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**14.10 – *Leptinotarsa decemlineata* Say, 1824 - Colorado potato beetle
(Coleoptera, Chrysomelidae)**

Carlos Lopez-Vaamonde

Description and biological cycle: Adults up to 11 mm long; elytra yellow with ten characteristic black longitudinal bands (*Photo*). Main natural spread of beetle over large areas is by wind-borne migration. Females usually deposit eggs on the underside surface of host plant leaves. An egg mass may contain 10–40 eggs. Most adult females deposit over 300 eggs during 4–5 weeks, but they can lay up to 800 eggs. Potatoes are the preferred host, but the Colorado potato beetle (Colorado beetle) may feed and survive on a number of other Solanaceae: eggplant, tomato, pepper, tobacco, ground cherry, horse-nettle, common nightshade, *Belladonna*, thorn apple, henbane, and its first recorded host plant: buffalo-bur, *Solanum rostratum*. Larvae are hardy and resistant to unfavourable weather.

Native habitat (EUNIS code): G1- Broadleaved deciduous woodland.

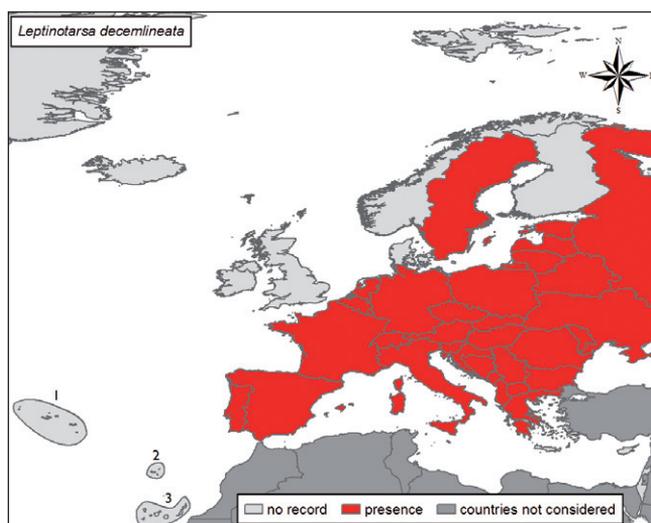
Habitat occupied in invaded range (EUNIS code): I1- Arable land and market gardens; I2- Cultivated areas of gardens and parks. Beetles are sensitive to cold temperatures. They need at least 60 days of temperature over 15 °C in summer and winter temperatures not falling below 8 °C.

Native range: Mexico, where beetles are still present and feed on wild Solanaceae such as *Solanum rostratum*.

Introduced range: beetles were accidentally introduced into USA. In 1922, the species was introduced to France from where it expanded almost throughout the European continent (*Map*) and to parts of Asia in about 30 years. Capable of adapting to different climatic



Credit: György Csóka



conditions and different host plants, this beetle is constantly moving to new areas. Its distribution is limited by temperature and therefore climate warming could further expand its distribution range.

Pathways: International trade appears to be the most likely pathway for introduction on imported commodities such as fresh vegetables from infested areas. Beetles can also be spread through wind and attachment to all forms of packaging and transport.

Impact and management: Serious pest of potatoes. Both adults and larvae feed on potato leaves and damage can greatly reduce potato yields. Beetles can also be a pest of other solanaceous plants such as tomato, aubergine, tobacco and peppers. This beetle may be managed culturally by crop rotation. Mechanical control involving destruction of crop debris is very effective at reducing population levels. Chemical control commonly involves insecticides, but resistance to them develops rapidly. Biological control includes a long list of natural enemies. *Bacillus thuringiensis* and some species of nematodes have particularly been used as control agents.

Selected references

- CABI/EPPO (1997) Quarantine pests for Europe, 2nd Ed. Wallingford, UK: CAB International.
- Grapputo A, Boman S, Lindström L, Lyytinen A, Mappes J (2005) The voyage of an invasive species across continents: genetic diversity of North American and European Colorado potato beetle populations. *Molecular Ecology* 14: 4207–4219.
- Pucci C, Dominici M, Forcina A (1991) Population dynamic and economic threshold of *Leptinotarsa decemlineata* (Say) (Col., Chrysomelidae) in Central Italy. *Zeitschrift für Angewandte Entomologie* 111: 311–317.