

Express PRA for *Lyctus cavicollis*

– Interception –

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Initiation: Interception of decoration material made of *Vitis* from France on 11 December, 2017 (tracing back of the infested material from a garden center in the Federal Land Brandenburg)

Express - PRA	<i>Lyctus cavicollis</i> LeConte		
Phytosanitary risk for Germany	high <input type="checkbox"/>	medium <input checked="" type="checkbox"/>	low <input type="checkbox"/>
Phytosanitary risk for EU-Member States	high <input type="checkbox"/>	medium <input checked="" type="checkbox"/>	low <input type="checkbox"/>
Certainty of assessment	high <input type="checkbox"/>	medium <input checked="" type="checkbox"/>	low <input type="checkbox"/>
Conclusion	<p>The North American powder-post beetle <i>Lyctus cavicollis</i> is endemic in Northern America and does already occur in the EU. Until now, it is neither listed in the Annexes of Directive 2000/29/EC nor by the EPPO.</p> <p><i>L. cavicollis</i> infests dry starch-rich deciduous trees (no coniferous trees).</p> <p>Due to suitable climatic conditions the beetle did already establish outdoors in South Western Germany. Detections in three EU-Member States (AT, FR, LU) and in Switzerland are also known.</p> <p>Since the beetle exclusively infests dry wood it is a material pest. It is also capable to establish outdoors (on dry wood). Due to its damage potential for dry, stored or used wood <i>L. cavicollis</i> presents a medium phytosanitary risk for Germany and other EU-Member States.</p> <p>Based on this risk analysis it is assumed that the pest is capable to establish in further parts of Germany or in not yet infested Member States and to cause considerable damage. Thus, preventive measures against the risk of introduction of this potential quarantine pest should be taken according to § 4a of the Plant Inspection Order and the infested decoration material must be destroyed according to § 4a of the Plant Inspection Order.</p>		
Preconditions for an Express-PRA fulfilled?	<p>Yes, <i>L. cavicollis</i> might be a pest. The beetle is listed neither in the Annexes of Directive 2000/29/EC nor by the EPPO and up to now, it is not established in the area covered by the reporting plant protection service. One population since 1993 and subsequent populations led to the assumption that the species is established in South West Germany (three locations) (Bußler, 2009, Geis, 1996). There were synanthropic single findings in</p>		

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	Hesse, North-Rhine Westphalia, Rhine-Land Palatinate and Bavaria. There was no detection for the remaining Federal States.
Taxonomy, trivial name, synonyms	<p>Coleoptera, Lyctidae, <i>Lyctus</i> Fabricius, 1792</p> <p>Grubenhalsiger Splintholzkäfer</p> <p>Lompe (2016) published an identification key for several <i>Lyctus</i>-species (adult animals), including <i>L. cavicollis</i> (Fig. 1 and 2). http://www.coleo-net.de/coleo/texte/lyctus.htm (accessed on 10-01-2017)</p>
Does a relevant earlier PRA exist?	No.
Distribution and biology	<p><i>L. cavicollis</i> is endemic in Northern America (Geis, 1996).</p> <p>The beetle is locally present in Europe. There is an established population in South West Germany (Baden-Württemberg) and synanthropic single findings in the north of Switzerland (Basel), Austria (Upper Austria) and France (Alsace) (CABI, 2017). In 2006, it was detected on wooden piles of a house for the first time in Luxemburg (Gerend 2008).</p>
Are host plants present in the PRA-region? If so, which?	<p>Dry wood, taken as a whole, in the form of dead wood or sawn wood of endemic wood species as well as of imported wood species is present in Germany and the EU.</p> <p>For the genus <i>Lyctus</i> (species like <i>L. brunneus</i>, <i>L. cavicollis</i> which have been introduced until today) Geis (2002) describes a manifold of tropical trees (in Germany only present as stored product) as well as North American deciduous trees (partly also planted in Germany), starch-rich deciduous trees that are dry. According to Geis (1996, 2013):</p> <ul style="list-style-type: none"> • <i>Quercus petraea</i> • <i>Q. robur</i> • <i>Q. rubra</i> • <i>Fraxinus excelsior</i> • <i>Ulmus carpiniifolia</i> • <i>Prunus avium</i> • <i>Juglans regia</i> • <i>Vitis vinifera</i> • <i>Platanus acerifolia</i> • <i>Castanea sativa</i> • <i>Robinia pseudoacacia</i> • <i>Acer pseudoplatanus</i> • <i>Fagus sylvatica</i> • <i>Tilia</i> sp. <p>In Germany, <i>L. cavicollis</i> was already detected on the following deciduous trees (Geis, 1996):</p>

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	<ul style="list-style-type: none"> • <i>Quercus</i> • <i>Robinia</i> • <i>Fraxinus</i> • <i>Juglans</i> • <i>Vitis</i> • <i>Genista</i> • <i>Abachi</i> (<i>Triplochiton scleroxylon</i>) • <i>Betula</i>
Transfer pest from consignment→host plant	No transfer to living xylem since the beetle exclusively infests dry wood (7-10 % moisture). Nevertheless, dry branches of the host plants and deadwood may be infested outdoors (Geis 1996).
Is a vector /further plant needed for host alternation? Which? Distribution?	No.
Climate in the distribution area comparable with PRA-region?	<i>L. cavicollis</i> needs special climatic conditions and stands of deciduous trees with deadwood comparable to those prevailing in the Rhine Graben in Baden-Württemberg.
If no, are host plants present in protected cultivation?	Not relevant, since outdoors establishment possible.
Damage to be expected in the PRA region?	<p>The powder-post beetle <i>L. cavicollis</i> was introduced from Northern America and is considered as destroyer of dry starch-rich deciduous trees (Geis, 1996).</p> <p>The beetle can cause considerable damage by boring into wooden material. In the case of a massive infestation it is possible that the wood gets powdery to a depth of several centimetres (powder-post beetle). Damage caused by lyctus beetles mainly becomes visible when infested wood is used in constructions, f. e. for doorframes. Severe damage can also occur on parquet flooring. The infestation becomes visible only after the wood has been extremely processed by the beetles (Bußler, 2009).</p>
Is an infestation easy to eradicate?	<p>Shi & Tan (1987) describe the following procedures for the control of lyctids in the wood:</p> <ul style="list-style-type: none"> • Extraction of starch from the wood via storing in water for one year • Treatment with boron containing agents • Spraying with Permethrin • Fumigation with methyl bromide or sulfuryl fluoride • Heat treatment <p>Valuable wood (f. e. works of art) that doesn't tolerate a chemical or thermal treatment can be treated with ionisation radiation.</p>

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	<p>In general, infested objects in stores can easily be disinfected via heat treatments. However, also in small wood pieces numerous beetles can occur so that infested wood stores have to be cleansed intensively. Due to the host range and depending on the extent an outdoors infestation is very difficult to eradicate.</p> <p>In case of an already wide distribution with outdoors infestation like those described for <i>L. cavicollis</i> in Baden-Württemberg in three locations an eradication is impossible according to Geis (1996).</p>
Remarks	<p>Meanwhile, the species is distributed via the timber trade almost worldwide.</p>
Literature	<p>Bußler, H. (2009): Teures Leben im Parkett. Eingeschleppte Splintholzkäfer zählen zu den bedeutendsten Schädlingen von Holzprodukten. LWF aktuell 73/2009.</p> <p>https://www.biozid.info/fileadmin/Assets/Schaedlinge/teures-leben-im-parkett.pdf</p> <p>CABI (2017): Datasheet – <i>Lyctus cavicollis</i>.</p> <p>https://www.cabi.org/isc/datasheet/115425</p> <p>Geis, K.-U. (1996): Unbemerkte Einbürgerung und Ausbreitung des nordamerikanischen Grubenhalsigen Splintholzkäfers, <i>Lyctus cavicollis</i> LeConte, in Mitteleuropa, nebst Anmerkungen zur möglichen Einschleppung zweier anderer nearktischer Lyctiden (Coleoptera, Lyctidae). Anzeiger für Schädlingskunde, 69 (2): 31-39.</p> <p>Geis, K.-U. (2002): Gebietsfremde Splint- und Bohrkäfer, nach Mitteleuropa mit Importholz und anderen Gütern eingeschleppt. Eine Bestandsaufnahme (Coleoptera: Lyctidae, Bostrichidae). Mitteilungen des Internationalen Entomologischen Vereins e.V. Frankfurt. Supplement X: 106 S.</p> <p>Geis, K.-U. (2012): Eine neozoische Splintholzart unter Einfluss der Klimaerwärmung: Erster Nachweis mehrjähriger Überwinterungen von <i>Lyctus brunneus</i> (Steph.) in einem naturnahen Habitat Südwestdeutschlands (Coleoptera: Bostrichidae: Lyctinae).</p> <p>http://kaeferklaus.de/fileadmin/kaeferklaus.de/Fachaufsaetze/Subtropische_Splintholzkaefer_unter_Einfluss_der_Klimaerwaermung_Suedwestdeutschland_Coleoptera_Bostrichidae.pdf (accessed on 26-05-2015)</p> <p>Gerend, R. (2008). Nachweise neuer und bemerkenswerter Käfer für die Fauna Luxemburges (Insecta, Coleoptera). Bulletin de la Société des naturalistes luxembourgeois 109: 107-132.</p>

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	<p>Lompe, A. (2016): Käfer Europas – Lyctus. http://www.coleo-net.de/coleo/texte/lyctus.htm</p> <p>Shi, Z.H.; Tan, S.Q. (1987): The susceptibility of Chinese hardwoods to powder post beetles attack and methods of control. <i>Scientia Silvae Sinicae</i>, 23 (1): 109-114.</p>



Lyctus cavicollis - B.-Wittmbg., Stuttgart Umg.

Fig. 1: *Lyctus cavicollis* (Lompe 2016)



Fig. 2: Head and pronotum of *Lyctus cavicollis* (Lompe, 2016)