

***Selatosomus aeripennis destructor* (Prairie grain wireworm) – Major widespread pest**

Area where reported as pests: Alberta, Saskatchewan, Manitoba (van Herk and Vernon 2014; van Herk et al. 2021b).

Wireworm (larval) stage: *Selatosomus aeripennis destructor* are the largest wireworms of the Prairie pest wireworms, reaching up to 23 millimetres (0.9 inch) long at larval maturity and having quite a stout build (Figure 19). The wireworms are shiny, hard-bodied, and a yellowish-orange colour (Figure 19). They are distinguished from similar looking species by their ninth abdominal segment; the caudal notch is wide and shallow with stout, 'fleshy' urogomphal prongs. The outer urogomphal prongs are not erect as they are in *H. bicolor*.

Beetle (adult) stage: Adults are black, sometimes with a blueish-greenish metallic sheen, hairless, and have distinct hind angles. The beetles have a robust body shape, and are 8–13 millimetres (0.3–0.5 inches) long (Brooks 1960), with females on the larger size (females 10.8–13.3 millimetres (0.4–0.5 inches), males 7.8–11.5 millimetres (0.3–0.4 inches), Strickland 1927) (Figure 19).

Life cycle: *S. a. destructor* (Prairie grain wireworm) wireworms normally pass through 9–11 instars (growth stages) in 3–4 years in the soil. However, development can last much longer, up to 11 years (Strickland 1939, 1942). Also, (1) wireworm growth rate is highly variable (some wireworms are twice the size of others of the same age after two years of growth; Strickland 1927), (2) wireworms can moult regressively (become smaller; Zacharuk 1962a), and (3) late instar larvae can delay pupation by a year or more (King et al. 1933). Consequently, head capsule width, body length or other measurements cannot be used to reliably identify wireworm developmental stages (Doane 1977a). Wireworms that have reached the appropriate size, or have reached some other internal trigger, will move to the top 10 centimetres (4 inches) of the soil surface in late July and August and pupate (transform to

adult beetles) (Zacharuk 1962a; Doane 1977a). Those new beetles will remain dormant in the soil until the following spring.

Reproduction: Beetles emerge from dormancy in late April and May, when the soil temperature reaches 10°C (Strickland 1935, 1939; Zacharuk 1962a). Males immediately try to locate a mate after emergence. Neither sex mates more than once. Males die 1–3 weeks after mating while females remain in soil cracks until they began to lay eggs (oviposition) (Zacharuk 1958b, 1962a; Doane 1977a). Egg-laying begins 1–2 weeks after mating, generally in mid-May to mid-June and can last up to three weeks or even until late July (Zacharuk 1962a; Doane 1977a). Female activity increases after most of their eggs are laid (Doane 1961). Eggs, probably well over 200 per female (though estimates vary, see Zacharuk 1962a; Strickland 1927; Doane 1963b), are likely laid near where they emerge from dormancy as flight is rarely observed (Doane 1963a, Zacharuk 1962a, Strickland 1935). Eggs are laid in batches of a few to several hundred, usually under soil lumps or other places where there is sufficient soil moisture, sometimes up to 15 centimetres (6 inches) deep (Doane 1967, 1977a). Soil moisture is extremely important for egg survival, as eggs need to absorb water from the soil after being laid (Doane 1966, 1977a). Eggs hatch after 3–4 weeks.

Feeding/damage: Feeding behaviour may provide an indication of developmental stage: early instar wireworms feed on root hairs and fungal mycelia while older instars attack seeds (Zacharuk 1962a), culminating in the last instar pupating in late July and August. This species shreds plants (Eidt 1959), and can attack 10 times as many seeds or make up to 20 times more potato tunnels per larvae than *Hypnoidus bicolor* (Zacharuk 1962b, Burrage 1963).

Related subspecies: See *Two subspecies / One look: Selatosomus aeripennis destructor* vs. *S. a. aeripennis*, page 9.

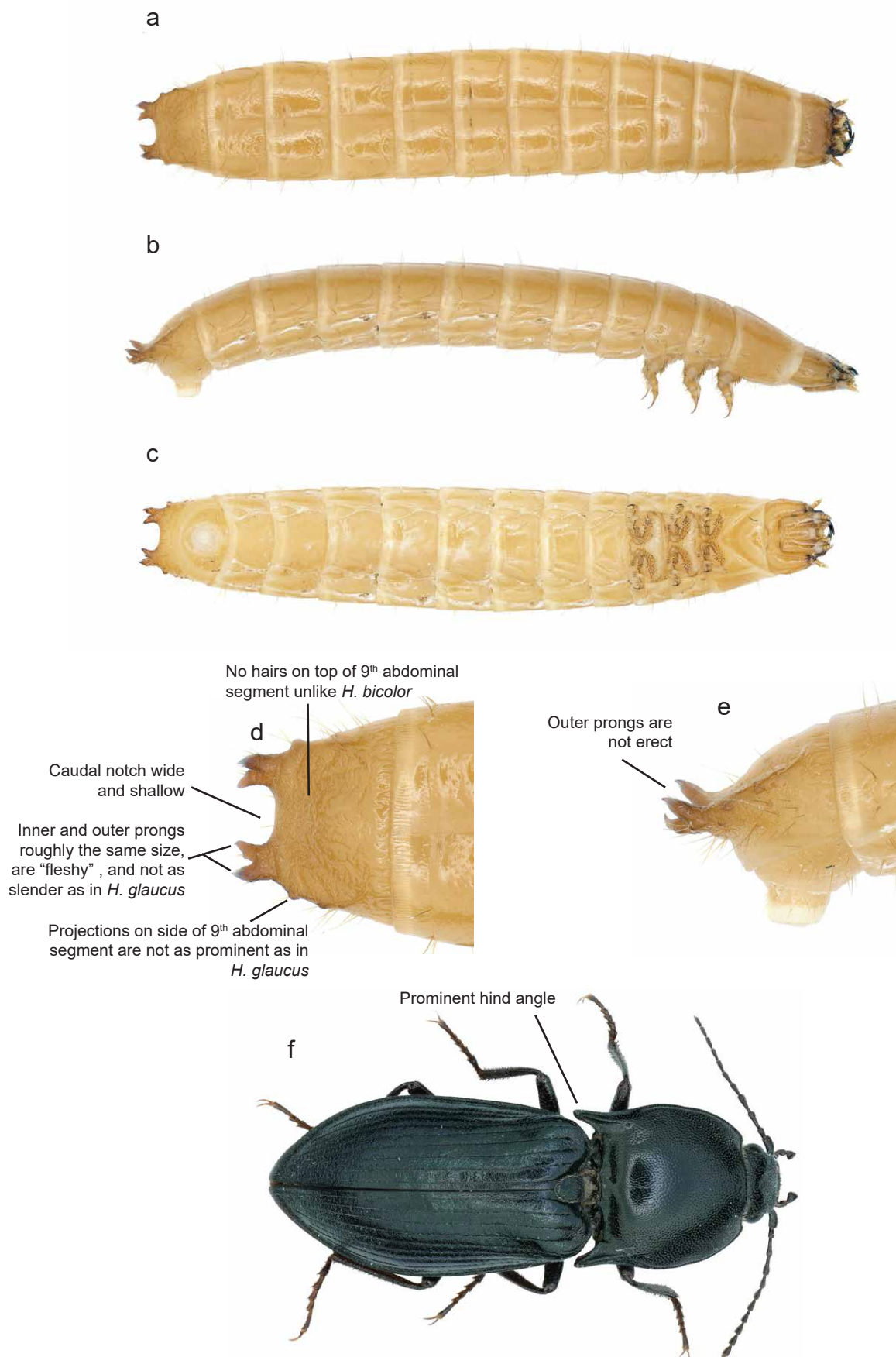
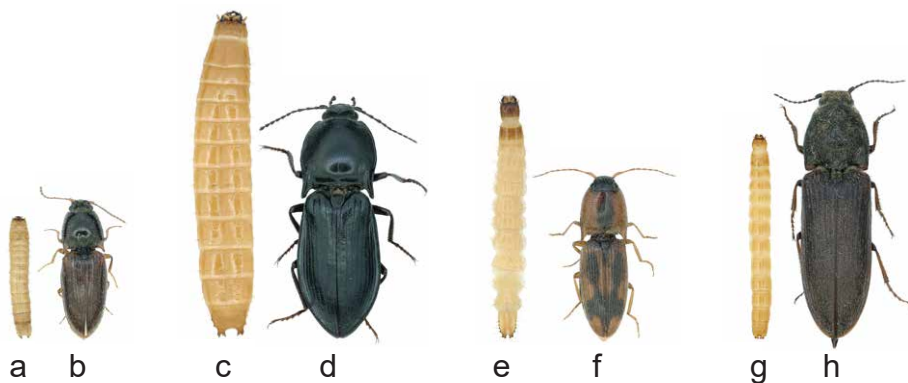


Figure 19. *Selatosomus aeripennis destructor* a) larva - top view; b) larva - side view; c) larva - bottom view; d) larva - caudal notch, top view; e) larva - caudal notch, side view; f) adult. Photos: J. Saguez, CÉROM



Guide to Pest Wireworms in Canadian Prairie Field Crop Production





Front cover species: *Hypnoidus bicolor* a) larva; b) adult; *Selatosomus aeripennis destructor* c) larva; d) adult; *Aeolus mellillus* e) larva; f) adult; *Limonius californicus* g) larva; h) adult

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FOREWORD

This guide is intended to provide information on wireworm damage, biology, management, research and challenges in crop production on the Canadian Prairies. We have summarized the knowledge of this persistent and complicated pest on the Prairies by discussing the general life cycle, behaviours, and management options for the main pest species in this region. We have also identified major gaps in knowledge and where research is needed. Our target audience include farmers, agronomists, crop scouts, extension personnel and anyone else interested in the impact of wireworms on Prairie crop production.

Note that this guide is a summary of the scientific literature. No content of the guide should be considered as an endorsement of any product.

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