SCIENTIFIC NOTE

Notes on the status of the Eurasian moths *Noctua pronuba* and *Noctua comes* (Lepidoptera: Noctuidae) on Vancouver Island, British Columbia

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Two Eurasian cutworm moths (Lepidoptera: Noctuidae), *Noctua pronuba* (Linnaeus) and *Noctua comes* (Hübner), both accidentally introduced to North America, are now sympatric in southwestern British Columbia. The former was first recorded in Nova Scotia, the latter in British Columbia. This paper reports the occurrence of both species for the first time on Vancouver Island. They are the only species of the genus *Noctua* known in North America (Lafontaine 1998).

Noctua pronuba (the large yellow underwing) was first reported in North America in Nova Scotia in 1979 (Neil 1981). It is now known from every Canadian province and Nunavut (Troubridge and Lafontaine 2005) and, in the USA, from Maine (Wright 1987) to Louisiana (Brou 1997) and California (Powell 2002). It was first recorded in BC in 2002 (CNC [Canadian National Collection of Insects and Arachnids, Ottawa] data) and is now abundant on eastern Vancouver Island as far north as Sayward (RBCM [Royal British Columbia Museum, Victoria] data) and areas of the lower Fraser River Valley (K. Needham, pers. comm.). We have yet to hear of any records from the BC Interior.

Noctua comes (the lesser yellow underwing) was first recorded in Canada in Burnaby, BC in August 1982 (Neil 1984) although a specimen in the Spencer Entomological Museum, UBC (University of British Columbia, Vancouver) was collected in Vancouver in July 1982. This species was first recorded on Vancouver Island in Victoria in 1990 (PFC [Pacific Forestry Centre, Victoria] data) and is now abundant in suburban habitats there. Elsewhere in BC *N. comes* has been found in the Okanagan Valley and Lillooet and south to Oregon (Lafontaine 1998, J. Troubridge, pers. comm.).

Noctua pronuba has a wingspan of 50-60 mm and a diagnostic orange-yellow hindwing with a broad black border. Images of adults and larvae are in Wright (1987), Lafontaine (1998), and Neil and Specht (1987). *Noctua comes* is similar but normally has a black mark near the centre of the orange of the hindwing; genitalia differences distinguish the two species unequivocally (Lafontaine 1998).

Although *N. pronuba* is known to be migratory and a very strong flier (Passoa and Hollingsworth 1996), its spread may have been facilitated by human activity. It has a wide range of host plants, many of which are part of the horticultural trade, food-crop industry, or are widespread weeds. Host plant genera include: *Holcus* (J. Tatum, pers. comm.), *Poa* and other grasses (Wright and Neil, 1983)*, Atriplex, Chrysanthemum, Dianthus, Fragaria, Freesia, Gladiolus, Myosotis, Polygonum, Primula, Ribes, Stellaria, Taraxacum* and *Viola*. Larvae also eat various common food crops (Passoa and Hollingsworth 1996, B. Duncan, pers. comm). *Noctua comes* has been recorded on *Conium, Cornus, Potentilla, Calendula*, *Cardamine*, *Cirsium*, *Digitalis*, *Fragaria*, *Myosotis*, *Plantago, Primula* but, most often, on *Rumex crispus* (J. Tatum, pers. comm.) as well as tobacco and grapes (Sannino and Espinosa 1999) and *Crataegus* (Ward 2003).

Life-history details of *N. pronuba* are reported in Singh and Kevan (1965),

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Wright and Neil (1983), Morris (1987), and Passoa and Hollingsworth (1996). In British Columbia, *N. pronuba* will likely exhibit the univoltine life history typical of European and eastern North American populations.

Each female lays up to 2000 eggs on leaf undersides (Morris 1987) or non-host substrates (B. Duncan, pers. comm.). Larvae feed on foliage, crowns and roots of hosts; immature larvae usually overwinter (Morris 1987), but in coastal BC mature larvae also do so (B. Duncan, pers. comm.). Mature larvae pupate in the soil in the spring (Passoa and Hollingsworth 1996). Tachinid flies parasitize *N. pronuba* in eastern North America (J. Troubridge, pers. comm.), but have not been recorded in BC on *N. comes* or *N. pronuba* (J. Tatum, pers. comm.). However, *Trichogramma* wasps parasitize egg masses in the province (B. Duncan, pers. comm.).

As it is a strong, migratory flier (Passoa and Hollingsworth 1996), can endure very cold winters (Wright and Neil 1983), and feeds on a wide array of plants associated with humans, *N. pronuba* will probably colonize all of BC. Adults may lay eggs on non-plant substrates (B. Duncan, pers. comm) or hide during the day in objects around human habitation (although they fly readily when disturbed), making them good candidates for transport by vehicles.

Because of its growing abundance in coastal BC, we believe that *N. pronuba* may become an economic pest, although in the long-term, populations will likely be moderated by increasing parasitism. *Noctua comes* will probably have a similar future.

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