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A PRELIMINARY LIST OF THE CUTWORMS KNOWN TO OCCUR IN IOWA

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For the past two years the writer has been giving special attention to collecting and rearing life histories of the members of the Family Noctuidae to which the cutworms belong, and in studying their taxonomy. There are over 2600 species of this family in the United States. Noctua is the Latin word for "owl:" these moths fly by night and some have shiny eyes, hence they are called "owlet" moths. Like the adults, the larvae feed at night. The larvae may be distinguished from white grubs (*Phyllophaga sp.*) which are often erronously called cutworms by the presence of prolegs on the abdomen. Cutworms curl up, head to tail, when at rest or disturbed. Because of the difficulty of distinguishing the harmful species from those which are relatively harmless, there has been appended to this paper a list of the Noctuids up to the genus *Catocala,* which should include the species commonly designated as cutworms.

In the typical Noctuids, the body is large in proportion to the size of the wings; the front wings are strong, somewhat narrow and elongated, and when at rest the wings are furled upon the abdomen, giving the insect a triangular appearance. In the majority of the species, the scales on the dorsal surface of the thorax are turned up, more or less, forming tufts.

In the larvae of the majority of species there are five pairs of abdominal prolegs, but in three subfamilies the first and second pairs of abdominal feet are aborted and the larvae are semi-loopers. The most common forms of cutworms are fat, soft-bodied, smooth, round caterpillars, usually pale or dirty gray or black, and are sometimes spotted or striped. Cutworms attack a great many species of plants being practically omniverous in tastes. They work at night, usually cutting off the young plants at the surface of the ground, although some species are in the habit of climbing young fruit trees and eating the leaves and terminal shoots.

The females deposit their eggs on or near the ground, and the larvae, after hatching, feed on any green plants available.

Some forms become almost full grown by fall, pass the winter in the soil in the larval stage, and come out early in the spring, destroying many of the young plants. The pupa stage is of vari-

able duration, depending on the species and the weather. Prompt action is necessary for controlling cutworms after they appear in the spring. Among the remedies employed for controlling cutworms are poisoned Bran Bait, culture of the soil, and use of hogs and poultry which root up and devour the larvae in large quantities.

Perhaps one of the best known cutworms is the Army worm, *Leucania unipuncta,* which may be used to portray the general habits. These worms are dark green in color with white stripes on the sides and down the middle of the back. The winter is passed in the partly grown larval stage, although the fact that the moths are abroad very early in the spring would indicate some of the insects winter as adults or pupae. They begin feeding early in the spring and by the first of May are full grown, pupating just below the surface of the soil. The pupae are dark brown, about ¾ inches long. The pupal stage lasts about two weeks, after which they emerge as pale brown or gray-brown moths with a wing expanse of 1½ inches. The identifying mark of the adults is a small but prominent white dot in the center of each front wing. The eggs, about 500 being laid by each female, are laid on the lower leaves of grasses in long rows. The worms are nearly 1½ inches long, of a greenish brown color with longitudinal stripes. Seen from the side there are three stripes of equal width, one orange, the next brown, and the third orange. The head is striped with dark lines and each proleg has a dark band on the outer side and a dark tip on the inner side.

For some twenty years the department has been making general collections of insects throughout the state in an effort to determine their geographic and seasonal distribution. The accumulated information of this specific group must be recognized as only fragmentary but a list of the known species is being published as an aid to any who are interested in this part of the family Noctuidae. The list includes 171 species of Noctuids among which will be found the cutworms.

1135 *Charadra deridens* Gn.
1140 *Raphia abrupta* Grt.
1141 *R. frater* Grt.
1147sp. *Acronicta* sp.
1148 *A. americana* Harris
1153 *A. lepusculina* Gn.
1155 *A. innotata* Gn.
1162 *A. falcula* Grt.
1172 *A. vinnula* Grt.
1182 *A. interrupta* Gn.
1183 *A. lobeliae* Gn.
1191 *A. inclara* Sm.
1194 *A. increta* Morr.
1196 *A. caesarea* Sm.
1215 *A. oblinita* A. & S.
1216 *A. lanceolaria* Grt.
1222 *Simyra henrici* Grt.
1223 *Harrisimemna trisignata* Wlk.

1296 *Euxoa velleripennis* Grt.
1310 *E. messoria* Harris
1341 *E. tessellata* Harr.
1380 *Chorizagrotis socorro* Barnes.
1387 *C. auxiliaris* Grt.
1394 *Loxagrotis apicalis* Grt.
1414 *Feltia malefida* Gn.
1416 *Agrotis vetusta* Wlk.
1422 *A. gladiaria* Morr.
1425 *A. venerabilis* Wlk.
1435 *A. ypsilon* Rott.
1442 *Feltia ducens* Wlk.
1445 *F. subgothica* Haw.
1446 *F. herilis* Grt.
1472 *Spaelotis clandestina* Harr.
1474 *Choephora fungorum* G. & R.
1480 *Ochropleura plecta* L.
1496 *Peridroma margaritosa* Haw.
1496b *P. margaritosa* form *saucia* Hbn.
1520 *Graphiphora badinodis* Grt.
1523 *G. bicarnea* Gn.
1525 *Graphora tenuicula* Morr.
1593 *Agabrotis placida* Grt.
1611 *Ufeus satyricus* Grt.
1615 *U. unicolor* Grt.
1633 *Scotogramma trifolii* Rott.
1654 *Trichoclea mojave* Benj.
1655 *T. artesta* Sm.
1670 *Polia distincta* Hbn.
1671 *P. distincta* Hbn.
1683 *P. legitima* Grt.
1691 *P. adjuncta* Bdv.
1709 *P. detracta* Wlk.
1709a *P. detracta neoterica* Sm.
1712 *Lacinipolia meditata* Grt.
1735 *L. vicina* Grt.
1738 *L. renigera* Steph.
1744 *L. lorea* Gn.
1745 *L. olivacea* Morr.
1800 *Sideridis rosea* Harv.
1821 *Tricholita signata* Wlk.
1848 *Orthodes incincta* Morr.
1849 *O. rufula* Grt.
1871 *O. crenulata* Butl.
1872 *O. cynica* Gn.
1895 *Nephelodes emmedonia* Cram.
1895a *N. tertialis* Sm.
1904 *Morrisonia confusa* Hbn.
1943 *Orthosia hibisci* Gn.
1943.1 *O. hibisci* f. *insciens* Wlk.
1951 *Ceramica picta* Harr.
1962 *Protoleucania albilinea* Hbn.
1962a *P. albilinea diffusa* Wlk.
1973 *Leucania pseudargyria* Gn.
1974 *L. ursula* Forbes
1977 *L. commoides* Gn.
1978 *L. phragmatidicola* Gn.
1982 *L. multilinea* Wlk.
1992 *L. insueta* Gn.
1994 *L. unipuncta* Haw.
1995 *L. luteopallens* Sm.
2038 *Cucullia intermedia* Speyer
2044 *C. asteroides* Gn.
2147 *Homohadena badistriga* Grt.
2153 *H. infixa* Wlk.
2153 *Graptolitha antennata* Wlk.
2155 *Adita chionanthi* A. & S.
2195 *Eutolype depilis* Grt.
2196 *E. rolandi* Grt.
2220 *Grapholitha bethunei* G. R.
2221 *G. innominata* Sm.
2225 *G. disposita* Morr.
2278 *Fishia evelina* French
2304 *Eupsilia sidus* Gn.
2305 *E. morrisoni* Grt.
2312 *Rusina bicolorago* Gn.
2312.1 *R. bicolorago ferrugineoides* Gn.
2335 *Septis lignicolora* Gn.
2351 *S. arctica* Frr.
2355 *S. inordinata* Morr.
2366 *Agroperina lateritia* Hufn.
2370 *A. inficita* Wlk.
2373 *A. lutosa* Andr.
2374 *A. helva* Grt.
2375 *Crymodes devastator* Brace.
2379 *C. burgessi* Morr.
2383 *Protagrotis niveivenosa* Grt.
2400 *Aseptis binotata* Wlk.
2422 *Oligia diversicolor* Morr.
2426 *O. fractilinea* Grt.
2437 *Spartiniphaga includens* Wlk.
2440 *Archanara subflava* Grt.
2457 *Helotropha reniformis* Grt.
2458 *Apamea velata* Wlk.
2459 *A. americana* Speyer
2475 *Hydroecia perobliqua* Hamp.
2476 *H. stramentosa* Gn.
2478sp. *Papaipema* sp.

2479 *P. appassionata* Harv.
2484 *P. marginidens* Gn.
2508 *P. lysimachiae* Bird
2510+*Acronycta* sp.
2510 *Papaipema cataphracta* Grt.
2525 *P. nebris* Gn.
2525.1 *P. nebris* f. *nitela* Gn.
2528 *P. maritima* Bird
2535 *Phlogophora iris* Gn.
2546 *Macronoctua onusta* Grt.
2554 *Chytonix palliatricula* Gn.
2573 *Prodenia eridania* Cram.
2574 *Laphygma frugiperda* A. & S.
2576.1 *Leuconycta diphteroides* f. *obliterata* Grt.
2576 *L. diphteroides* Gn.
2582 *Agriopodes teratophora* H.S.
2584 *Amphipyra pyramidoides* Gn.
2586 *A. glabella* Morr.
2610 *Perigea xanthoides* Gn.
2611 *Monodes grata* Hbn.
2613 *Platysenta videns* Gn.
2617 *P. apameoides* Gn.
2638a *Apamea nictitans americana* Speyer
2647 *Elaphria festivoides* Gn.
2650 *E. grata* Hbn.
2651 *Anorthodes tarda* Gn.
2657 *Platyperigea meralis* Morr.
2661 *Crambodes talidiformis* Gn.
2662 *Proxenus miranda* Grt.
2666 *Galgula partita* Gn.
2677 *Prodenia dolichos* Fabr.
2669 *Balsa malana* Fitch.
2678 *Prodenia ornithogalli* Gn.
2678.1 *P. ornithogalli* form *eudiopta* Gn.
2682.2 *Laphygma frugiperdo* f. *obscura* Riley
2683 *L. exigua* Hbn.
2687 *Cosmia canescens* Behr.
2694 *Amolita fessa* Grt.
2703 *Arzama obliqua* Wlk.
2705 *A. densa* Wlk.
2737 *Catabena lineolata* Wlk.
2773 *Ogdoconta cinereola* Gn.
2803 *Stiria rugifrons* Grt.
2827 *Euthisanotia grata* Fabr.
2858 *E. grata* Fabr.
2832 *Stiriodes obtusa* H. S.
2860 *Euthisanotia unio* Hbn.
2864 *Psychomorpha epimenis* Dru.
2895 *Lithacodia albidula* Gn.
2929 *Heliothis paradoxa* Grt.
2931.1 *H. phloxiphaga*, form *luteitinctus* Grt.
2932 *H. obsoleta* Fabr.
2933 *H. virescens* Fabr.
2934 *Canthylidia scutosa* Schiff.
2938 *Dasypoudaea lucens* Morr.
2939 *D. meadi* Grt.
2956 *Schinia cumatilis* Grt.
2966 *S. trifascia* Hbn.
2990 *S. nundina* Dru.
3007 *S. marginata* Haw.
3014 *S. jaguarina* Gn.
3018 *S. arcigera* Gn

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