

LepIntercept

An identification resource for intercepted Lepidoptera larvae

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NOCTUIDAE - *Spodoptera*

Taxonomy

Noctuoidea: Noctuidae: Noctuinae: *Spodoptera*

Common names: armyworms

Synonyms: *Laphygma*, *Prodenia*, *Calogramma*, *Rusidrina*, *Douzdrina*

Before the current concept of *Spodoptera* was accepted, some species were placed in the genus *Xylomyges*.

Larval diagnosis

Spodoptera is a worldwide genus consisting of 30 described species. Larvae of *Spodoptera* can be recognized by having a combination of the morphological characters listed here. Identification to species usually relies on other morphological characters in addition to body color, origin, and potentially host.

The four most frequently intercepted *Spodoptera* include: *S. exigua*, *S. frugiperda*, *S. littoralis*, and *S. litura*. Diagnoses for these four species are provided on the respective fact sheets.

Interceptions of early instar larvae, those without a definite origin, or those that cannot be placed to species are identified as *Spodoptera* if they possess a combination of the following characters:

- Head with adfrontal area outlined in white forming an inverted "Y"
- Mandible with four scissorial teeth and no retinaculum
- SD1 on T2 and T3 connected to the associated tonofibrillary platelet by a minute sclerotized bar
- SV group bisetose on A1
- Lateral spot often present on first abdominal segment
- Body setae short, most not much longer than the vertical height of the 8th abdominal spiracle

Host/origin information

Because *Spodoptera* is a worldwide genus with many polyphagous species, larvae can be intercepted from nearly any origin on most any host. A complete list of the host and origin data for "*Spodoptera* spp." is listed on the Interception Records tab. Common host/origin combinations for the four most frequently intercepted species of *Spodoptera* (*S. exigua*, *S. frugiperda*, *S. littoralis*, and *S. litura*) are provided on the respective fact sheets.

Recorded distribution

Although *Spodoptera* is a cosmopolitan genus, *S. exigua* is the only species that is distributed worldwide. Other species are generally distributed across the New World or the Old World (Pogue 2002).

Links to species fact sheets

[Spodoptera exigua](#)

[Spodoptera frugiperda](#)

[Spodoptera littoralis](#)

[Spodoptera litura](#)

Larval diagnosis (Detailed)

Diagnosis of mature larval *Spodoptera* was given in the fact sheet for *S. littoralis*. This discussion focuses on early instar *Spodoptera* and those *Spodoptera* that can only be identified to genus.

Several noctuid genera such as *Elaphria*, *Galgula*, *Spodoptera* (Wagner et al. 2011), and some European relatives (Beck 1999-2000) have larva with a "swollen thorax" (may include A1, A2 as



Fig. 1: *Spodoptera littoralis*



Fig. 2: *Spodoptera litura*



Fig. 3: *Spodoptera frugiperda*



Fig. 4: *Spodoptera exigua*



Fig. 5: Early instar *Spodoptera*

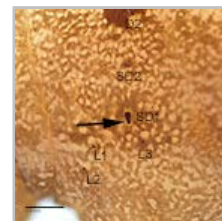


Fig. 6: T2 bar on SD1

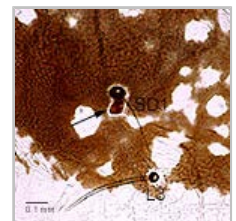


Fig. 7: T2 bar on SD1



Fig. 8: SV group on A1

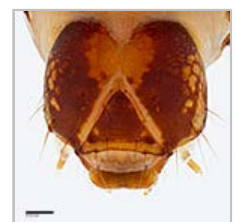


Fig. 9: Head

well), especially in the early instars. In the case of *Spodoptera*, the most obvious examples are in the former genus *Prodenia* and *Xylomyges*, and the "Laphygma group" (*S. frugiperda* and *S. exigua* in North America) do not show this character as clearly. This is significant for identification of these species. Early instars of *S. frugiperda* and *S. exigua* can be named if they show the characteristic mesothoracic dark spot or large pinacula respectively (see fact sheets on these species). Worldwide, early instar larvae *Spodoptera* at the swollen thorax stage should not be identified past genus because all show basically similar markings. There is one exception: early instar *S. litura* from orchids from Thailand can also be identified to species based on host/origin until evidence of a sibling species in this pathway is documented. In addition, young *S. eridania* may well have characteristic dorsal and lateral swellings, but early instar *Spodoptera* are too poorly known to fully evaluate this character.



Fig. 10: Mandible



Fig. 11: Mandible

Elaphria nucicola is often intercepted on pineapple from Latin America (PestID database). It differs from *Spodoptera* by having a banded head and a pair of dark dorsal spots on A2 (see Wagner et al. 2011 although the dark spot on A2 is more obvious in preserved material, Vargas Carrillo 2011). It too has a "swollen thorax" and potentially could be misidentified as *Spodoptera*. There is an early instar larva from Latin America with dark spots on T2, T3, A1-3 that may also be part of this complex. *Spodoptera* or *Elaphria* is a good guess for these larvae, with *Spodoptera* the most likely possibility.

Identification authority (Detailed)

Identification of "*Spodoptera*" is usually justified when:

1. The origin is unknown or the larva is too young (swollen thorax stage).
2. The larva is atypical and from the Caribbean. *Spodoptera androgea* and *S. pulchella* are both common species and their larva are both poorly known. We can expect individuals that do not match published descriptions.
3. The larva is from some parts of South America. We know the larva of *S. ochrea* and *S. albula* are almost identical. Larval variation in *S. cosmiodes* and *S. descoinsi* is poorly studied. These should be left at genus.

Some Old World species have poorly known larvae (see introduction to *Spodoptera* key below).



Key to recognizing *Spodoptera litura/littoralis* intercepted at U.S. ports of entry (includes other *Spodoptera*)

Origin records

Spodoptera have been intercepted from the following locations:

American Samoa, Australia, Barbados, Brazil, Cameroon, Canada, China, Colombia, Costa Rica, Dominica, Dominican Republic, Ecuador, El Salvador, France, Gambia, Germany, Ghana, Guatemala, Guyana, Haiti, Hawaii, Hong Kong, India, Iran, Israel, Jamaica, Jordan, Kenya, Malaysia, Mauritius, Mexico, Morocco, Nepal, Netherlands, New Zealand, Nicaragua, Nigeria, Norway (?), Palestinian Territory, Panama (?), Peru, Philippines, Puerto Rico, Singapore, South Africa, South Korea, Spain, St. Vincent and the Grenadines, Tahiti, Taiwan, Thailand, Tortola, Trinidad and Tobago, United Kingdom of Great Britain and N. Ireland, Viet Nam, Zimbabwe

Host records

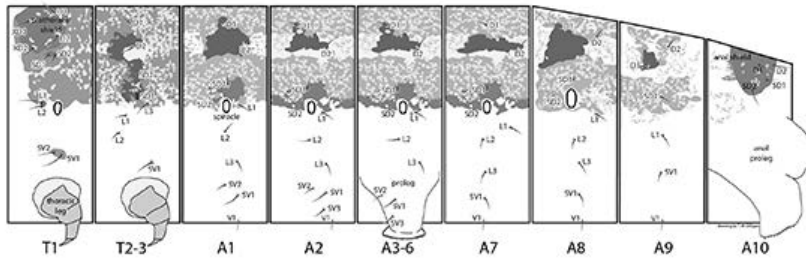
Spodoptera have been intercepted on the following hosts:

Abelmoschus esculentus, *Aconitum napellus*, *Aconitum* sp., *Allium ampeloprasum*, *Allium ascalonicum*, *Allium cepa*, *Allium schoenoprasum*, *Allium* sp., *Alstroemeria* sp., *Amaranthus* sp., *Ananas* sp., *Anemone* sp., *Anethum graveolens*, *Anethum* sp., *Angelica* sp., *Annona muricata*, *Anthurium* sp., *Antirrhinum majus*, *Antirrhinum* sp., *Apium graveolens*, *Apium graveolens* var. *dulce*, *Apium* sp., *Arachis* sp., *Artemisia dracuncululus*, *Artemisia* sp., *Asclepias* sp., *Asclepias tuberosa*, *Asparagus officinalis*, *Asparagus* sp., *Aster* sp., *Asteraceae*, *Atriplex* sp., *Basilicum* sp., *Begonia* sp., *Brassica chinensis*, *Brassica oleracea*, *Brassica oleracea* var. *botrytis*, *Brassica oleracea* var. *italica*, *Brassica rapa*, *Brassica rapa* ssp. *chinensis*, *Brassica rapa* ssp. *pekinensis*, *Brassica* sp., *Bupleurum griffithii*, *Bupleurum* sp., *Calendula* sp., *Callistephus chinensis*, *Callistephus* sp., *Campanula* sp., *Capsicum annuum*, *Capsicum* sp., *Celastrum* sp., *Cercis* sp., *Chamaemelum nobile*, *Chenopodium album*, *Chenopodium ambrosioides*, *Chenopodium berlandieri* ssp. *nuttalliae*, *Chenopodium* sp., *Chrysanthemum* sp., *Citrus* sp., *Clematis* sp., *Cola acuminata*, *Colocasia esculenta*, *Colocasia* sp., *Corchorus capsularis*, *Corchorus olitorius*, *Coriandrum sativum*, *Crotalaria longirostrata*, *Crotalaria* sp., *Cucurbita* sp., *Cuphea* sp., *Delphinium elatum*, *Delphinium* sp., *Dendrobium* sp., *Dianthus caryophyllus*, *Dianthus* sp., *Dizygotheca* sp., *Dysphania ambrosioides*, *Eruca* sp., *Eruca vesicaria*, *Eryngium foetidum*, *Eryngium* sp., *Eucalyptus* sp., *Eustoma* sp., *Evolvulus* sp., *Gardenia jasminoides*, *Gardenia* sp., *Gerbera* sp., *Gladiolus* sp., *Gomphrena* sp., *Grevillea* sp., *Gypsophila* sp., *Helianthus annuus*, *Helianthus* sp., *Heliconia* sp., *Hydrangea* sp., *Hygrophila* sp., *Hypoestes* sp., *Jasminum* sp., *Lablab* sp., *Lactuca sativa*, *Lactuca sativa* var. *longifolia*, *Lactuca* sp., *Leucospermum* sp., *Limonium sinuatum*, *Limonium* sp., *Lippia* sp., *Lisianthus* sp., *Lychnis coronata*, *Lycopersicon* sp., *Lysimachia* sp., *Majorana hortensis*, *Majorana* sp., *Maranta* sp., *Melicoccus bijugatus*, *Mentha arvensis*, *Mentha longifolia*, *Mentha morocco*, *Mentha officinalis*, *Mentha piperita*, *Mentha* sp., *Mentha spicata*, *Mokara* sp., *Momordica balsamina*, *Momordica charantia*, *Momordica* sp., *Moringa* sp., *Muscari commosum*, *Nymphaea* sp., *Ocimum basilicum*, *Ocimum* sp., *Oncidium* sp., *Oncidium* sp., *Opuntia* sp., *Orchidaceae*, *Origanum majorana*, *Origanum* sp., *Origanum vulgare*, *Ornithogalum* sp., *Paullinia* sp., *Perilla* sp., *Persea americana*, *Phaseolus* sp., *Phaseolus vulgaris*, *Phlox* sp., *Physalis philadelphica*, *Piper* sp., *Pisum sativum*, *Pisum* sp., *Pithecellobium dulce*, *Polygonum* sp., *Porophyllum ruderale*, *Porophyllum* sp., *Portulaca oleracea*, *Protea* sp., *Pterocarpus* sp., *Ranunculus* sp., *Rosa* sp., *Rosaceae*, *Rosmarinus officinalis*, *Rubus* sp., *Rudbeckia* sp., *Rumex* sp., *Salvia officinalis*, *Salvia* sp., *Scabiosa* sp., *Solanaceae*, *Solanum melongena*,

Setal maps



Spodoptera litura (Fabricius)



Gilligan, T.M. & S.C. Passoa. 2014. LepIntercept, An identification resource for intercepted Lepidoptera larvae. Identification Technology Program (ITP), USDA/APHIS/PPQ/SS/T, Fort Collins, CO (accessed at www.lepintercept.org).

Spodoptera litura setal map



[Click here to download a full-size printable PDF of this larval setal map](#)

LepIntercept - An identification resource for intercepted Lepidoptera larvae
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Identification Technology Program (ITP), Fort Collins, CO. Last updated February 2014.

