Small hive beetle (*Aethina tumida*): a qualitative import risk assessment

Ruth Hauser, Eric Breidenbach, Katharina Stärk
Swiss Federal Veterinary Office, Schwarzenburgstrasse 161, 3003 Bern, Switzerland

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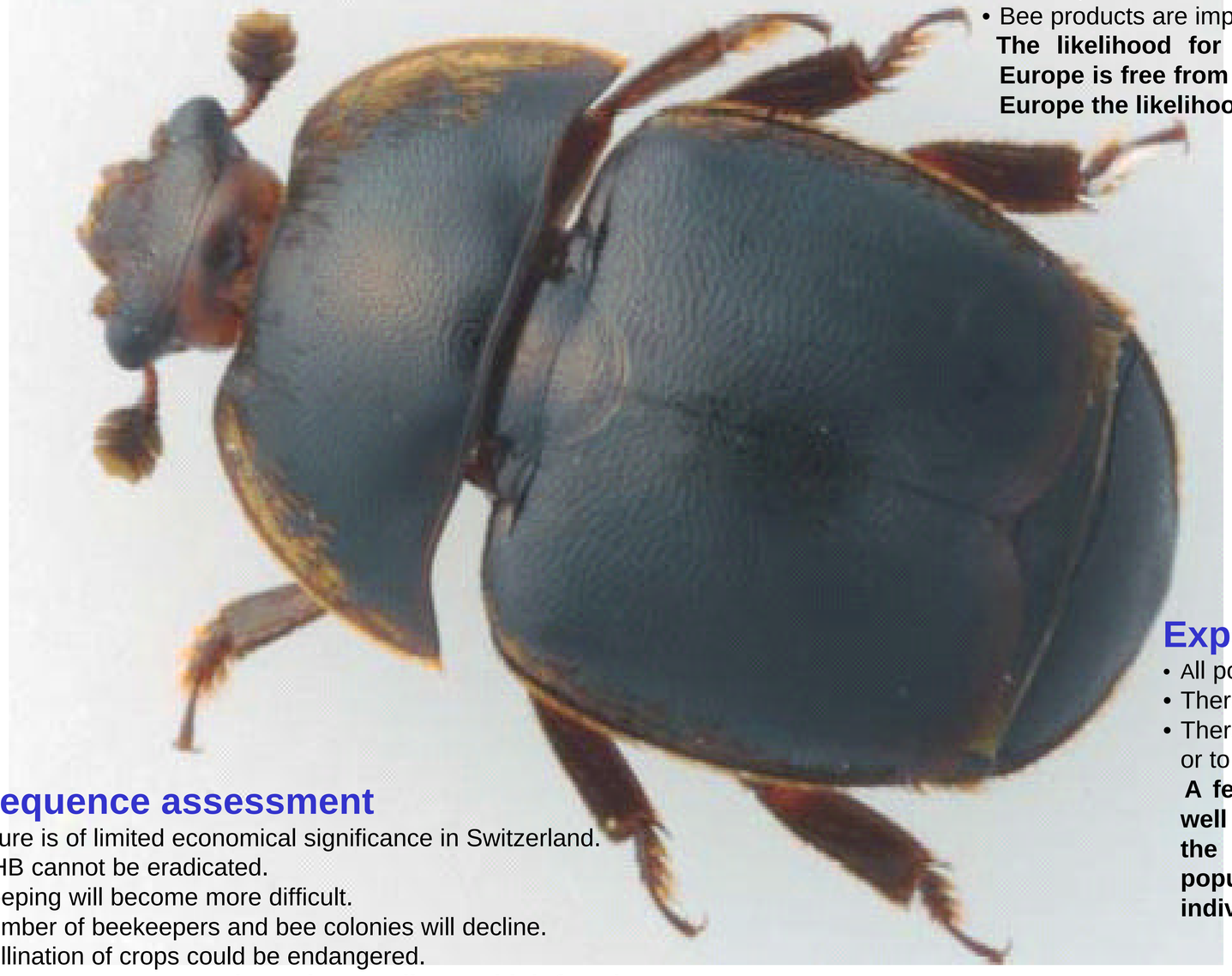
Risk Question

What is the risk for small hive beetle (SHB) posed by importation of live bees and bee products?

Hazard identification

- Aethina tunida (Murray): Family Nitidulidae.
- Lifecycle in bee colonies (egg, larvae and adult) and in soil near the hive (pupae) have a duration of 5 to 12 weeks; for completion of the lifecycle the insect needs warm temperatures (>10°C).
- Spread of the beetle, eggs or larvae by movements of bees, honeycomb, honey, beeswax, perhaps with soil and fruit.
- The damage to the colonies in African bees populations is moderate, in European bees, the beetle reproduces more successfully and can multiply to huge numbers.
- The larvae tunnel through comp, eat brood, the excrement will ferment and ruin stored honey.
- Gravely infected bee colonies are destroyed.
- Distribution: indigenous in southern Africa, since 1996 in USA widespread, since 2002 established in Australia, found in Egypt (2000) and Canada (2002).



Release assessment

- SHB can infest live bees, honey, beeswax and other bee products.
- With the importation of these commodities from affected countries, there will be a increased likelihood to introduce the beetle.
- Legal importation of bees occurred from neighbored countries in Europe that are currently free from SHB.
- Bee products are imported also from affected countries.

The likelihood for the importation is small as long as Europe is free from SHB. If the beetle will be established in Europe the likelihood will be high.

Exposure assessment

- All possible spread routes occur in Switzerland.
- There is a high density of bee colonies.
- There will be several movements of bees from or to each hive per year.

A few years after introduction, SHB will be well established in Switzerland; because of the moderate climate situation, the population of SHB is likely to be small in individual hives.

Consequence assessment

- Apiculture is of limited economical significance in Switzerland.
- The SHB cannot be eradicated.
- Bee keeping will become more difficult.
- The number of beekeepers and bee colonies will decline.
- The pollination of crops could be endangered.

The consequences are estimated as medium to high for the individual beekeepers.

Risk estimation

The risk for import of the SHB will be small as long as the beetle does not occur in Europe. The most likely way of introduction will be through live bees. Once the SHB will be established in a country in Europe, the probability for import of the SHB will be high resulting in medium to high consequences for individual apiculturists.

Recommendation

- The infestation of SHB should be a notifiable disease.
- The import requirements should be adapted according to the EU legislation:
  - Only queens with accompany bees can be imported.
  - Import of live bees from infected regions is prohibited.
  - Imported bees have to be tested.
- Increase risk awareness of beekeepers, promote the biosecurity in bee holdings.
- The research for control measures should be supported.

Acknowledgement

- Swiss Bee Research Centre