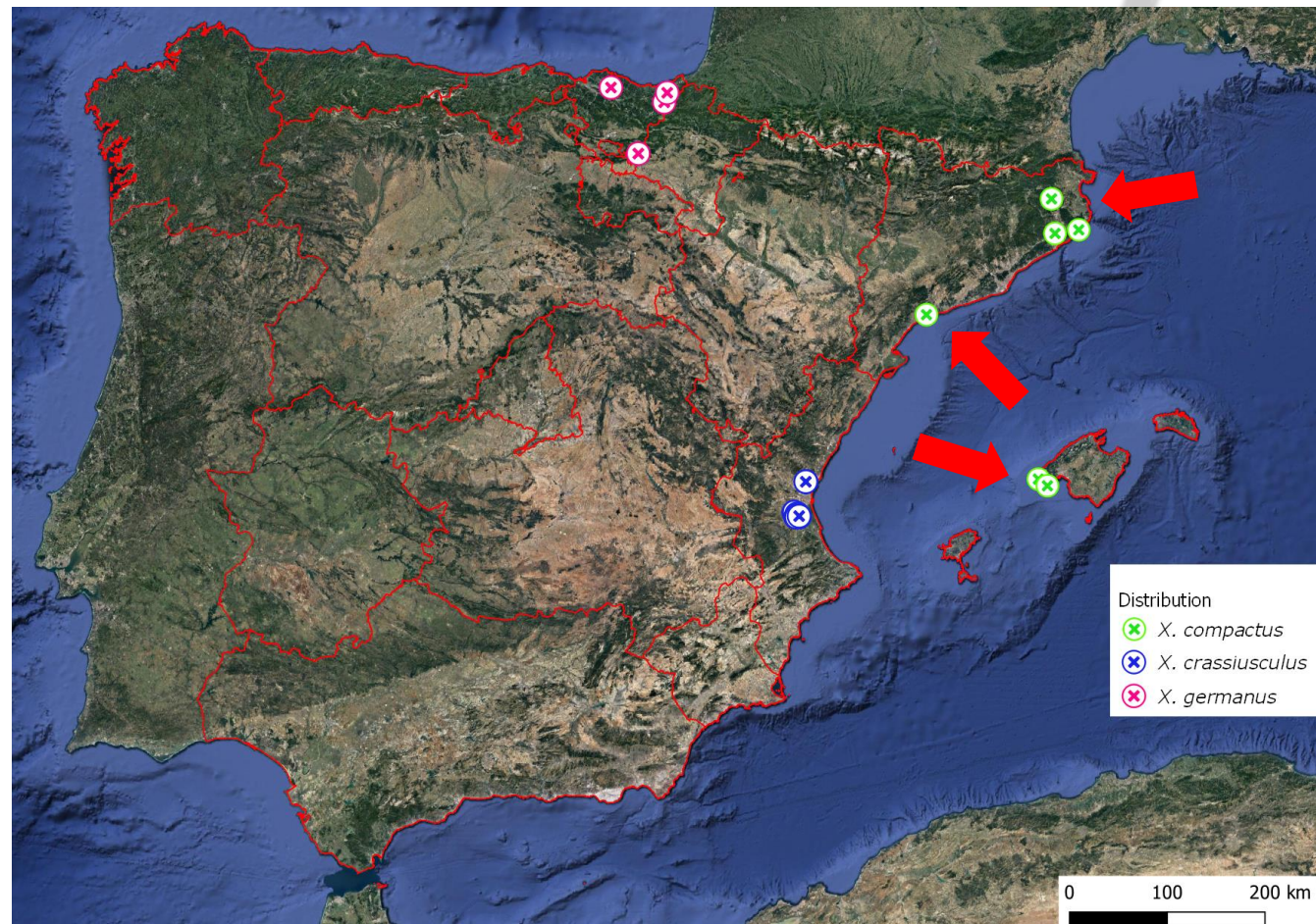
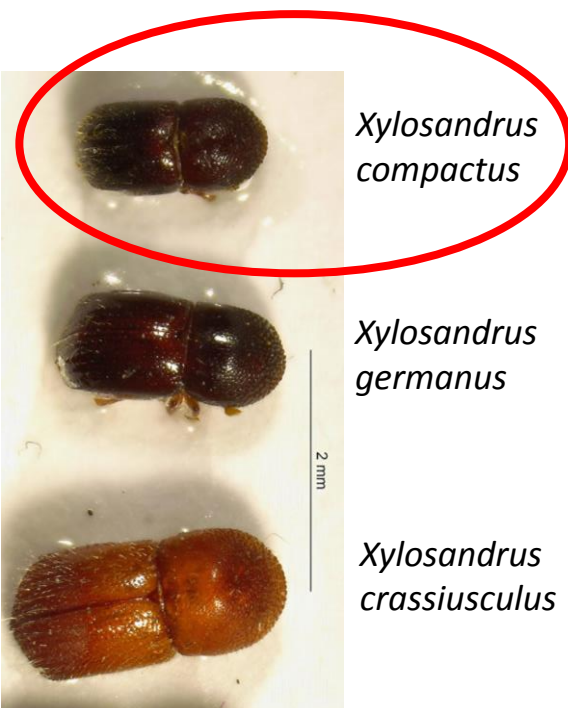
X. germanus has been recorded only at northern Spain, in Basque country.



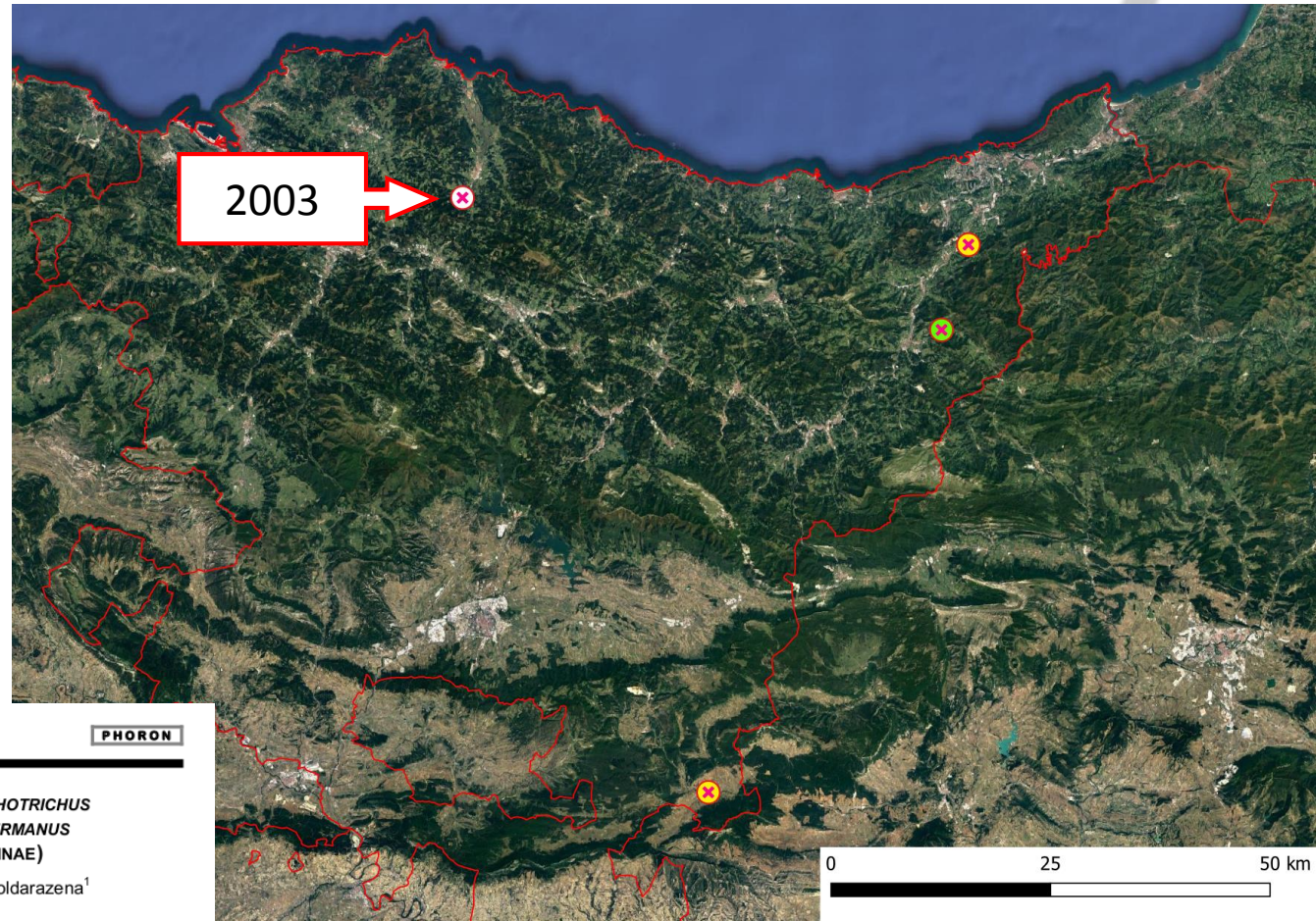
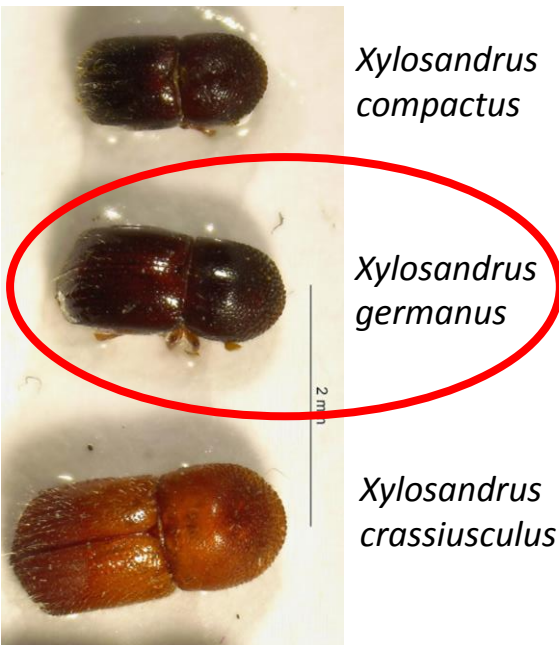
X. crassiusculus has been cited at Eastern Spain, near Valencia city.



X. compactus has been recorded in three separate areas: Balearic Islands, Girona (North Catalonia) and Tarragona (South Catalonia).



X. germanus was detected for first time in 2003 (June, August and November). Four specimens were collected in four traps baited with generalist attractants for bark beetles (*random factor*).



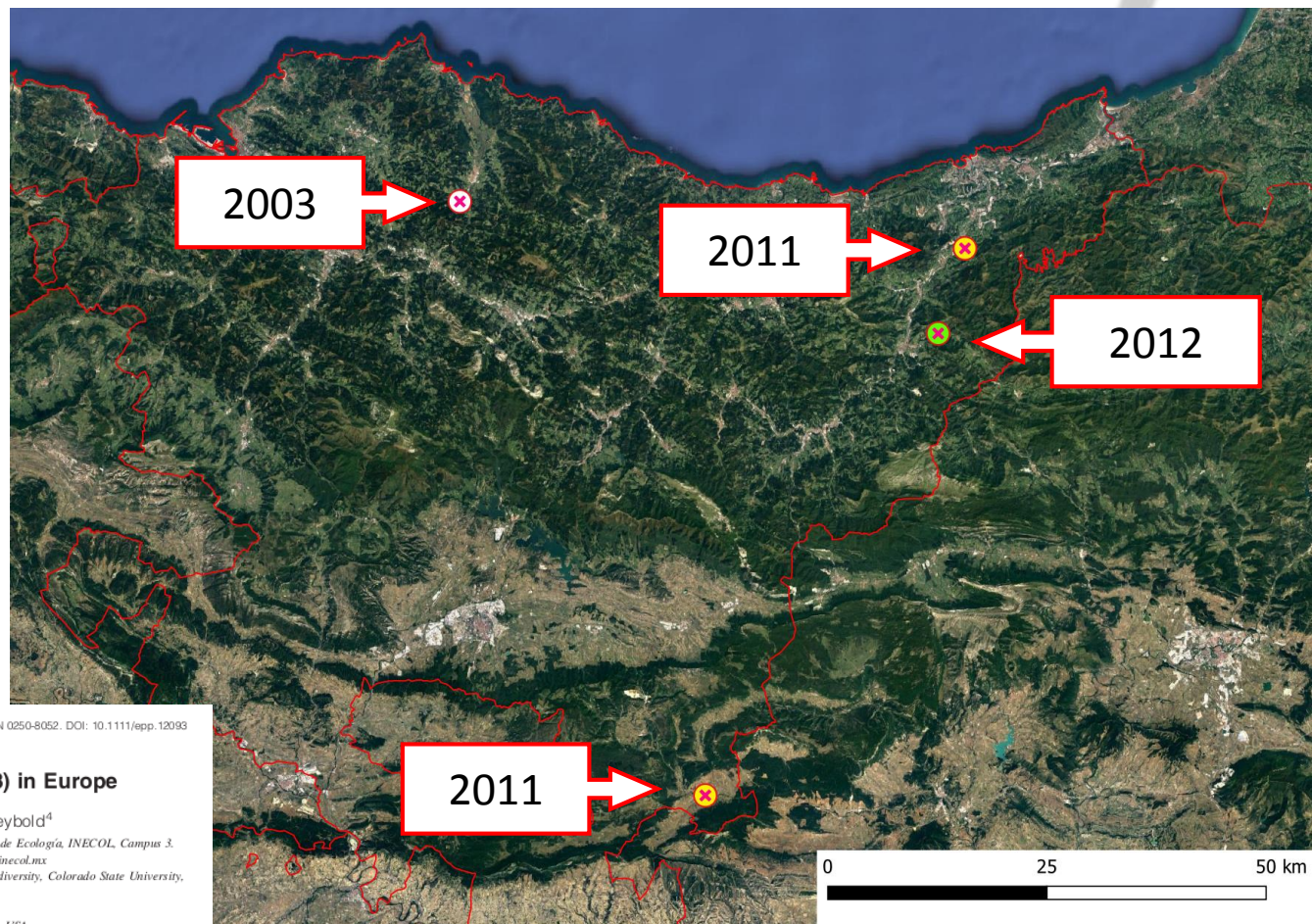
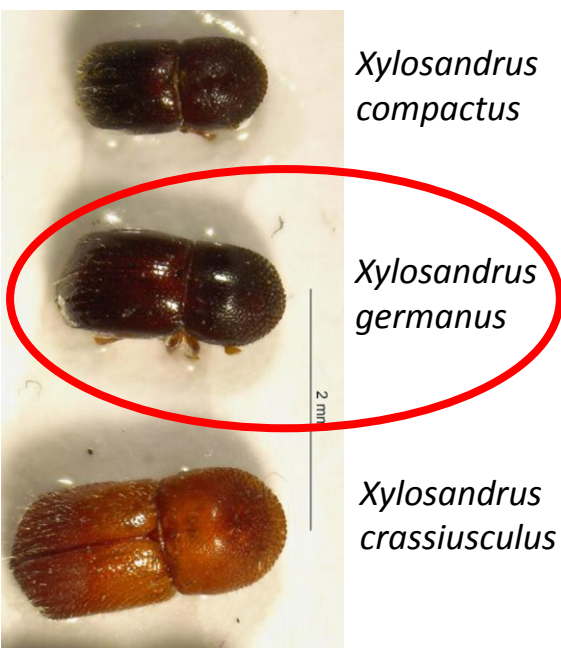
Boletín Sociedad Entomológica Aragonesa, nº 40 (2007) : 527-532.

PHORON

PRIMERA CITA DE LA PENÍNSULA IBÉRICA DE *GNATHOTRICHUS MATERARIUS* (FITCH, 1858) Y *XYLOSANDRUS GERMANUS* (BLANDFORD, 1894) (COLEOPTERA: SCOLYTINAE)

Sergio López¹, Juan Carlos Iturrondobeitia² & Arturo Goldarazena¹

In 2011 and 2012 *X. germanus* was also collected (15 specimens) in traps baited for other bark beetles (*Pityophthorus juglandis* and *Ips sexdentatus*), also under random circumstances.



Bulletin OEPP/EPPO Bulletin (2014) 44 (1), 65–69

ISSN 0250-8052. DOI: 10.1111/epp.12093

First record of *Pityophthorus solus* (Blackman, 1928) in Europe

A. Goldarazena¹, D. E. Bright², S. M. Hishinuma³, S. López¹ and S. J. Seybold⁴

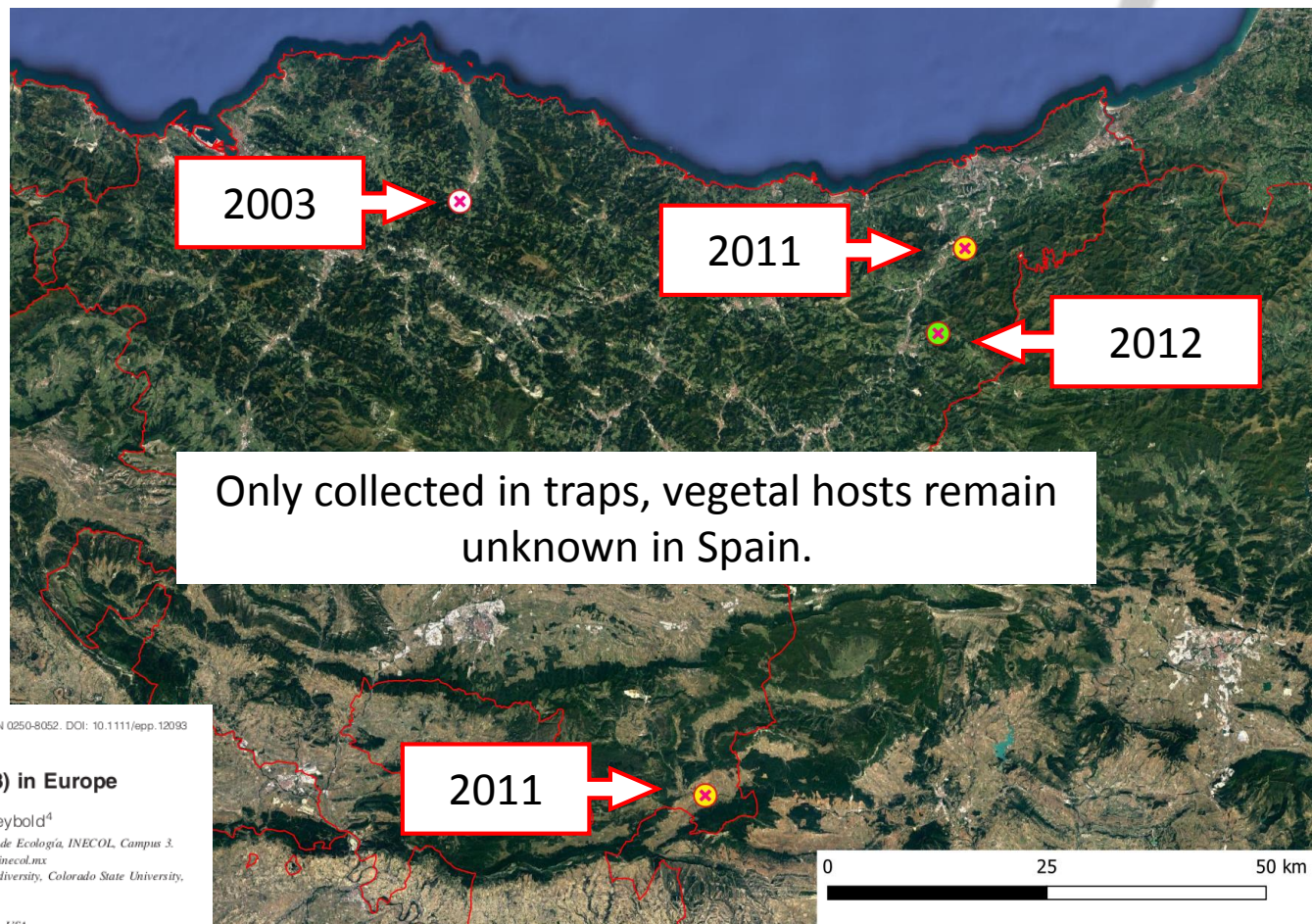
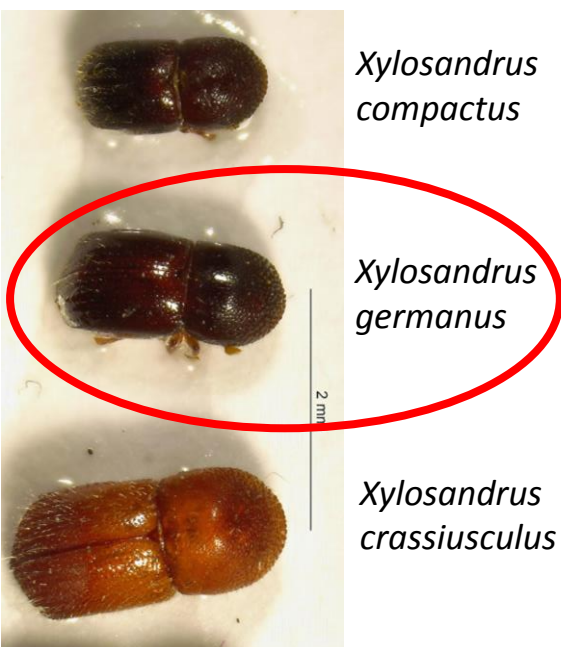
¹Red de Estudios Moleculares Avanzados, Control de Plagas y Enfermedades del Aguacate, El Instituto de Ecología, INECOL, Campus 3, Carretera Antigua a Coatepec El Haya, 91070 Xalapa, Veracruz, Mexico; e-mail: arturo.goldarazena@inecol.mx

²Department of Bioagricultural Sciences and Pest Management, C.P. Gillette Museum of Arthropod Biodiversity, Colorado State University, Fort Collins, CO, 80523, USA

³Department of Entomology, University of California, One Shields Avenue, Davis, CA, 95616, USA

⁴USDA Forest Service, Pacific Southwest Research Station, 720 Olive Drive, Suite D, Davis, CA, 95616, USA

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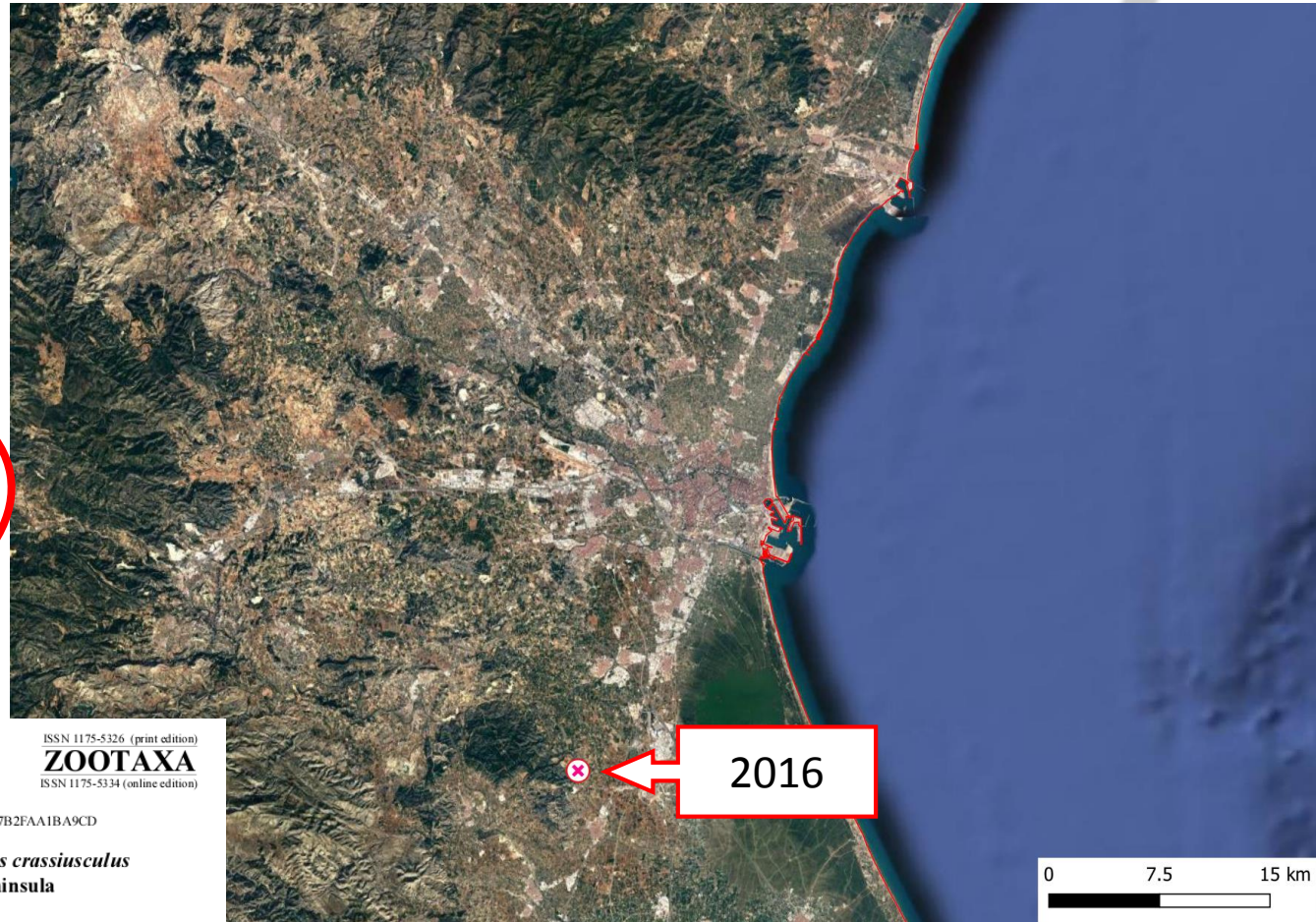
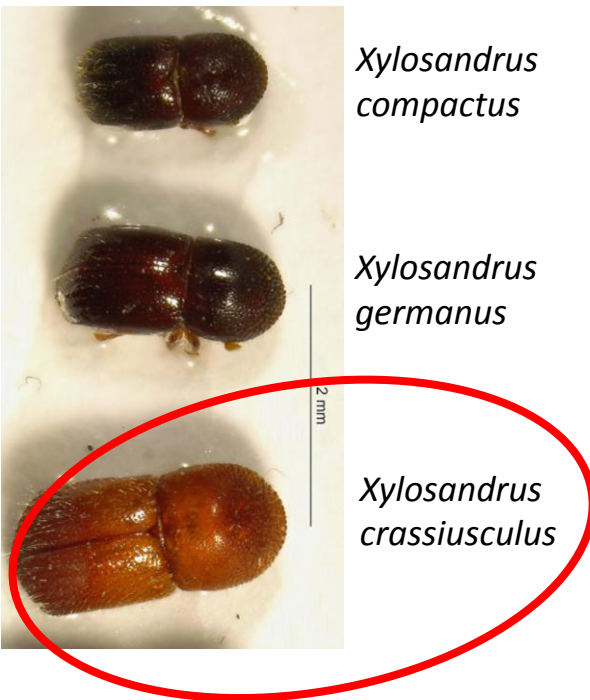
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In 2016 an attack of *X. crassiusculus* to 6 carob trees in a residential area near Valencia (Eastern Spain) was reported. It was the first record of this species for Iberian Peninsula.



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<http://zoobank.org/urn:lsid:zoobank.org:pub:DDF9B7CA-8D34-4D3D-B5EE-7B2FAA1BA9CD>

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ZOOTAXA
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First record of the Granulate Ambrosia Beetle, *Xylosandrus crassiusculus* (Coleoptera: Curculionidae, Scolytinae), in the Iberian Peninsula

DIEGO GALLEGU^{1,2*}, JOSÉ LUIS LENCINA², HUGO MAS³, JULIA CEVERÓ³ & MASSIMO FACCOLI⁴

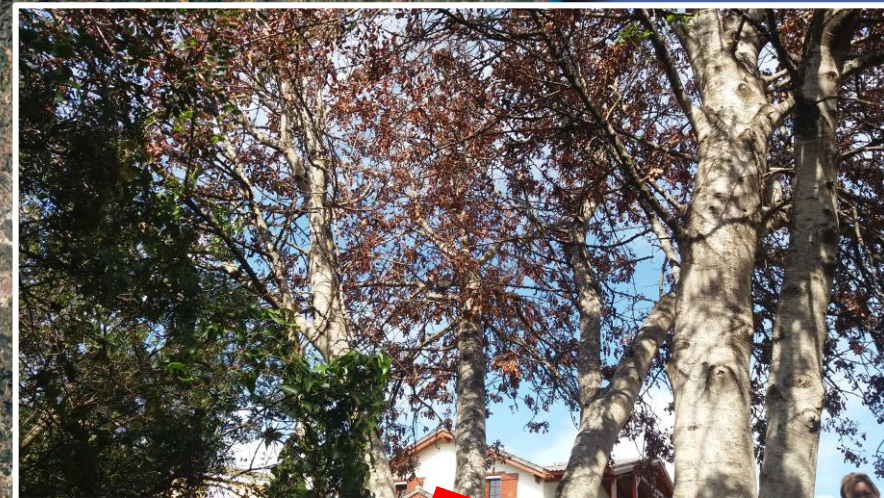
The detection was due also to a **random reason**: an owner of a **wood house** located near the **six attacked carob trees** was alarmed of the presence of **bored trees**, and thinking that his house could be affected, alerted to phytosanitary authorities. Trees were cut and chipped.



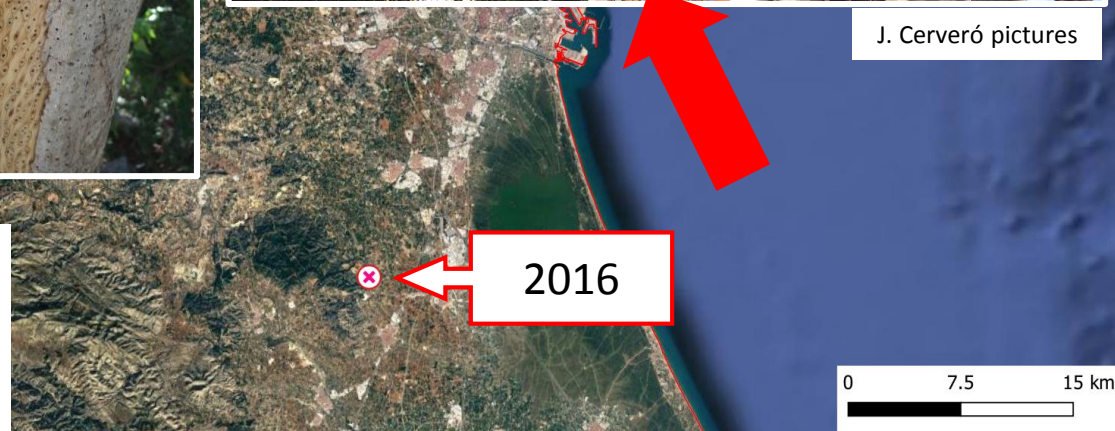
Xylosandrus compactus

Xylosandrus germanus

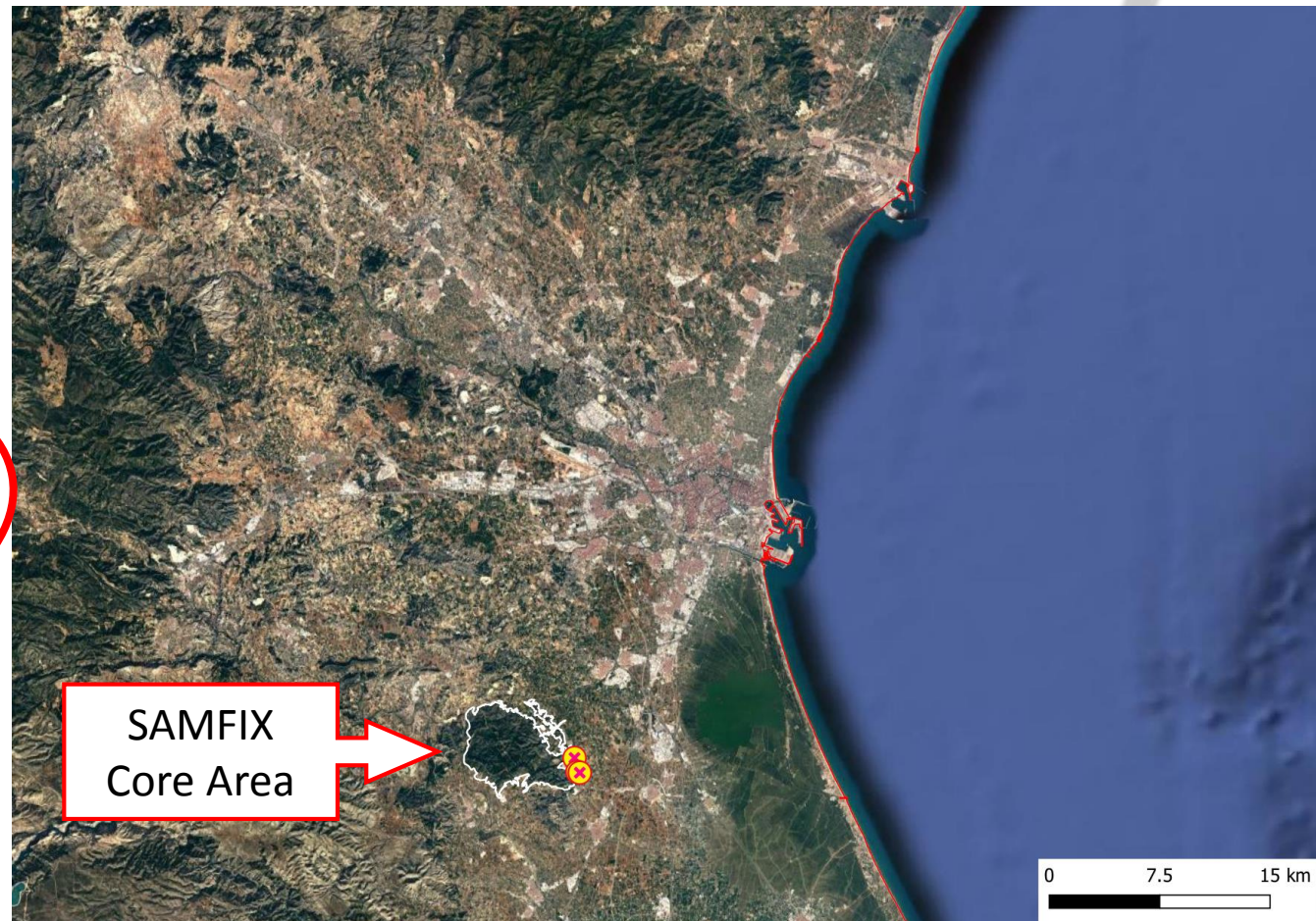
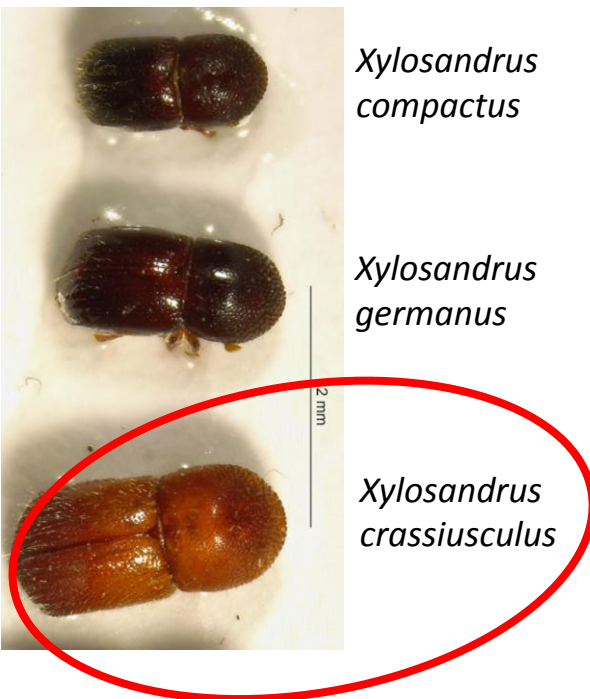
Xylosandrus crassiusculus



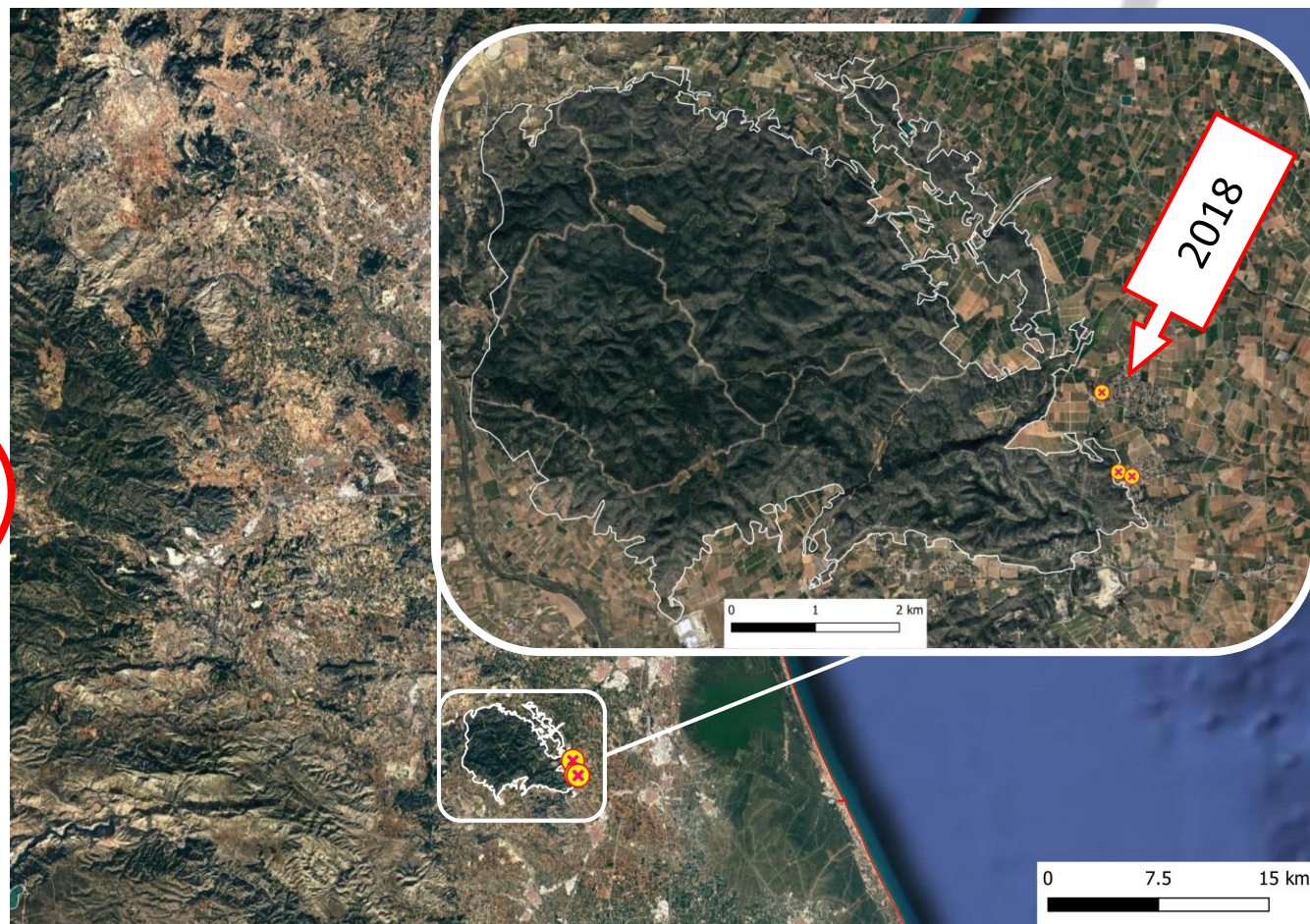
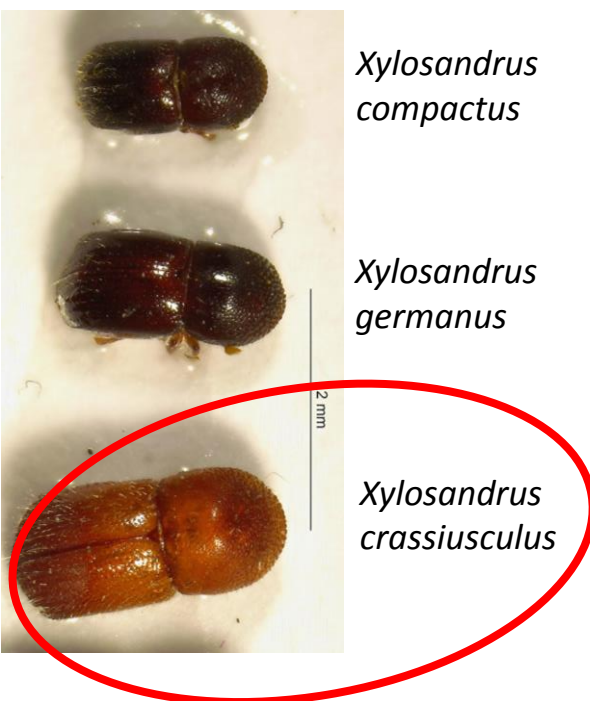
J. Cerveró pictures



In June 2018, the **SAMFIX** project started, establishing the **Core Area** and starting the actions for knowing the distribution of this species.



The first prospection (summer 2018) reported attacks of *X. crassiusculus* in four carob trees, covering an area of 100 ha.



In **Spring 2019**, a systematic trapping by 40 traps was installed in the **Core Area**, under the frame work of **C3 action**. We also carried out a intense search of attacked plants.



Xylosandrus compactus

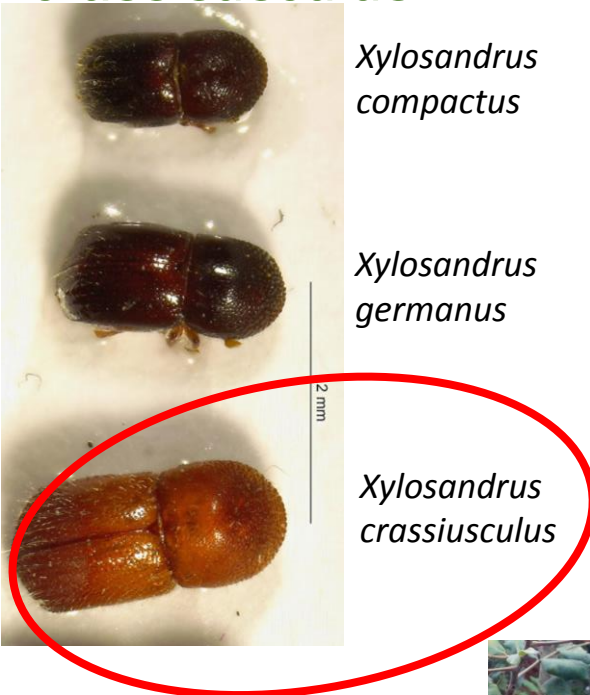
Xylosandrus germanus

Xylosandrus crassiusculus

Crosstrap mini
baited with etanol
and α -pinene



Along 2019, 250 specimens of *X. crassiusculus* were trapped in 20 of 40 traps installed. Captures were distributed in 1400 ha. Instead, only 11 carob trees were detected with attacks of *X. crassiusculus*.



The area of dispersion is bigger than the area of effective colonies. We observed possible dispersive flight events in Fall 2019, in coincidence with the main flight peak.



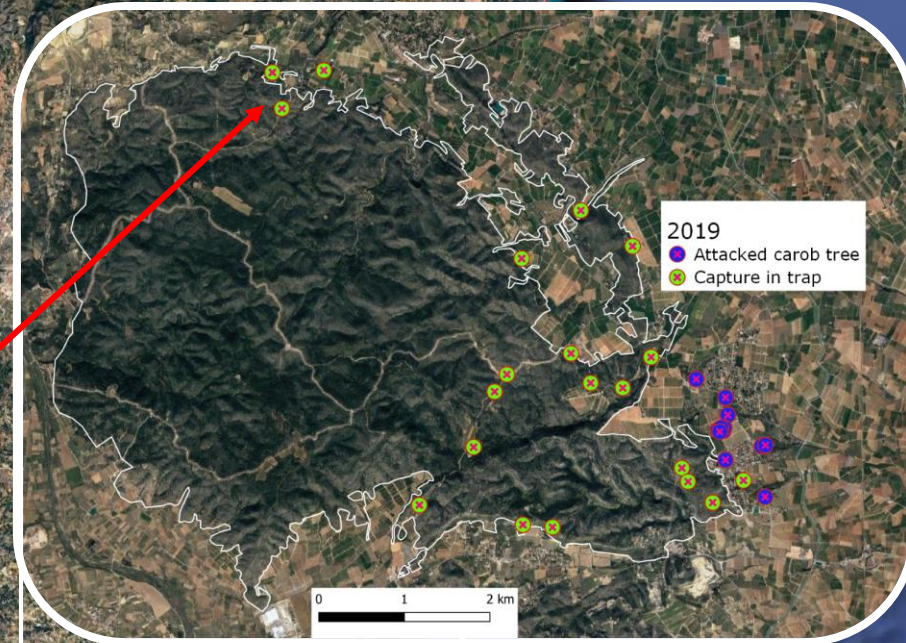
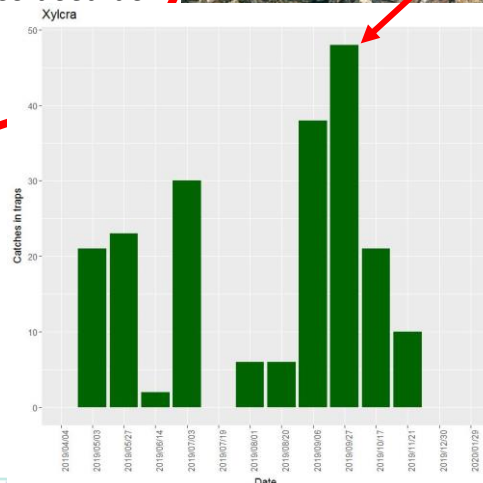
Xylosandrus compactus

Xylosandrus germanus

Xylosandrus crassiusculus

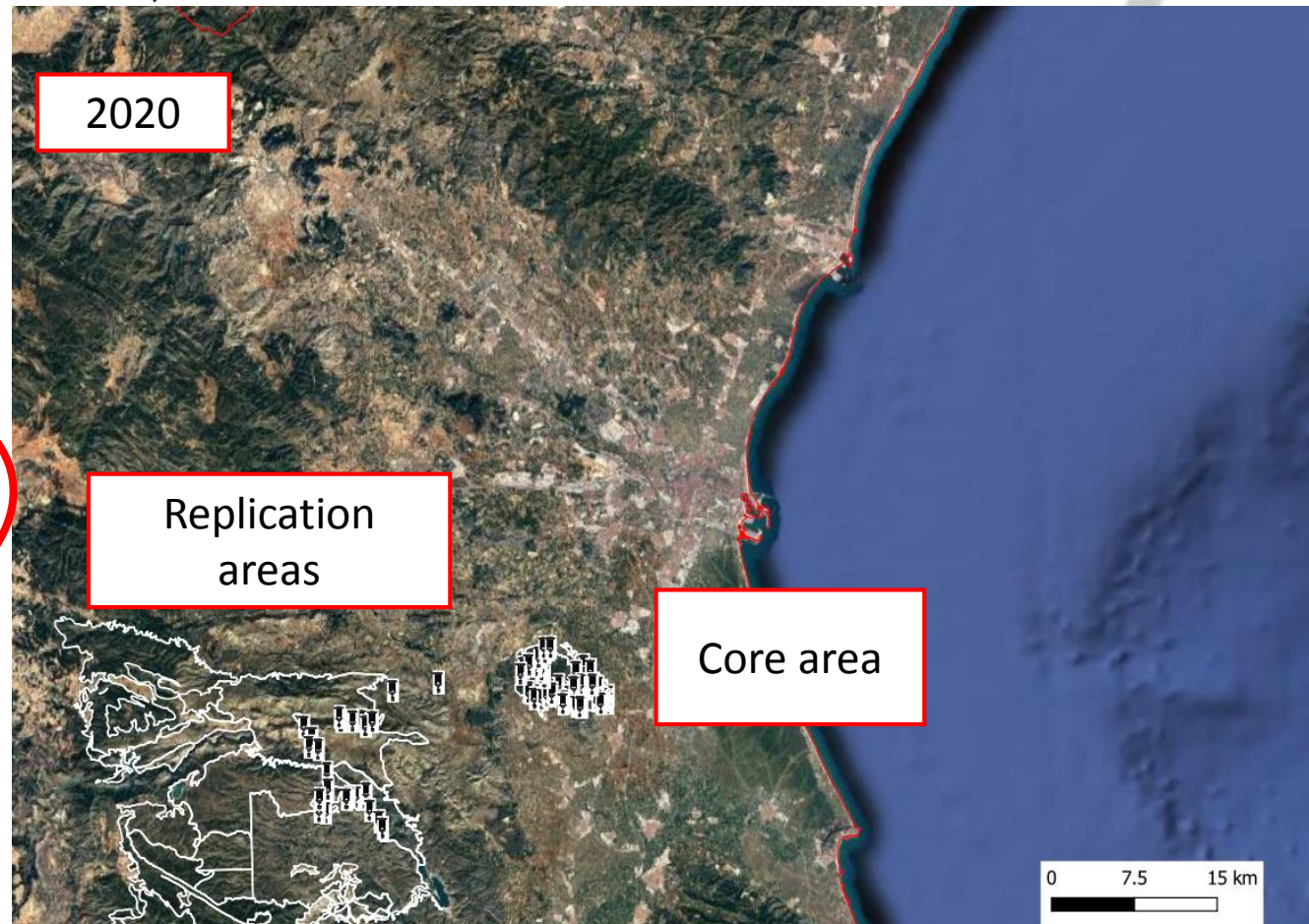
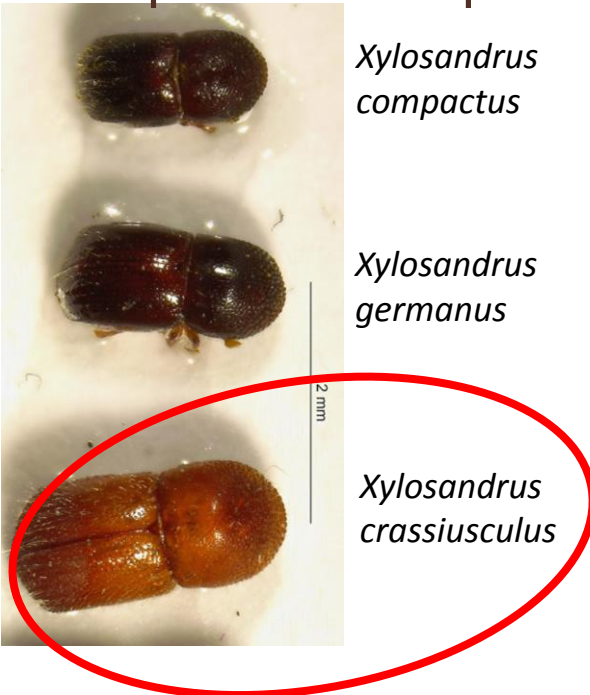
2 mm

2019

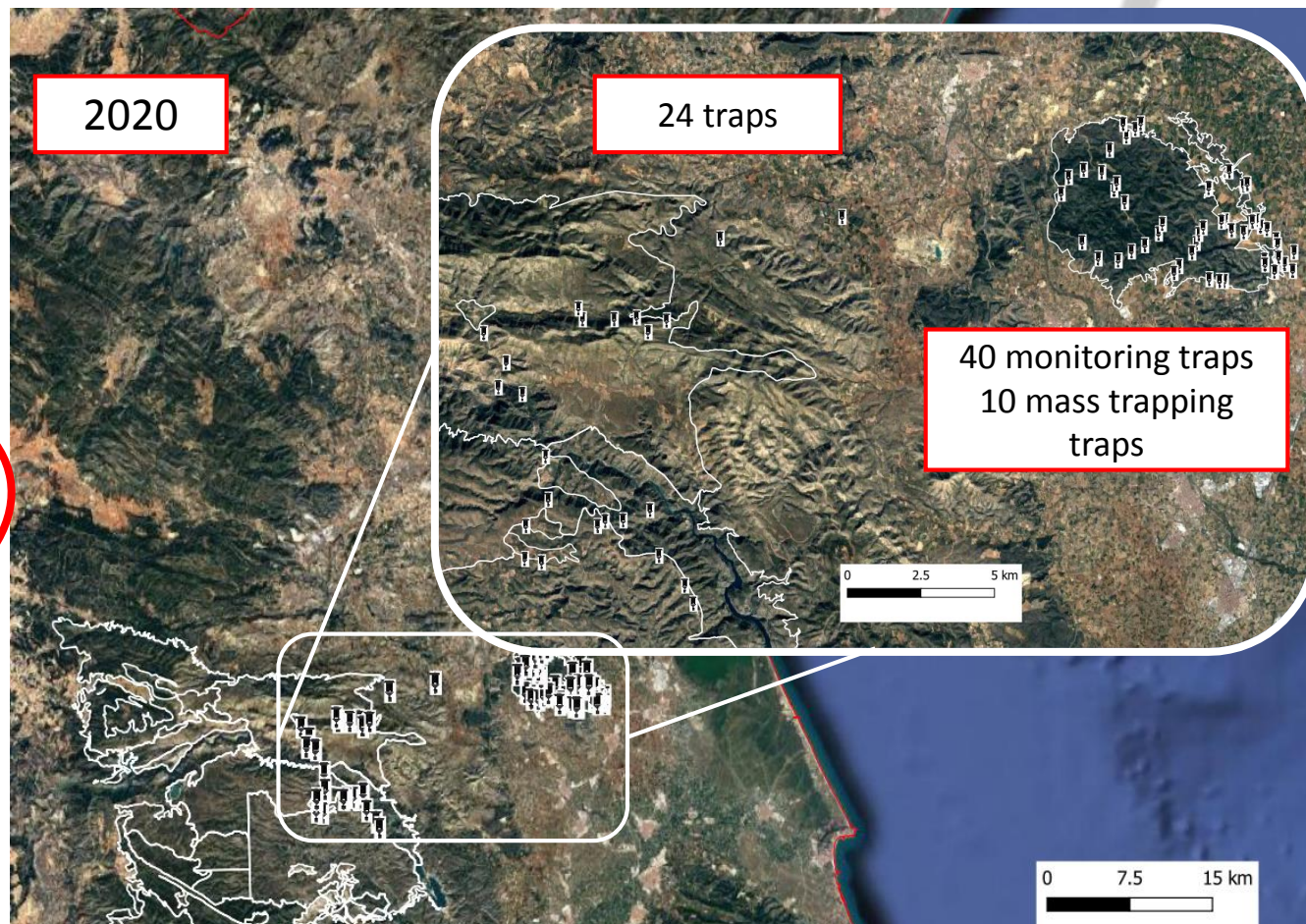
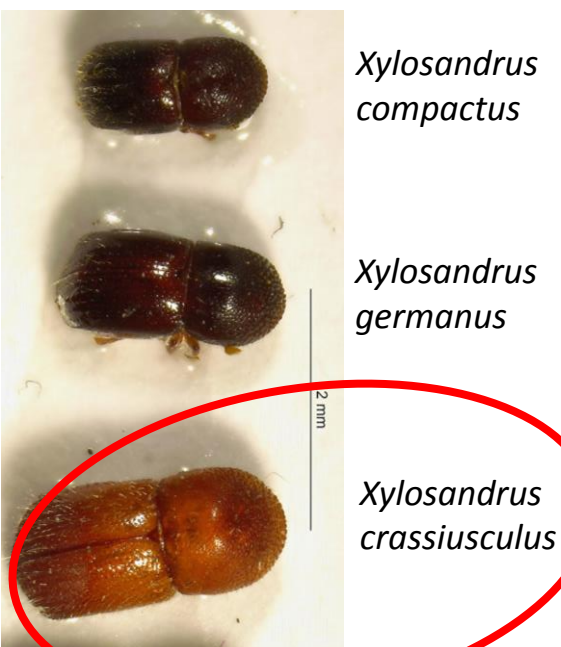


0 7.5 15 km

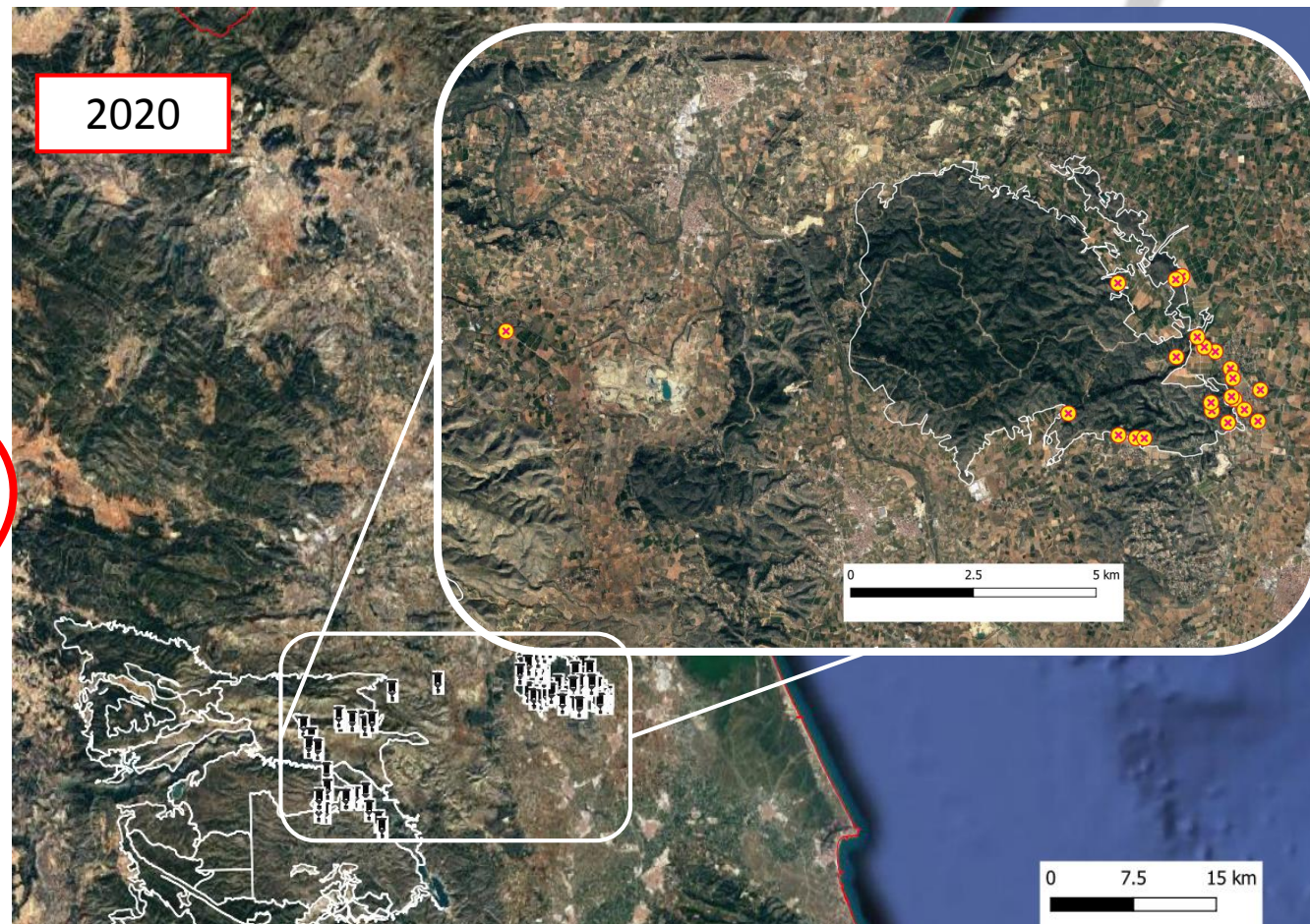
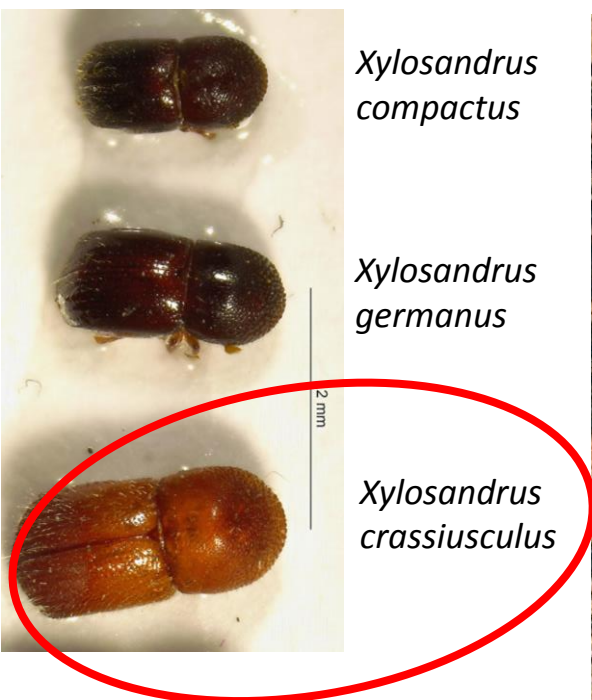
In 2020, the trapping network was extended in territory and trap number, expanding to **Replication Areas** (Action C5) and installing **mass trapping traps**, baited with four components: ethanol, α -pinene, α -copaene and quercivorol, at the **Core area**.



We added 24 traps in Replication Areas of SAMFIX project.
Plus, 10 traps for mass trapping were installed in the SAMFIX Core area.



In 2020, 472 specimens of *X. crassiusculus* were collected in 22 traps, distributed in a wider area than 2019, of 5300 ha.



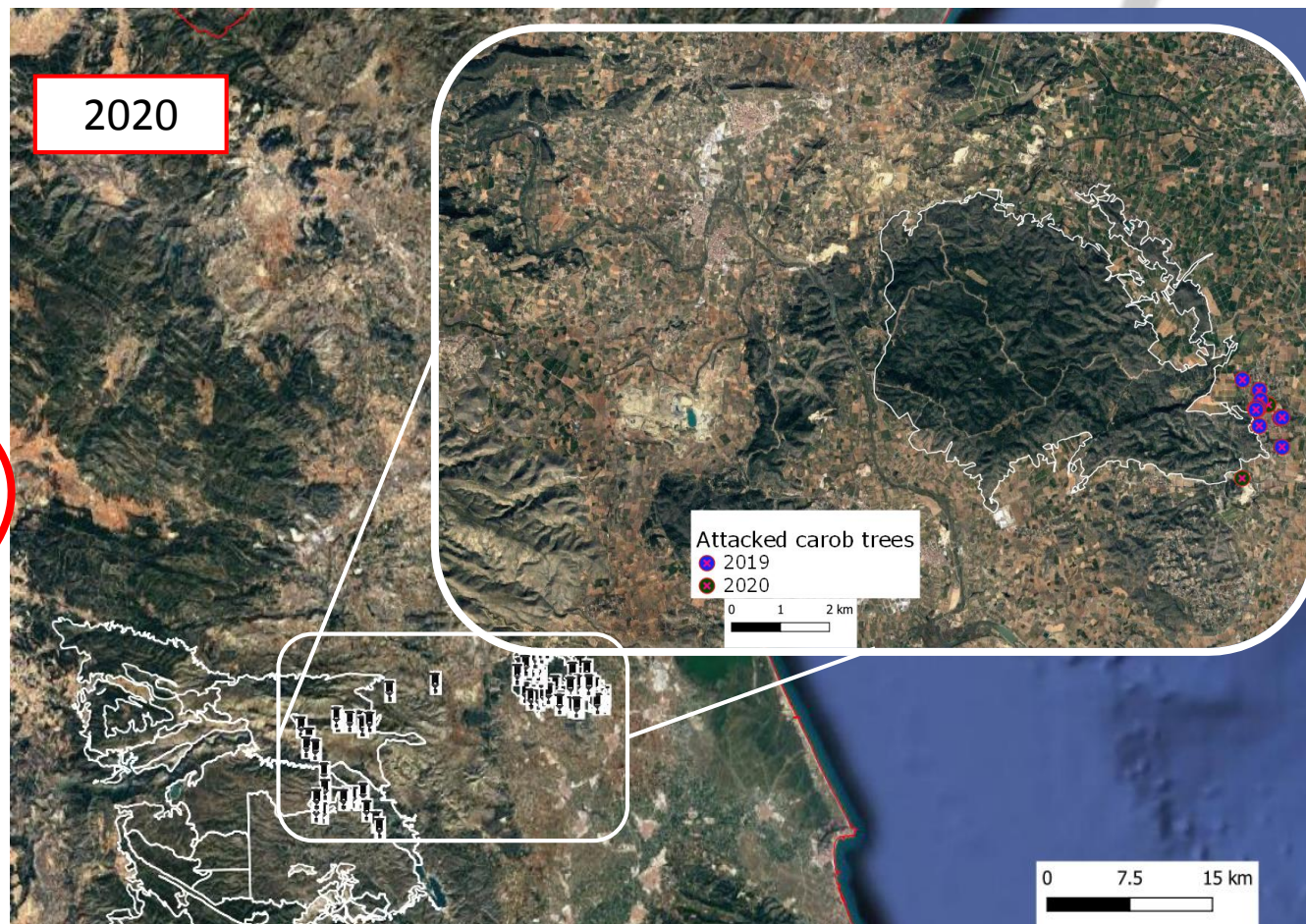
Instead, **no expansion** of area of detection of **attacks in host plants** (colonies) was detected. All attacks were detected in the same area of 2019.



Xylosandrus compactus

Xylosandrus germanus

Xylosandrus crassiusculus



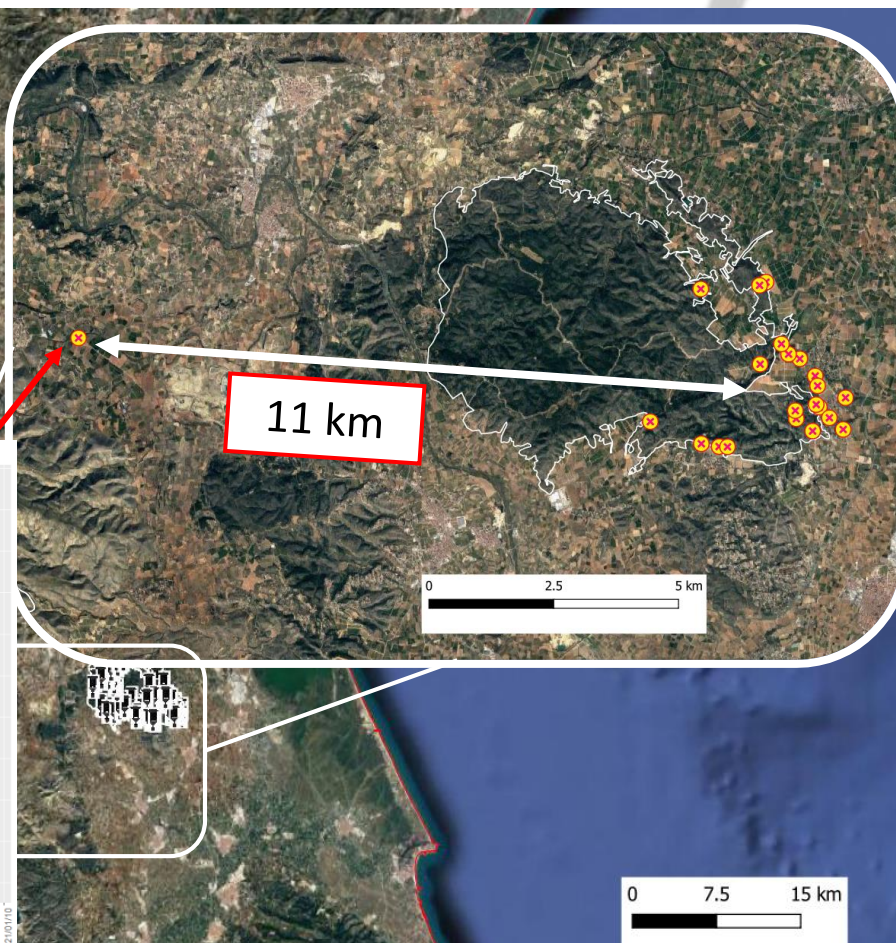
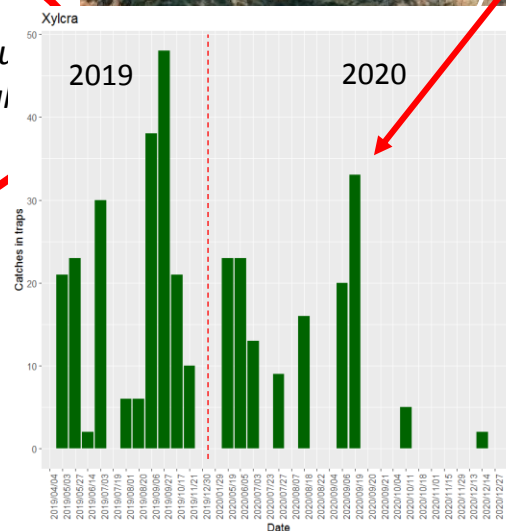
Like in 2019, a possible **dispersion event** was detected in **last September 2020**, although in a far plot (11 km faraway).



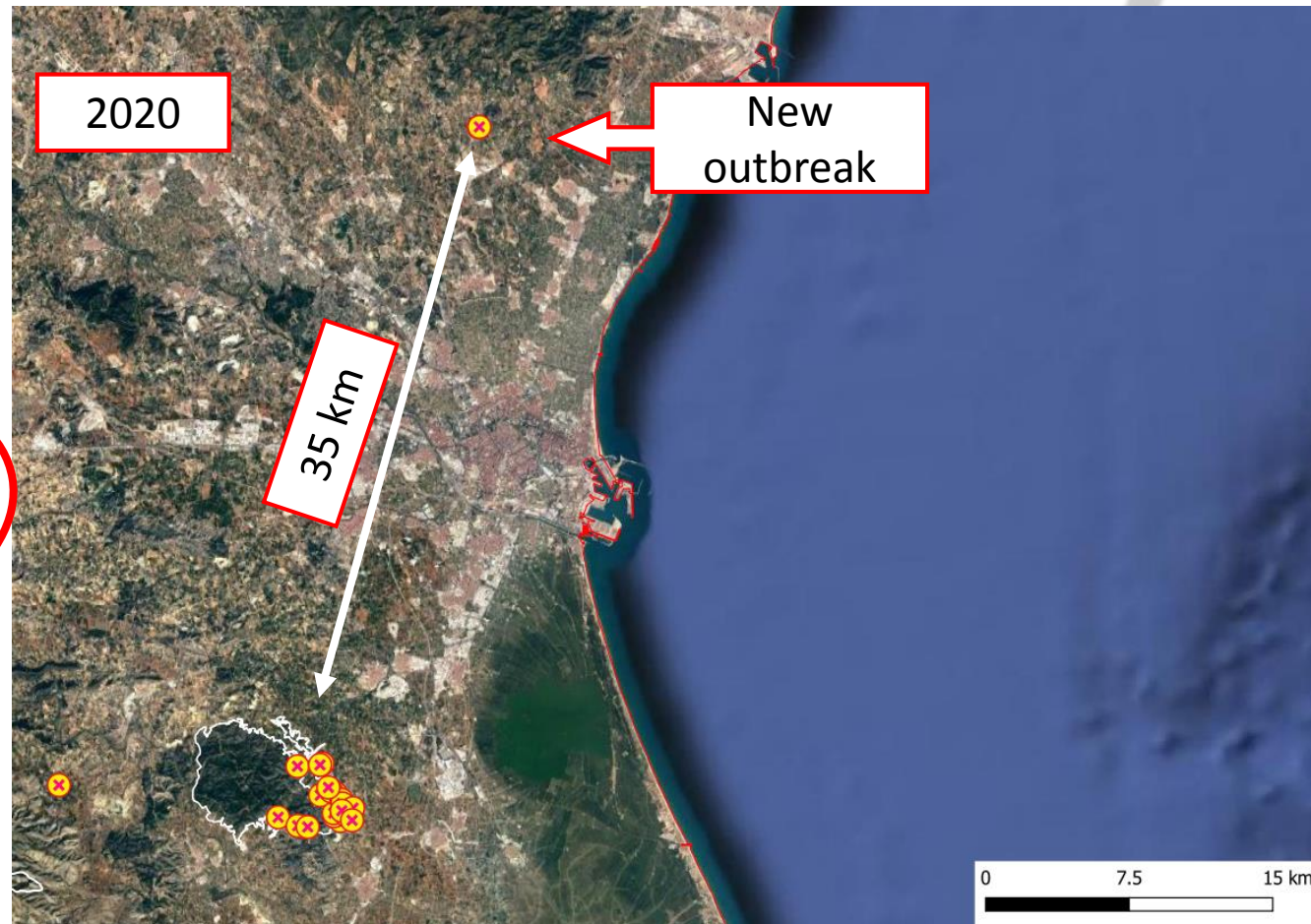
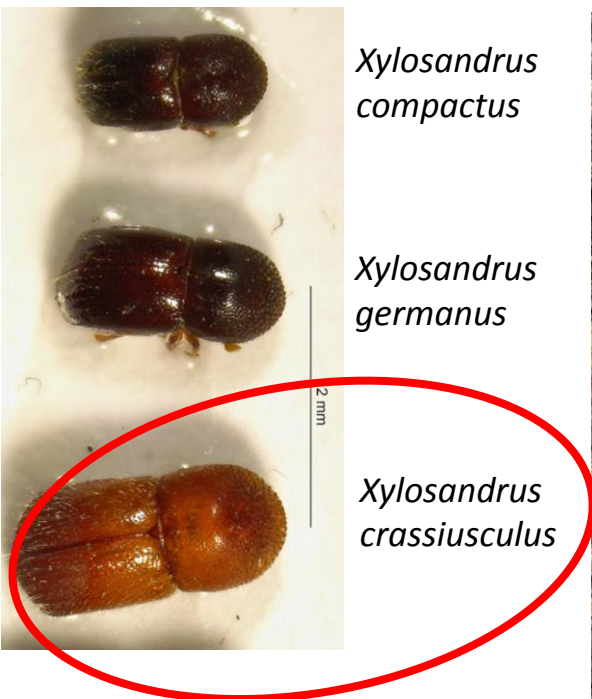
Xylosandrus compactus

Xylosandrus germanus

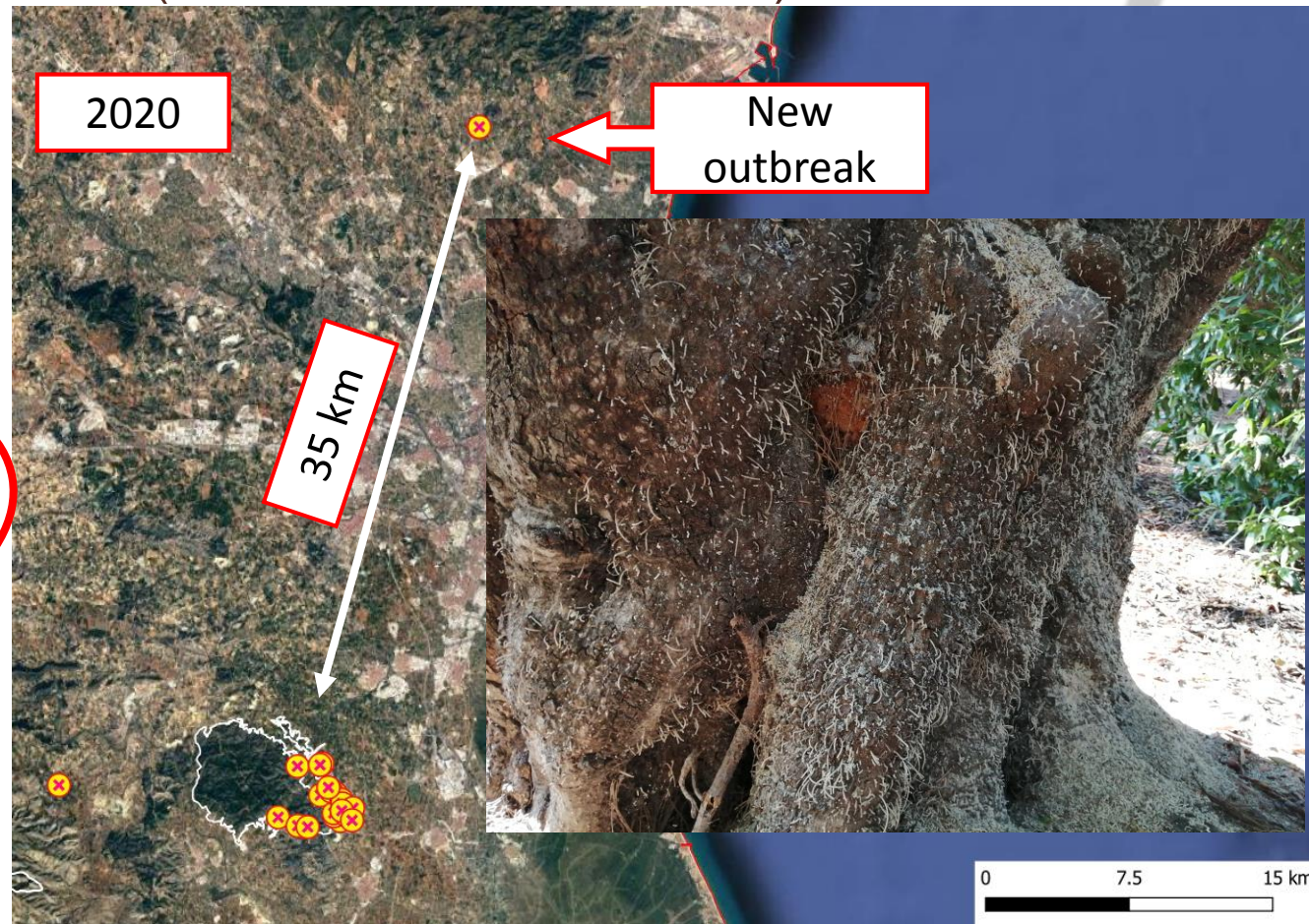
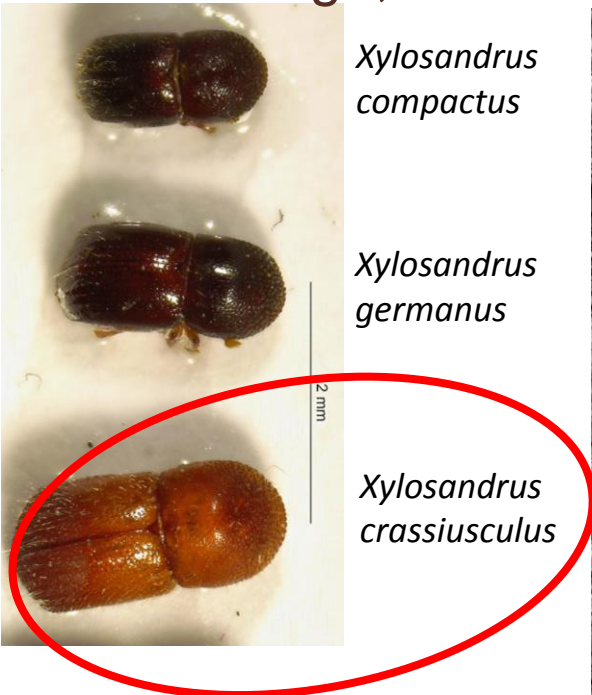
Xylosandrus crassiuscui



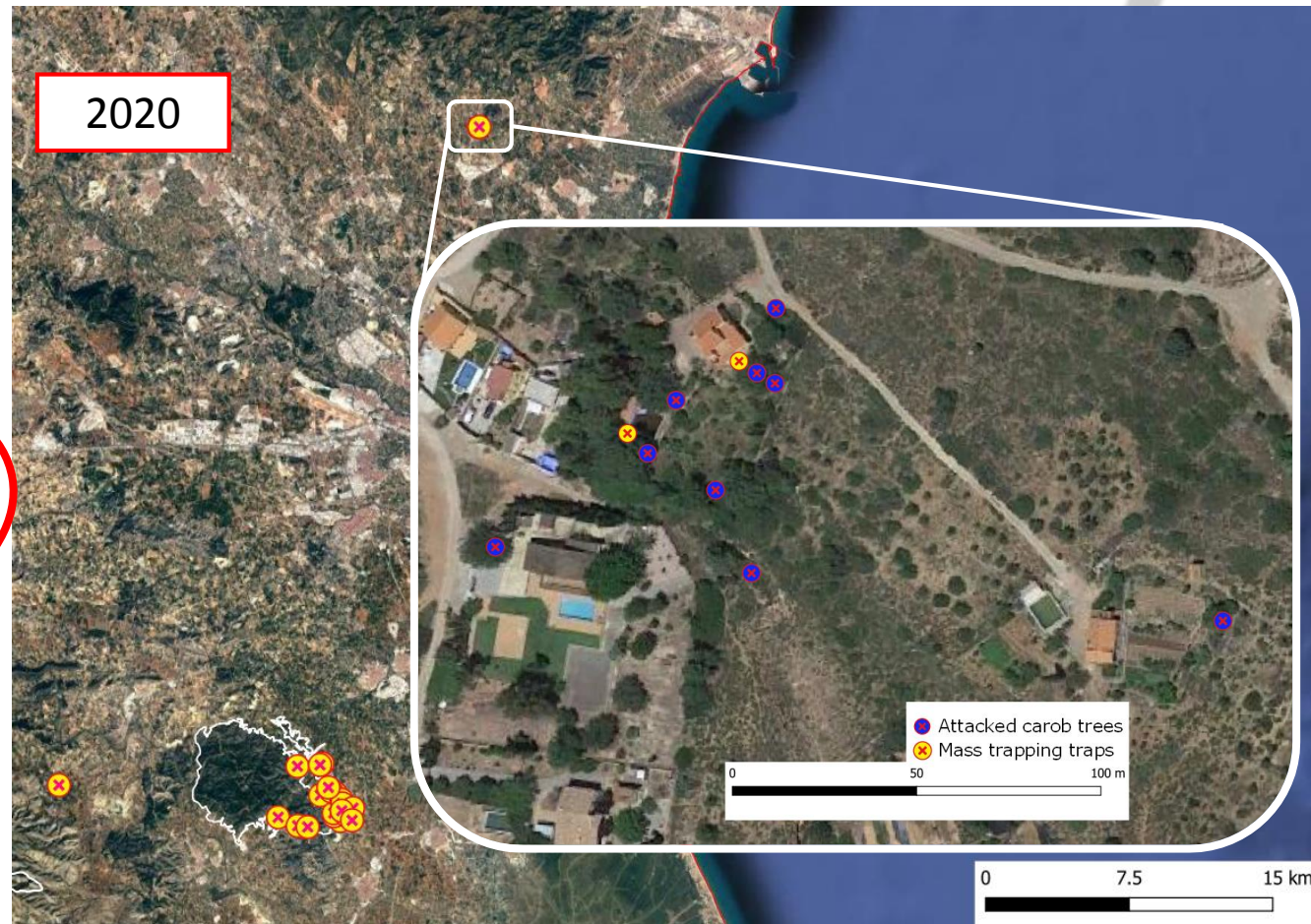
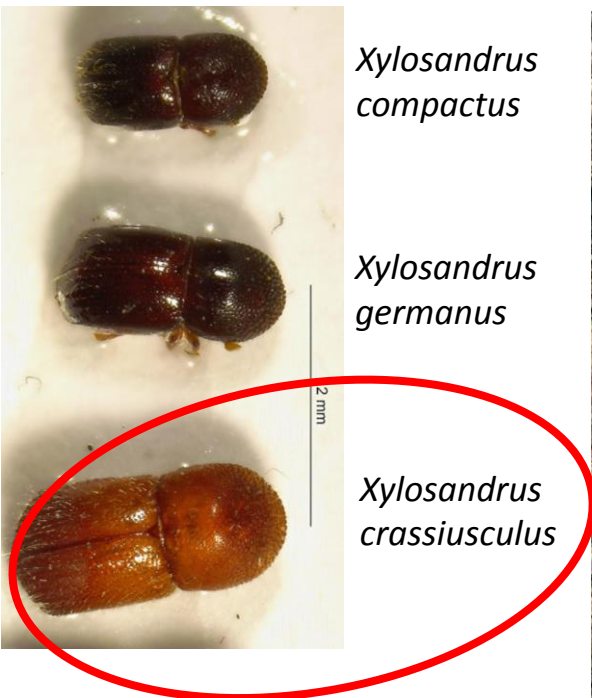
A second outbreak of *X. crassiusculus* was detected in Spain in July 2020, at 35 km away from the SAMFIX Core Area.



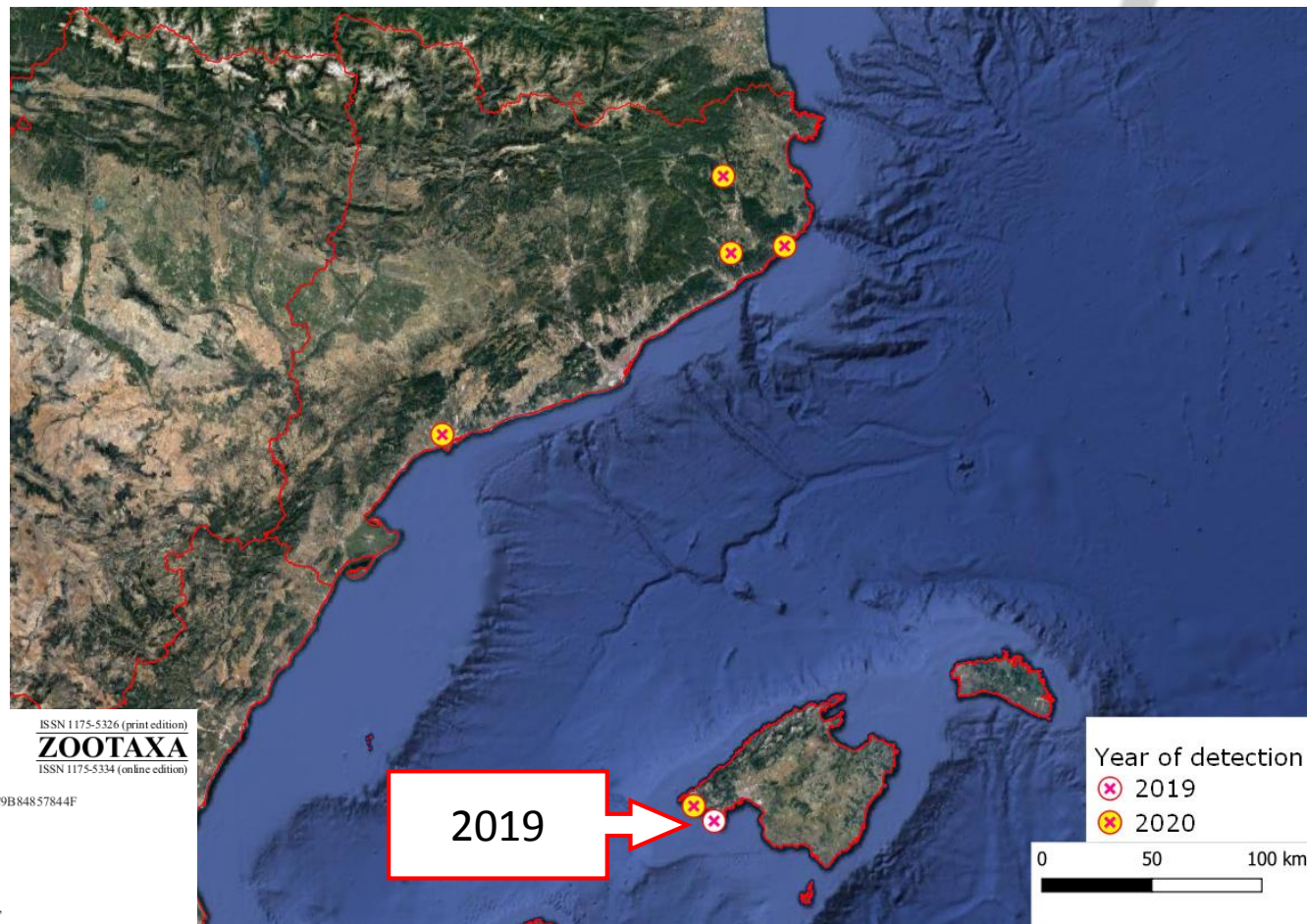
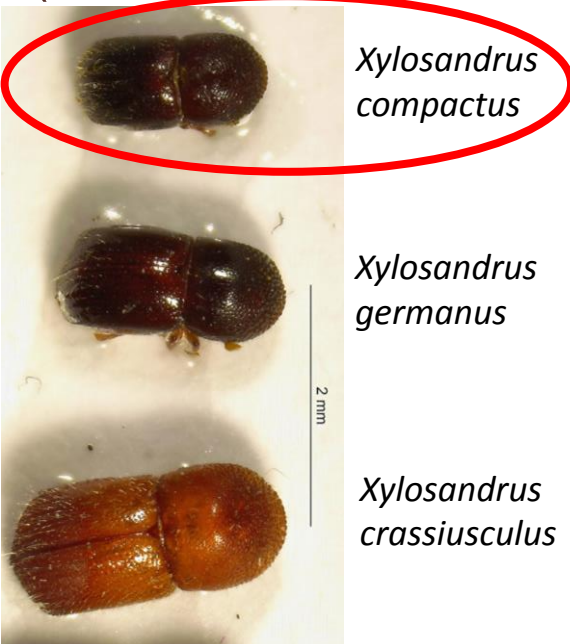
An ornamental old and big carob tree was hard affected by *X. crassiusculus* and die. The owner alerted in social networks about the symptoms, and a participant of a SAMFIX divulgation event, that saw this message, informed us (chain of random factors).



This second area covers 3 ha, with 9 attacked carob trees.
Two traps baited for mass trapping were installed, capturing near 2000 specimens of *X. crassiusculus* in 2020.



X. compactus was detected by a gardener for first time in Spain in Majorca in 2019, attacking a carob tree in a private garden. He contacted with a person that had received SAMFIX traineeship (random factor in the detection again).



Zootaxa 4767 (2): 345–350
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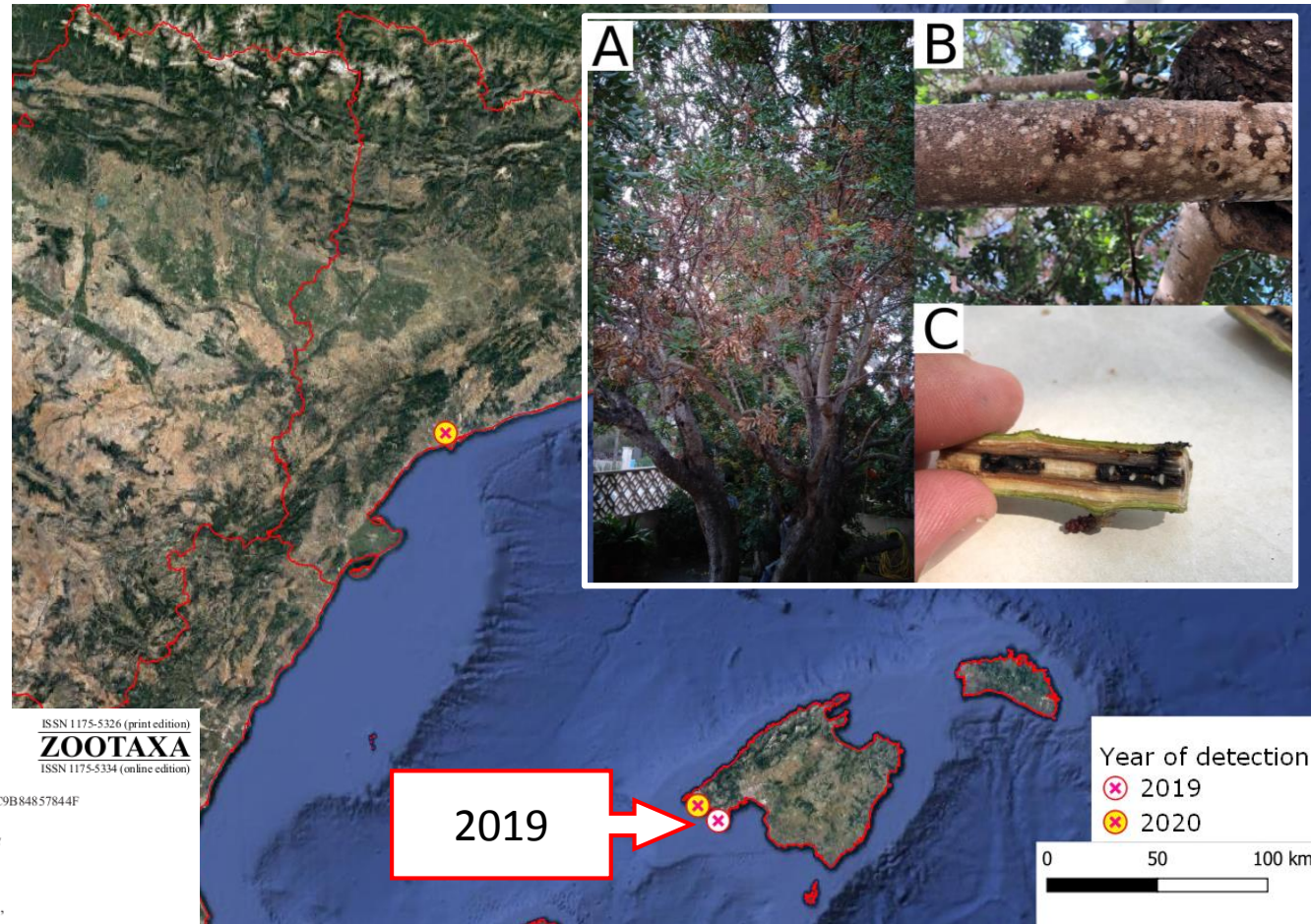
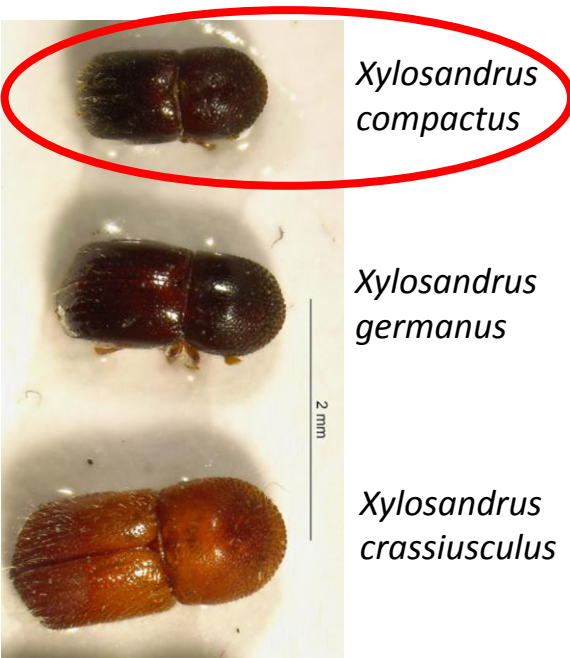
Article

<https://doi.org/10.11646/zootaxa.4767.2.9>
<http://zoobank.org/umdsid:zoobank.org/pub:F664171F-BBEF-4BDC-8244-C9B84857844F>

First record of the black twig borer, *Xylosandrus compactus* (Coleoptera: Curculionidae, Scolytinae) in Spain

MAR LEZA^{1,2}, LUIS NUÑEZ³, JOSEP MARIA RIBA⁴, CLAUDIA COMPARINI^{1,5},
ÁLVARO ROCA⁶ & DIEGO GALLEGU^{7,8,9}

The tree was **hard pruned** and the vegetal pieces were chipped. **No** another attacks were detected in host plants surrounding this tree.



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Article

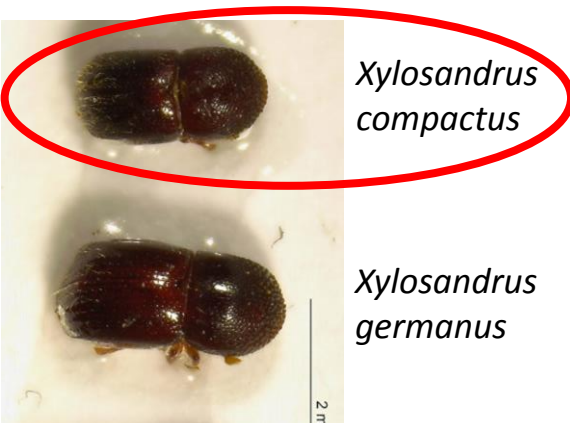
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In 2020 a **second affected carob tree** in a private garden was recorded 12 km far from the first one. It was also pruned and chipped.



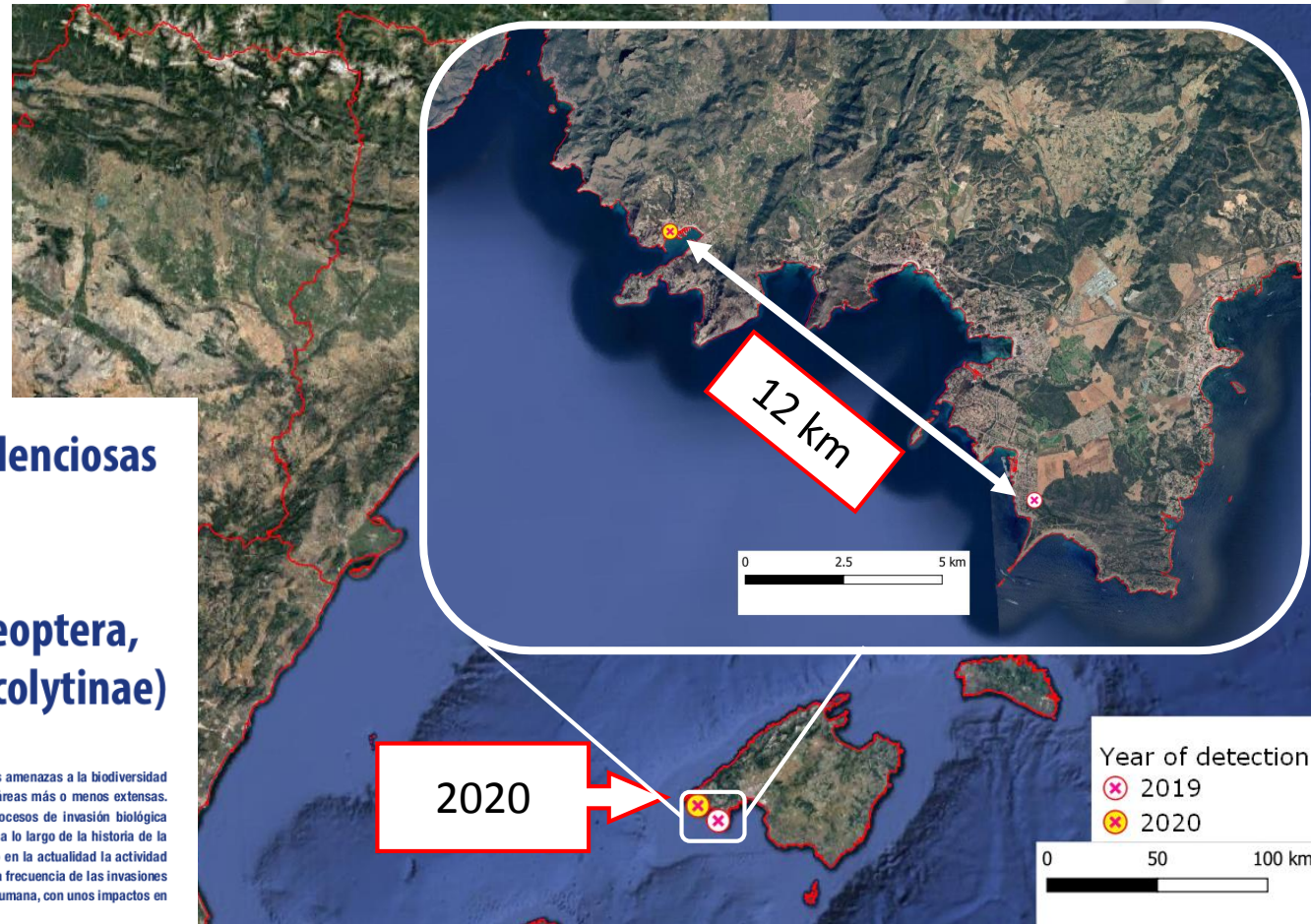
Las invasiones silenciosas de escolítidos: el caso del género *Xylosandrus* (Coleoptera, Curculionidae, Scolytinae)

Las invasiones biológicas son una de las principales amenazas a la biodiversidad local y, en ocasiones, a los recursos naturales de áreas más o menos extensas. De cualquier forma no hay que olvidar que los procesos de invasión biológica han ocurrido de forma natural innumerables veces a lo largo de la historia de la vida y forman parte de los motores evolutivos. Pero en la actualidad la actividad comercial ligada a la globalización ha aumentado la frecuencia de las invasiones biológicas, mediadas o facilitadas por la actividad humana, con unos impactos en muchos casos impredecibles.

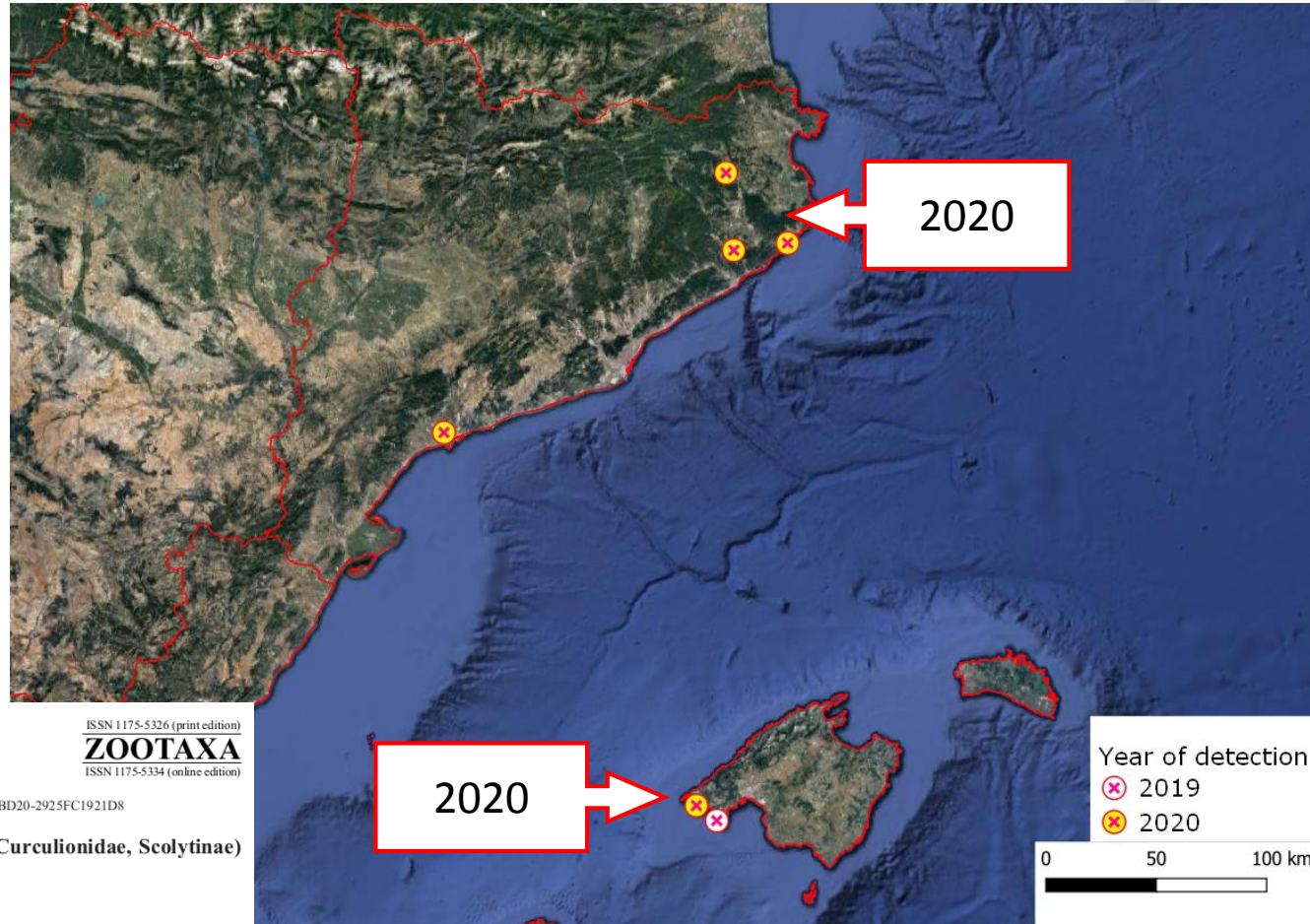
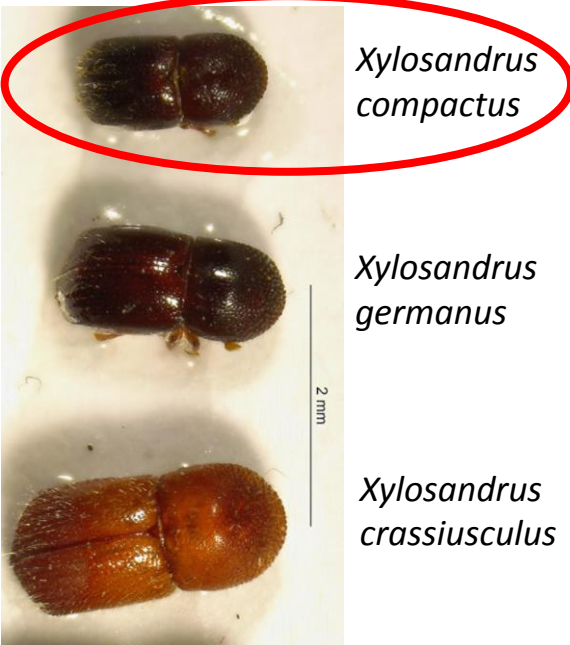
Diego Gallego^{1,2},
Josep Maria Ribá³,
Noelia Molina⁴,
Eudaldo González⁴,
Nicolò di Sora⁵,
Luis Núñez⁵,
Alejandra María Closa⁵,
Claudia Comparin⁶,
Mar Leza⁶

78 @RevForesta

2020, N.º 78



In mainland Spain, *X. compactus* was recorded for first time in Girona province (North Catalonia), in summer 2020, attacking *Laurus novilis* and *Liquidambar styraciflua* in private gardens, and covering a big area of 500 km².



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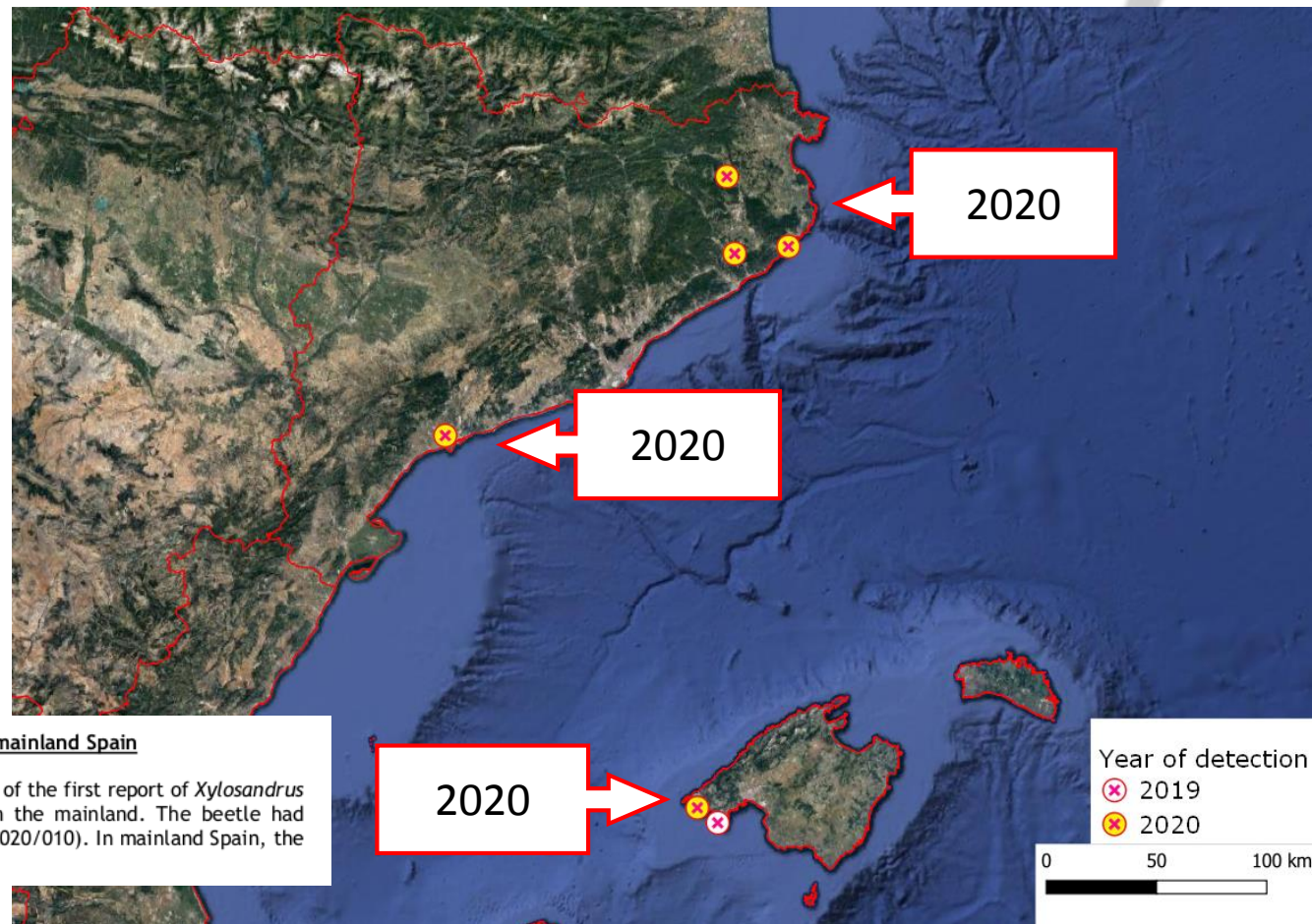
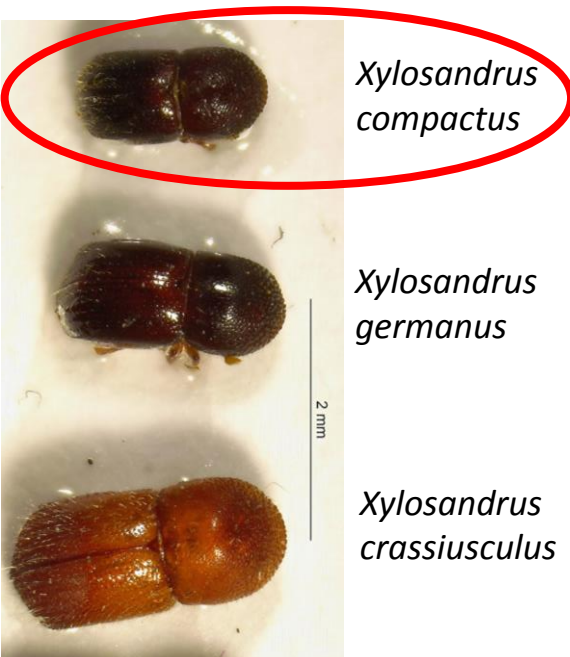
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<http://zoobank.org/um:lsid:zoobank.org:pub:05DE75B6-74B1-4531-BD20-2925FC1921D8>

First records of *Xylosandrus compactus* (Coleoptera: Curculionidae, Scolytinae) in the Iberian Peninsula: an expanding alien species?

JOSEP M RIBA-FLINCH¹, MAR LEZA² & DIEGO GALLEGO^{3,4*}

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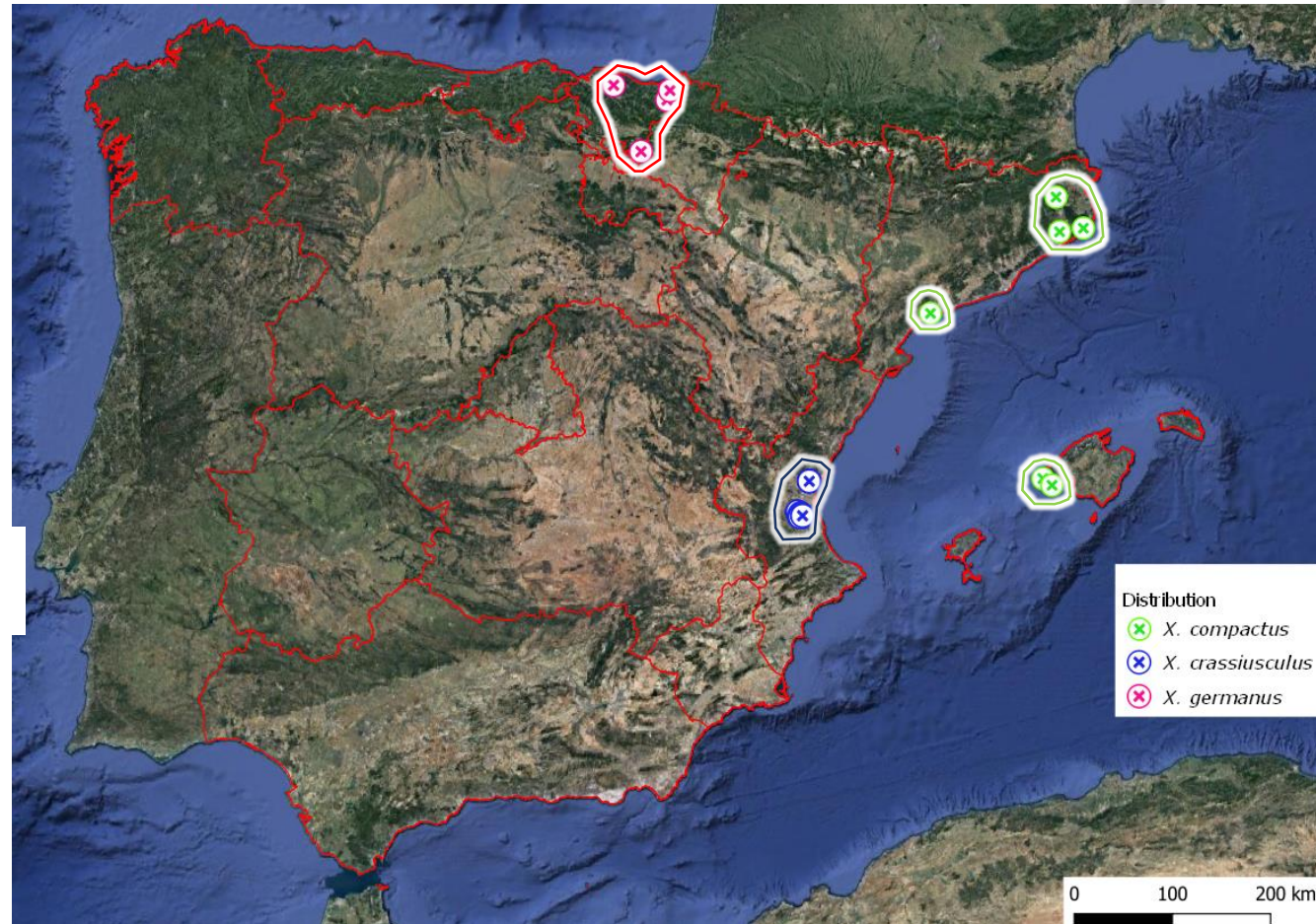
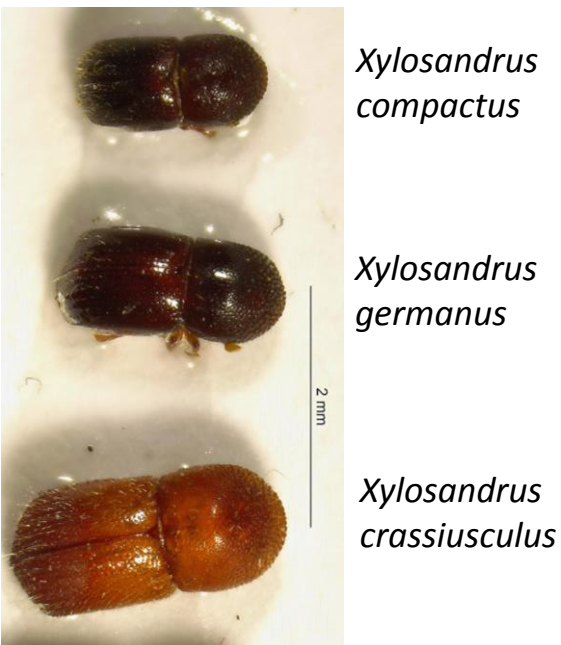
In **fall 2020**, this species was also recorded in **Tarragona** (South Catalonia), attacking *Ceratonia siliqua* and *Corylus avellana*.



2021/013 First report of *Xylosandrus compactus* in mainland Spain

The NPPO of Spain recently informed the EPPO Secretariat of the first report of *Xylosandrus compactus* (Coleoptera: Scolytidae - EPPO Alert List) on the mainland. The beetle had previously been observed in Mallorca (Balears, EPPO RS 2020/010). In mainland Spain, the pest was found in two municipalities in Cataluña region.

Summarizing: with our present knowledge, we could define separated distributions for the three species in Spain.



Summarizing: The wide distribution of *X. compactus*, in at least three populations, could indicate a silent, and possibly quickly **expansive process** developed in last years, or could be due to **multiple recent colonizations**.



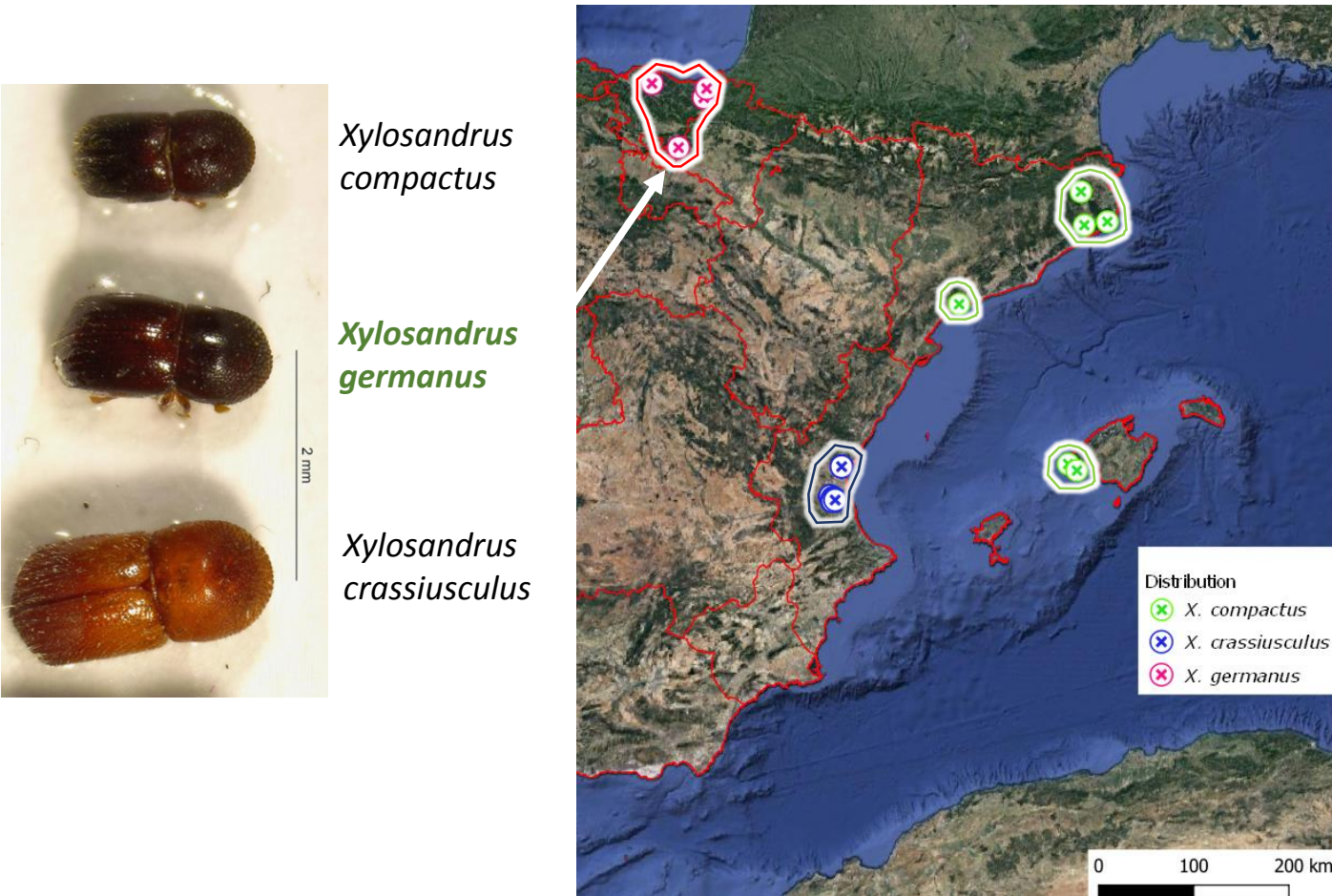
Xylosandrus compactus

Xylosandrus germanus

Xylosandrus crassiusculus



Summarizing: The knowledge of the distribution of *X. germanus* need updating, and we can not extract conclusions about any expansive process at the present.



Summarizing: Distribution of *X. crassiusculus* is under monitoring since 2019, so we know the location of their colonies in the SAMFIX area. The location of a new outbreak at 35 km could indicates a **process of northward expansion**, natural or human facilitated.



Xylosandrus compactus

Xylosandrus germanus

Xylosandrus crassiusculus





THANKS for your attention

**Bark and ambrosia beetles invasive of
Mediterranean forest ecosystems**

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