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The Wireworms (Elateridae) of South Dakota

H.C. Severin

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#8
Technical Bulletin No. 8

June 1949

THE WIREWORMS
(Elateridae)
OF SOUTH DAKOTA

Entomology-Zoology Department

AGRICULTURAL EXPERIMENT STATION
South Dakota State College of Agriculture and Mechanic Arts
Brookings, South Dakota

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THE WIREWORMS

(Elateridae) of South Dakota

By H. C. SEVERIN¹

Introduction

The Elateridae constitute a family of beetles that are commonly known as elater-beetles, click-beetles, snapping-beetles, or skip-jacks and in the larval stages are called wireworms.

Nearly 7,000 species of Elateridae have been described as occurring in the world. Of these, nearly 700 are found in America north of Mexico. In this report, 67 species and varieties are recorded from South Dakota, and these species are grouped into 22 genera. The species of Elateridae that are recorded in this bulletin as occurring in South Dakota do not form a complete list of the beetles for this state. In fact, it is believed by the writer that this list represents less than 50 per cent of the species that will ultimately be found within the state.

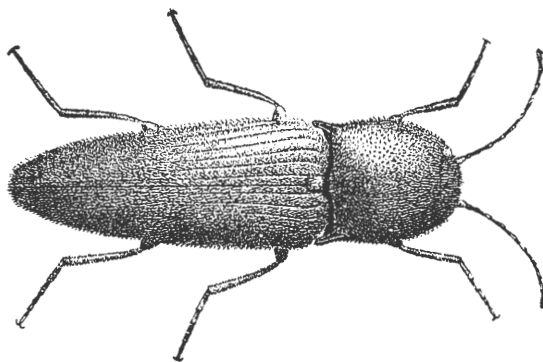


Fig. 1. A click beetle, *Melanotus fissilis* (Say) about five times natural size. From Ill. Nat. Hist. Sur.

Description of Beetles

Most of our South Dakota species of click-beetles are small or of medium size and range from $\frac{3}{8}$ to $\frac{3}{4}$ of an inch in length. An occasional small species measures $\frac{1}{4}$ of an inch or less in length while at the other extreme the giants may measure $1\frac{1}{2}$ inches in length. The majority of the South Dakota species are of a uniform brown color. Many are gray, some

are black, a few are spotted and an occasional species is banded. One species (two varieties) is conspicuously marked on the pronotum with two large black eye spots surrounded with grayish white margins. The beetles are recognized by the following characters:

form of body, elongate oval, usually tapering somewhat toward each end; the posterior end at times pointed;

¹Entomologist, South Dakota Agricultural Experiment Station.

length of body three to five times that of width; dorsum of body and elytra smooth, punctate, striated, rugose, hairy or scaled; head small and partly sunken into prothorax; prothorax loosely joined to mesothorax so that the prothorax may be readily moved up and down; a prosternal spine extends backward from the prothorax and fits into a socket in the mesosternum; it is largely due to this spine and socket that the beetles are able to flip their bodies up into the air when they happen to alight on their backs; antennae 11-jointed, more or less serrate, widely separate and fastened in small pits in front of the compound eyes and underneath the margin of the

front of the head;
mandibles small, retracted and bifid;
legs short;
coxae of first pair of legs small and rounded; coxal cavities of prothorax open behind;
hind coxae large, transverse and contiguous, or nearly so, along the mid line and grooved for the reception of the femora;
tibiae slender;
tarsae 5-jointed on all legs;
elytra covering the body in most species; wings well developed, enabling the insects to fly;
abdomen with five visible sterna, the first and second not grown together.

Life Cycles and Seasonal Cycles

The Elateridae pass through four radically different stages in completing their life cycle, namely, egg, larva, or wireworm, pupa and beetle. The beetles are the adult insects, the females of which lay eggs. From the eggs hatch the larvae or the wireworms. The wireworms, when full-grown, transform to pupae and these give rise to the beetles.

The duration of the life cycle of the various species of Elateridae is by no means identical. Some species complete their entire life cycle in one year, while others require as much as five years. The eggs of most of the species of Elateridae are laid in the spring by beetles that hibernated over the winter, but there are some species that lay their eggs in the fall of the year. In the latter case the eggs hatch later in the fall and the young wire-

worms hibernate. Pupation takes place usually late in the summer or early fall, and ordinarily the pupal stage extends over a period of three or four weeks.

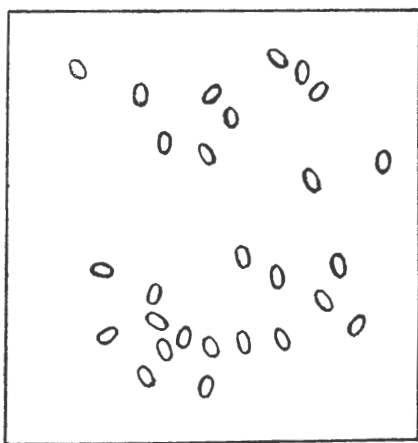


Fig. 2. Eggs (six times natural size) of the Pacific Coast Wireworm, *Limonius canus* Lec. After M. C. Lane.

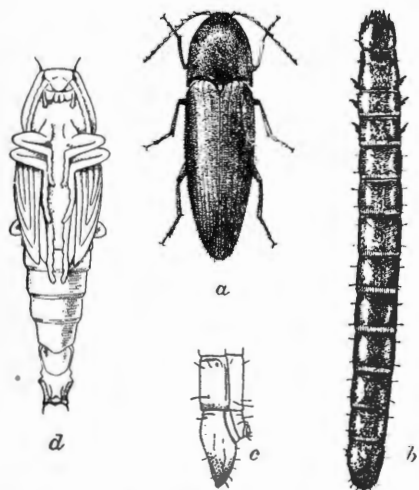


Fig. 3. A corn wireworm, *Melanotus communis* (Gyll.): a. Adult beetle; b. larva or wireworm; c. side view of last segment of larva; d. pupa. All enlarged. After Chittenden.

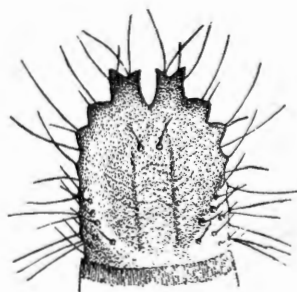


Fig. 4. Terminal segment of body of wireworm *Drasterius dorsalis* (Say) much enlarged. From Ill. Nat. Hist. Sur.



Fig. 5. A corn wireworm, *Melanotus cribulosus* (Lec) about three times natural size. From Ill. Nat. Hist. Sur.

Description of Larvae

The larvae of the Elateridae are commonly called wireworms because of their superficial resemblance to a short piece of shiny copper or bronze wire. In color, most of the South Dakota wireworms vary from light yellow to light or even dark brown. The body is long and wormlike, cylindrical or flattened and covered by a comparatively hard skin. Most of the native species of wireworms when full-grown measure from $\frac{1}{2}$ to $1\frac{1}{4}$ inches in length. An occasional species measures about $\frac{3}{8}$ of an inch in length when full-grown, and one species (two varieties) measures more than $1\frac{1}{2}$ inches.

The head is provided with mouth parts which are of the chewing type. Eyes may, or may not, be present, though they are difficult to see even when present. The antennae are small and short. Immediately back of the head is the thorax. This body division consists of three segments each of which is provided with a pair of well-developed legs. The abdomen follows the thorax and consists of ten legless segments, nine of which are visible from above. The ninth abdominal segment varies much in different species of wireworms and furnishes some of the characters that are used in the identification of the species.

Economic Importance and Damage Done by Larvae



Fig. 6. Lettuce plant infested and damaged by wireworms. After Lane.

Most of the larvae of the South Dakota species of Elateridae feed upon plant materials, but there are some that seem to be entirely predaceous. Even though a species may be classed as feeding on plant materials, it may not be of economic importance, for it may feed on decaying wood, leaf litter, etc. In the latter case, however, they may be predaceous, for they may be feeding on larvae in the wood or leaf litter.

Important economic species of Elateridae in the state are classed as destructive because they actually feed on living plants. Usually the portions of the plants that are attacked are in the soil, such as planted seed, germinating seed, roots, crowns, tubers, bulbs, corms, stems, etc., but sometimes the wireworms may work their way into the stems of plants a short distance above the surface of the ground. Unsprouted seed, germinating seed and young plants suffer more damage than do older plants.

Corn, wheat and barley frequently are damaged in South Dakota. This damage occurs before and after the seed has germinated and the plants both young and older, may be injured or killed. Potatoes and other vegetable crops such as carrots, beets and onions may become so badly chewed and tunneled by the wireworm as to become unsalable. Many of our flowers are by no means immune. Flax may be badly damaged, especially if it is seeded in heavily infested, broken-up grass or sod land. Buckwheat, oats, winter rye, peas and soy beans do not generally suffer seriously from the work of wireworms, and the same is true of alfalfa and sweet clover.

Habitats Preferred by Different Species

Each species of wireworm larva is usually adapted to live in a soil possessing a more or less definite range of ecological factors. Certain species prefer poorly drained soil containing much water, while others prefer to live in semi-arid soils. Some species flourish in sandy soils and become exceedingly abundant and destructive in such soils. In contrast, heavy gumbo soils attract and favor a different group of wireworms. Soils of

the open prairie or plains are the chosen habitats of certain kinds of wireworm larvae, while the soils of parks and forested areas are preferred by others. Acid, neutral or alkaline soils—each has its quota of species of wireworms. It becomes apparent, therefore, that wireworms may become a problem to a grower of crops in practically any section of the state.

Collecting Beetles

There is no one special method of collecting Elaterid beetles, but beating and sweeping green vegetation, plants and flowers with a stout insect net will yield many species. Specimens of the beetles may be found under various kinds of cover such as stones, logs, or boards lying on soil, and considerable numbers may be found under loose bark of trees. Many species are attracted to lights, and these can be taken through the use of light traps, or by collecting them from under street lamps or from lighted store windows. Through the use of a collecting umbrella and a club, many of the beetles can be taken from trees.

When collecting adult Elateridae, the collector should work over as many di-

versified types of environments as possible. Different plant associations will, in general, yield a collection of different species of click beetles. The same is true when the soils in an area differ in their principal ecological factors.

Collections should be made from representative areas of the state where the annual rainfall or seasonal rainfall is not the same. As a rule areas of higher elevation, such as the Black Hills, yield a collection of species of click-beetles different from those that can be taken at lower elevations. Certain species of click-beetles taken in the southeastern portion of South Dakota will not be found in the northwestern part of the state.

Collecting Larvae

The larvae of wireworms are best collected by sifting soil, by turning over logs, boards, rocks or other objects lying on the soil, by pulling off loose bark from trees or fallen logs and by breaking up rotting logs. Some wireworms may be found by examining moss-like growth, or by work-

ing through the underground parts of plants such as potatoes or other tubers, sprouting seed such as corn, wheat, etc., stems of plants in the soil or slightly above the soil, roots of plants such as grasses, etc.

Control Measures

Control of Elateridae is directed against the larval, pupal, and egg stages. By adopting the control measures that are practical and fitting, the grower should be able to reduce wireworm damage to a minimum.

Rotation of Crops: Wireworms have a tendency to increase in abundance on land that is used year after year for growing vegetable crops, corn and small grain, especially wheat and barley. Pastures, grass hay-lands, and fields of sweet clover usually accumulate large numbers of wireworms. On the other hand, clean alfalfa fields, receiving a minimum of water through rain or irrigation, usually do not contain an abundance of wireworms.

Alfalfa, soy beans and sweet clover suffer little damage from wireworm at-

tack, but since wireworms are likely to be abundant in fields of sweet clover, rotations of crops should be planned accordingly with these facts in mind.

Corn, potatoes, sugar beets and most vegetables are the crops generally attacked by wireworms whose life cycle extends over a period of two years or longer. However, wheat and barley are sometimes severely damaged by wireworms in South Dakota. In those areas of the State receiving the smaller amount of rainfall, much of the damage occurring to wheat and barley is done by a species of wireworm having a one-year life cycle.

If a field is suspected of harboring wireworms in injurious numbers, the grower should make a thorough examination of the field before deciding upon the crop that is to be grown. By sifting cubic foot samples of soil and counting the wireworms in each sample, he can form a fairly accurate opinion of the conditions existing in that field. Window screen, tacked to a frame, will make a satisfactory sifter. Should an average of six or more wireworms be found in each sample, it should be considered hazardous to grow a susceptible crop such as corn, potatoes, sugar beets, wheat, barley, flax or most vegetables on that land. Re-seeding during the same season with the same kind of seed, after one seeding has been destroyed, is not advisable.

Summer and early fall plowing: Plowing to a depth of 6 to 9 inches as soon as possible after a crop of small grain or early potatoes has been harvested will destroy many young wireworm larvae as well as pupae and young adults. After this, keeping down all grass and weed growth until late fall will aid materially in destroying additional larvae. It is believed that high heat, low humidity, and

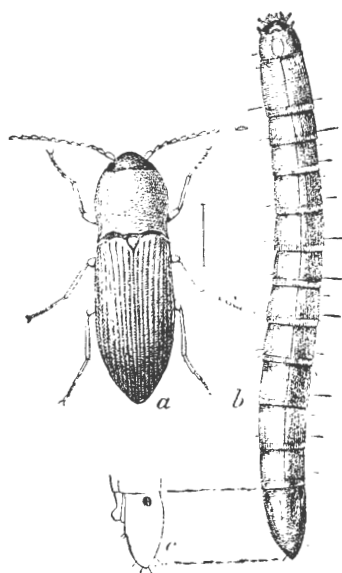


Fig. 7. A wheat wireworm, *Agriotes mancus* (Wade): a. Adult beetle; b. larva or wireworm; c. side view of last segment of larva. All enlarged. After Chittenden.

mechanical injury due to plowing are mainly responsible for the death of larvae, pupae and adults.

Flooding soil to kill wireworms: Flooding land for 5 to 7 days and maintaining the water depth so that it is not more than 2 to 3 inches deep anywhere, will kill the larval, pupal, and even the beetle stage of Elateridae. The soil, however, must be warm (70° F. or warmer) during the flooding period. The land should first be plowed, leveled, and diked into plots, thus making it possible to flood the entire field with a more or less even coating of water. When the soil is cold (60° F. or colder) the wireworms become inactive and a poor kill can be expected by flooding. Only level fields can be flooded and then only if plenty of water is available.

Drying soil to kill wireworms: A field that is low, usually wet and poorly drained and more or less regularly infested with wireworms, should be tilled or otherwise drained of excess moisture. The resulting reduction in moisture will tend to kill the wireworms in that field, for the species concerned are moisture demanding ones. Further, the adults or beetles will no longer be attracted to the field for egg-laying purposes.

On irrigated land, any practice which will dry out the upper 18 inches of the soil during the heat of the summer will help to solve the wireworm problem. Fallowing the land for a portion of the season does not dry out the soil so that the wireworms in that soil will be killed, but if the fallowing is clean and no grass or weeds are permitted to grow, some of the wireworms will be starved out. Growing a crop of small grain without irrigation, if possible, will remove much water and help to dry out the soil.

Chemical control of wireworms: Chemical control of wireworms has not been very popular, largely because of the

labor and expense involved. During the past 10 years carbon bisulphide or crude naphthalene have been used as soil fumigants against wireworms in certain sections of the United States, but the cost of such chemical treatments was practical only on land that produced a high income crop.

In the past year or two, considerable experimental work has been done with benzene hexachloride to rid the soil of wireworms. The percentage of kill of the wireworms with this chemical has been surprisingly satisfactory and fairly cheap, and it is not very difficult to apply the chemical. It was found, however, that some plants, such as tubers of potatoes, sometimes absorb sufficient quantities of the odor associated with benzene hexachloride as to give them a musty taste. As a consequence, these became unfit for human consumption and were unsalable.

During the past few years ethylene dibromide has been used successfully as a soil fumigant against wireworms on the Pacific Coast and elsewhere. The cost of treatment with this chemical runs in the neighborhood of \$20.00 per acre. Consequently soil treatment with ethylene dibromide is practical in South Dakota only under extremely limited conditions.

The recommended dose, according to Lane,² is 10 gallons per acre of a 20 per cent solution by volume of ethylene dibromide in a light solvent oil. Lane recommends that the chemical be applied to the soil with a commercial injection machine or by gravity flow from a tank attached to a plow or tractor. The chemical should be placed at least 8 inches deep in the soil or on the bottom of a plow furrow a week or two before the crop is planted. For best results the soil should not be saturated with moisture and the soil temperature should be above 40° F.

²M. C. Lane, Entomologist, U. S. Bureau of Entomology and Plant Quarantine.

DDT has been found to kill wireworms, but its use for this purpose is still in the research stage and therefore cannot be recommended at the present time.

The same is true of chlorinated camphene.

Trapping wireworms by means of baits: Baits of many kinds have been used in soil to attract wireworm larvae. To trap wireworms by means of bait, it is necessary first of all to prepare the bait (pieces of potatoes, bran mash, dough balls made of wheat flour etc.), bury it in the soil in numerous marked spots, leave it in the soil for several days to attract the wireworms and then dig up the bait, and

gather up and destroy the wireworms.

It is necessary to repeat these processes again and again, but even with the best of luck less than 50 per cent of the wireworms in a given field can be destroyed through this method. This control practice also involves altogether too much labor to make it practical on a farm scale.

Killing wireworms by means of poisoned bait: Numerous attempts have been made to control wireworms through the use of poisoned baits buried in the soil. However, the practice cannot be recommended for it is neither effective nor practical.

Acknowledgements

While J. A. Hyslop and R. H. Van Zwaluwenburg identified the earlier collected material upon which this publication is based, M. C. Lane has gone over practically all of the material to recheck and bring it up to date. M. C. Lane also kindly examined and checked the entire manuscript. He indicated errors and made valuable suggestions to improve the manuscript. The author, however, assumes responsibility for any errors that may have been made in the preparation and printing of this work.

Only a few persons have collected or donated material that was used in the preparation of this bulletin and to these the author is grateful. The names of the collectors and the initials by which they will be referred to in this publication are the following:

| | |
|---------------------------|--------|
| Fred Bingham..... | F.B. |
| Lynn K. Brunn..... | L.K.B. |
| George I. Gilbertson..... | G.I.G. |
| Harry C. Severin..... | H.C.S. |
| Gerald B. Spawn..... | G.B.S. |
| Carl Troutman..... | C.T. |

The species of Elateridae reported in this bulletin as having been taken in South Dakota, are listed in the order in which they occur in Leng's "Catalog of the Coleoptera of America." The number preceding the scientific names of each species is the number assigned to the species in Leng's "Catalog" or the "Supplements to the Catalog." In connection with each species listed there will be found the following data:

localities in alphabetical order where the species was taken;

dates when the adults were captured;
names of collectors.

Whenever specimens were taken through light traps, this is indicated by the initials L.T. in parenthesis, following the initials of the name of the collector.

Whenever specimens were taken from the crops of pheasants, this is indicated by the initials P.C. in parenthesis following the initial of the name of the collector.

Species of Elateridae Collected in South Dakota

- 8553 *Lacon auroratus* (Say)
Brookings,
August 1, 1945. H.C.S.(L.T.)
August 5, 1945. H.C.S.(L.T.)
August 11, 1945. H.C.S.(L.T.)
- 8558 *Lacon obtectus* (Say)
Newell, June 29, 1923. H.C.S.
Chamberlain, July 22, 1942. H.C.S.
Chester, July 9, 1941. G.B.S.
Ft. Thompson, June 17, 1946. H.C.S.(L.T.)
June 18, 1946. H.C.S.(L.T.)
July 1, 1946. H.C.S.(L.T.)
July 8, 1946. H.C.S.(L.T.)
July 10, 1946. H.C.S.(L.T.)
July 16, 1946. H.C.S.(L.T.)
July 17, 1946. H.C.S.(L.T.)
September 1, 1943. H.C.S.(L.T.)
- 8564 *Adelocera rectangularis* (Say)
Brule County, June 23, 1946. C.T.(P.C.)
Brule County, June 30, 1946. C.T.(P.C.)
Chamberlain, July 8, 1943. H.C.S.
Grass Rope, June 19, 1929. G.I.G.
Lyman County, July 10, 1946. H.C.S.
Martin, June 21, 1930. H.C.S.
Sanborn County, May 27, 1946. C.T.(P.C.)
- 8571 *Alaus oculatus* (L.)
Avon, August 1, 1924. H.C.S.
Elk Point, June 19, 1924. H.C.S.
Fox Ridge, June 28, 1947. H.C.S.
Grindstone, June 14, 1941. H.C.S.
Onida, July 5, 1923. H.C.S.
Oacoma, May 25, 1932. H.C.S.
Pierre, June 17, 1937. H.C.S.
Pierre, June 25, 1941. H.C.S.
Vermillion, June 20, 1936. H.C.S.
Wanblee, June 18, 1940. H.C.S.
Whitewood, September 9, 1923. H.C.S.
Whitewood, September 11, 1923. H.C.S.
- 8571a *Alaus oculatus oklahomensis*
Hatch
Chamberlain, May 18, 1939. H.C.S.
Colome, July 20, 1938. H.C.S.
Edmunds County, June 5, 1946. C.T. (P.C.)
Grindstone, June 11, 1924. H.C.S.
Kennebec, June 10, 1935. H.C.S.
McPherson co., April 1, 1946. C.T.(P.C.)
Mellette, July 8, 1939. L.K.B.
Milesville, August 16, 1937. H.C.S.
Pierre, June 30, 1937. H.C.S.
Pukwana, June 30, 1937. H.C.S.
Ree Heights, July 6, 1932. H.C.S.
Yankton, June 20, 1924. H.C.S.
- 8601 *Conoderus vesperinus* (Fab.)
Brookings, June 12, 1946. H.C.S.(L.T.)
June 18, 1946. H.C.S.(L.T.)
July 17, 1945. H.C.S.(L.T.)
July 20, 1945. H.C.S.(L.T.)
July 22, 1945. H.C.S.(L.T.)
July 23, 1945. H.C.S.(L.T.)
July 24, 1945. H.C.S.(L.T.)
July 25, 1945. H.C.S.(L.T.)
July 27, 1945. H.C.S.(L.T.)
July 30, 1945. H.C.S.(L.T.)
August 1, 1946. H.C.S.(L.T.)
August 6, 1945. H.C.S.(L.T.)
August 12, 1945. H.C.S.(L.T.)
August 20, 1946. H.C.S.(L.T.)
- 8607 *Conoderus auritus* (Hbst.)
Beadle County, June 1, 1946. C.T.(P.C.)
Belle Fourche, June 10, 1918. H.C.S.
Brookings, May 14, 1944. H.C.S.
June 10, 1918. H.C.S.
June 14, 1944. H.C.S.(L.T.)

- June 15, 1944. H.C.S.(L.T.)
 July 2, 1931. G.B.S.
 Chamberlain, May 26, 1942. H.C.S.
 June 5, 1947. H.C.S.
 Day County, May 25, 1946. C.T.S.(P.C.)
 Edmunds County, June 5, 1946. C.T.S.(P.C.)
 Elk Point, June 12, 1925. G.I.G.
 Flandreau, May 15, 1929. H.C.S.
 Grass Rope, June 19, 1929. G.I.G.
 Hutchinson County, June 3, 1946. C.T.(P.C.)
 Kingsbury County, June 22, 1946. C.T.(P.C.)
 Lake Oakwood, Brookings County, June 26,
 1932. H.C.S.
 Lennox, August 4, 1923. H.C.S.
 New Effington, April 21, 1939. H.C.S.
 Okoboji, June 15, 1934. H.C.S.
 Sisseton, June 25, 1934. H.C.S.
 Spearfish, June 28, 1947. H.C.S.
 Springfield, June 13, 1925. G.I.G.
 White Owl, June 18, 1929. H.C.S.
- 8613 *Drasterius amabilis* (Lec)
 Chamberlain, June 15, 1947. H.C.S.
 Kennebec, July 8, 1947. H.C.S.
 July 17, 1947. H.C.S.
 Presho, June 27, 1947. H.C.S.
- 8614 *Drasterius dorsalis* (Say)
 Beadle County, May 25, 1946. C.T.(P.C.)
 May 31, 1946. C.T.(P.C.)
 June 11, 1946. C.T.(P.C.)
 July 9, 1946. C.T.(P.C.)
 Brookings, June 21, 1943. H.C.S.(L.T.)
 June 23, 1943. H.C.S.(L.T.)
 July 23, 1943. H.C.S.(L.T.)
 July 27, 1943. H.C.S.(L.T.)
 July 28, 1943. H.C.S.(L.T.)
 August 1, 1943. H.C.S.(L.T.)
 August 4, 1943. H.C.S.(L.T.)
 Brule County, August 15, 1946. C.T.(P.C.)
 Capa, June 1, 1921. H.C.S.
 Carpenter, April 24, 1939. H.C.S.
 Cavour, March 22, 1945. H.C.S.
 Chamberlain, June 5, 1947. H.C.S.(L.T.)
 July 8, 1947. H.C.S.(L.T.)
 Chester, June 22, 1930. H.C.S.
 Dante, May 7, 1922. H.C.S.
 Elk Point, June 7, 1946. H.C.S.(L.T.)
 June 17, 1946. H.C.S.(L.T.)
 July 10, 1946. H.C.S.(L.T.)
 July 16, 1946. H.C.S.(L.T.)
 July 18, 1945. H.C.S.(L.T.)
 July 22, 1945. H.C.S.(L.T.)
 July 28, 1945. H.C.S.(L.T.)
 July 30, 1945. H.C.S.(L.T.)
 August 14, 1945. H.C.S.(L.T.)
 August 18, 1945. H.C.S.(L.T.)
 August 27, 1946. H.C.S.(L.T.)
- Ft. Thompson, Sept. 1, 1943. H.C.S.(L.T.)
 Gettysburg, July 19, 1944. H.C.S.
 Gregory, May 16, 1946. H.C.S.
 June 24, 1931. H.C.S.
 Hot Springs, June 27, 1932. H.C.S.
 Leola, June 14, 1941. H.C.S.
 Lincoln County, July 23, 1946. C.T.(P.C.)
 Lowry, September 5, 1930. H.C.S.
 Lyman County, May 12, 1946. C.T.(P.C.)
 Madison, June 16, 1943. H.C.S.
 Milbank, August 20, 1923. H.C.S.
 Newell, June 29, 1923. G.I.G.
 July 5, 1923. G.I.G.
 Sanborn County, May 18, 1946. C.T.(P.C.)
 St. Onge, June 26, 1941. H.C.S.
 Springfield, June 24, 1945. H.C.S.
 Tripp County, April 20, 1946. C.T.(P.C.)
 Vermillion, June 7, 1946. H.C.S.(L.T.)
 June 17, 1946. H.C.S.(L.T.)
 June 18, 1946. H.C.S.(L.T.)
 June 24, 1946. H.C.S.(L.T.)
 June 28, 1945. H.C.S.(L.T.)
 August 12, 1945. H.C.S.(L.T.)
 August 14, 1945. H.C.S.(L.T.)
 August 20, 1945. H.C.S.(L.T.)
 Volga, July 1, 1943. H.C.S.
 Winner, May 23, 1941. G.B.S.
- 8619 *Limonius auripilis* (Say)
 Brookings, June 23, 1939. H.C.S.
 Chester, June 29, 1929. G.B.S.
- 8625 *Limonius griseus* (Beauv.)
 Canton, June 26, 1946. H.C.S.
 Newton Hills, Canton, June 24, 1935. H.C.S.
 Yankton, June 20, 1924. H.C.S.
- 8629 *Limonius plebejus* (Say)
 Springfield, June 18, 1930. H.C.S.
- 8631 *Limonius aeger* (Lec.)
 Deadwood, July 10, 1923. G.I.G.
 Englewood, July 22, 1947. H.C.S.
 Pluma, July 26, 1947. H.C.S.
- 8633 *Limonius quercinus* (Say)
 Deadwood, July 10, 1923. H.C.S.
 Volga, -----
- 8650 *Limonius ectypus* (Say)
 Alcester, June 15, 1923. H.C.S.
 Canton, June 16, 1924. H.C.S.
- 21785 *Limonius ursinus* (Van Dyke)
 Beadle County, June 1, 1946. C.T.(P.C.)
 June 6, 1946. C.T.(P.C.)
 Brookings, May 8, 1910. H.C.S.

- May 20, 1919. H.C.S.
 May 27, 1947. H.C.S.(L.T.)
 Brown County, May 26, 1946. C.T.(P.C.)
 Chamberlain, June 5, 1947. H.C.S.
 June 17, 1947. H.C.S.
 Charles Mix co., April 28, 1946. C.T.(P.C.)
 May 28, 1946. C.T.(P.C.)
 Clark County, May 25, 1946. C.T.(P.C.)
 Gregory County, May 16, 1946. C.T.(P.C.)
 Hyde County, May 12, 1946. C.T.(P.C.)
 Kingsbury County, May 15, 1946. C.T.(P.C.)
 Lyman County, June 10, 1946. C.T.(P.C.)
 Tripp County, April 20, 1946. C.T.(P.C.)
 Volga, -----
 Walworth County, May 7, 1946. C.T.(P.C.)
- 8633 *Athous cucullatus* (Say)
 Chamberlain, May 28, 1943. H.C.S.
 Pierre, May 17, 1919. H.C.S.
 Reliance, May 8, 1941. G.B.S.
 Salem, May 27, 1919. H.C.S.
 Vermillion, July 8, 1946. H.C.S.(L.T.)
 August 16, 1946. H.C.S.(L.T.)
 Winner, May 8, 1941. H.C.S.(L.T.)
- 8704 *Ctenicera kendalli* (Kirby)
 Englewood, June 18, 1925. G.I.G.
- 8708 *Ctenicera sjællandica* (Mueller)
 Lake Oakwood, Brookings co., ----- H.C.S.
- 8733 *Ctenicera lobata pygmaea* (Van Dyke)
 Englewood, June 18, 1925. H.C.S.
- 8763 *Ctenicera propola* (Lec.)
 Canton, June 16, 1924. H.C.S.
 Englewood, June 18, 1925. H.C.S.
 July 26, 1947. H.C.S.
- *Ctenicera stricklandi* (Brown)
 Lead, September 10, 1934. H.C.S.
- 8766 *Ctenicera triundulata* (Randall)
 Englewood, June 18, 1925. H.C.S.
 Whitewood, June 26, 1923. H.C.S.
- 8777a *Ctenicera aeripennis destructor*
 (Brown)
 Brown County, May 26, 1946. C.T.(P.C.)
 Custer, June 20, 1934. H.C.S.
 Charles Mix co., May 18, 1946. C.T.(P.C.)
- 8780 *Ctenicera inflata* (Say)
 Canning, July 15, 1945. H.C.S.
 Canton, June 16, 1924. H.C.S.
- Cedar Canyon, June 27, H.C.S.
 Charles Mix co., May 18, 1946. C.T.(P.C.)
 Rapid City, June 25, 1923. H.C.S.
 St. Onge, June 26, 1941. H.C.S.
 Springfield -----
 Yankton, June 18, 1930. H.C.S.
- 8796 *Ctenicera hieroglyphica* (Say)
 Deadwood, July 10, 1923. H.C.S.
- 8814 *Hemicrepidius memnonius*
 (Hbst.)
 Brookings, June 11, 1946. H.C.S.(L.T.)
 June 15, 1918. H.C.S.
 June 22, 1921. H.C.S.
 June 26, 1946. H.C.S.(L.T.)
 June 28, 1944. H.C.S.(L.T.)
 June 30, 1919. H.C.S.
 July 1, 1920. H.C.S.
 July 1, 1921. H.C.S.
 July 2, 1944. H.C.S.(L.T.)
 July 5, 1921. H.C.S.
 July 6, 1920. H.C.S.
 July 6, 1921. H.C.S.
 July 6, 1942. H.C.S.(L.T.)
 July 6, 1944. H.C.S.(L.T.)
 July 7, 1921. H.C.S.
 July 7, 1944. H.C.S.(L.T.)
 July 7, 1925. H.C.S.
 July 7, 1946. H.C.S.(L.T.)
 July 8, 1919. H.C.S.
 July 8, 1930. H.C.S.
 July 8, 1944. H.C.S.(L.T.)
 July 8, 1946. H.C.S.(L.T.)
 July 9, 1921. H.C.S.
 July 10, 1919. H.C.S.
 July 10, 1943. H.C.S.(L.T.)
 July 11, 1946. H.C.S.(L.T.)
 July 12, 1944. H.C.S.(L.T.)
 July 12, 1946. H.C.S.(L.T.)
 July 13, 1920. H.C.S.
 July 14, 1920. H.C.S.
 July 15, 1922. H.C.S.
 July 15, 1943. H.C.S.(L.T.)
 July 16, 1944. H.C.S.(L.T.)
 July 17, 1943. H.C.S.(L.T.)
 July 17, 1946. H.C.S.(L.T.)
 July 18, 1946. H.C.S.(L.T.)
 July 19, 1919. H.C.S.
 July 20, 1944. H.C.S.(L.T.)
 July 21, 1921. H.C.S.
 July 22, 1945. H.C.S.(L.T.)
 July 23, 1943. H.C.S.(L.T.)
 July 23, 1946. H.C.S.
 July 24, 1943. H.C.S.(L.T.)
 July 25, 1943. H.C.S.(L.T.)
 July 26, 1943. H.C.S.(L.T.)
 July 27, 1943. H.C.S.(L.T.)

- August 1, 1943. H.C.S.(L.T.)
 August 1, 1944. H.C.S.(L.T.)
 August 3, 1945. H.C.S.(L.T.)
 August 5, 1944. H.C.S.(L.T.)
 August 6, 1918. H.C.S.(L.T.)
 August 10, 1943. H.C.S.(L.T.)
 Belle Fourche, June 25, 1941. H.C.S.
 Capa, August 18, 1919. H.C.S.
 Chester, July 9, 1941. G.B.S.
 July 22, 1929. G.B.S.
 Elk Point, July 8, 1946. H.C.S.(L.T.)
 July 10, 1946. H.C.S.(L.T.)
 July 18, 1945. H.C.S.(L.T.)
 July 22, 1945. H.C.S.(L.T.)
 August 8, 1945. H.C.S.(L.T.)
 Hecla, July 7, 1944. H.C.S.(L.T.)
 July 8, 1944. H.C.S.(L.T.)
 July 16, 1944. H.C.S.(L.T.)
 August 2, 1944. H.C.S.(L.T.)
 Highmore, June 27, 1946. H.C.S.(L.T.)
 July 1, 1944. H.C.S.(L.T.)
 July 16, 1944. H.C.S.(L.T.)
 July 20, 1945. H.C.S.(L.T.)
 August 8, 1945. H.C.S.(L.T.)
 Hill City, July 18, 1946. H.C.S.(L.T.)
 July 25, 1945. H.C.S.(L.T.)
 August 9, 1945. H.C.S.(L.T.)
 August 12, 1945. H.C.S.(L.T.)
 Hot Springs, June 27, 1932. H.C.S.
 Lake Oakwood, Brookings County
 Spearfish, June 28, 1947. H.C.S.
 July 8, 1944. H.C.S.(L.T.)
 July 16, 1944. H.C.S.(L.T.)
 August 1, 1944. H.C.S.(L.T.)
 Vermillion, June 14, 1946. H.C.S.(L.T.)
 June 16, 1946. H.C.S.(L.T.)
 June 22, 1946. H.C.S.(L.T.)
 July 4, 1946. H.C.S.(L.T.)
 July 13, 1946. H.C.S. (L.T.)
 July 24, 1945. H.C.S.(L.T.)
 July 28, 1946. H.C.S.(L.T.)
 Volga, July 21, 1918. H.C.S.
- 8821 *Hypolithus exiguus* (Rand)
 Lake Oakwood, Brookings County, June 14,
 1923. H.C.S.
- 8826 *Hypolithus abbreviatus* (Say)
 Brown's Valley, June 23, 1927. G.I.G.
 Doland, June 16, 1938. H.C.S.
 Edmunds County, June 5, 1946. C.T.(P.C.)
 Salem, June 12, 1929. G.I.G.
 Volga,
- 8828b *Hypolithus nocturnus bicolor*
 (Esch.)
 Volga,
- 8841 *Hypolithus tumescens* (Esch.)
 Springfield, June 21, 1924. G.I.G.
 Volga, June 22, 1929. P. H. Johnson
- 8843 *Hypolithus dubius* (Horn)
 Fort Thompson, June 27, 1946. H.C.S.
 Freeman, June 27, 1946. H.C.S.
- 8849 *Hypolithus pectoralis* (Say)
 Arlington, June 19, 1939. H.C.S.
 Centerville, April 25, 1940. H.C.S.
 Chamberlain, June 19, 1940. H.C.S.
 Kadoka, June 20, 1940. H.C.S.
 Presho, June 28, 1947. H.C.S.
 Winner, June 10, 1932. H.C.S.
- 8856 *Melanactes puncticollis* (Lec.)
 Springfield, June 16, 1926. G.I.G.
 June 18, 1930. H.C.S.
 June 24, 1938. H.C.S.
- 8860 *Oestodes puncticollis* (Horn)
 Dakota according to Lengs Catalog.
- 8875 *Oxygonus obesus* (Say)
 Canton, June
 Newton Hills, Canton, June 12, 1936. H.C.S.
 Newton Hills, Canton, June 24, 1935. H.C.S.
 Ft. Thompson, June 21, 1944. H.C.S.
 Springfield, June 16, 1926. G.I.G.
 June 21, 1924. H.C.S.
 Yankton, June 15, 1928. H.C.S.
 Warren's Woods, White, July 22, 1935,
 H.C.S.
 Whitewood, July 18, 1925. H.C.S.
- *Dolopius pallidus* (Brown)
 Britton, June 1, 1942. H.C.S.
 Brown's Valley, June 23, 1927. H.C.S.
 Chester, June 22, 1930. G.B.S.
 Spearfish, June 28, 1947. H.C.S.
 Volga,
 Waubay, June 22, 1936. H.C.S.
- *Dalopius mirabilis* (Brown)
 Campbell County, April 1, 1946. C.T.(P.C.)
 Deadwood, June 23, 1937. H.C.S.
 Hanna, June 17, 1936. H.C.S.
 Lead, July 23, 1947. H.C.S.
- 8885 *Agriotes mancus* (Say)
 Brookings, June 4, 1928. H.C.S.
 White, July 12, 1923. H.C.S.
 July 26, 1922. H.C.S.

- 8886 *Agriotes stabilis* (Lec.)
 Deadwood, July 13, 1923. H.C.S.
 Englewood, July 26, 1922. H.C.S.
 State Game Lodge, June 24, 1937. H.C.S.
 Whitewood, July 8, 1923. H.C.S.
- 8888 *Agriotes fucosus* (Lec.)
 Deadwood, June 26, 1937. H.C.S.
 Martin, June 27, 1937. H.C.S.
- 8893 *Agriotes pubescens* (Melsh.)
 Brookings, May 28, 1922. H.C.S.
 Dupree, June 25, 1947. H.C.S.
 Elk Point, June 24, 1946. H.C.S.(L.T.)
 Ft. Thompson, June 21, 1944. H.C.S.
 Sioux Falls, June 13, 1929. H.C.S.
- 8894 *Agriotes limosus* (Lec.)
 Deadwood, July 10, 1923. H.C.S.
 July 13, 1923. H.C.S.
 Englewood, July 18, 1925. H.C.S.
 July 26, 1947. H.C.S.
 Whitewood, June 26, 1923. H.C.S.
- 8906 *Glyphonyx recticollis* (Say)
 Canton, June 12, 1926. H.C.S.
 Chamberlain, July 24, 1940. H.C.S.
 Elk Point, June 7, 1946. H.C.S.(L.T.)
 June 18, 1946. H.C.S.(L.T.)
 June 26, 1946. H.C.S.(L.T.)
 July 8, 1946. H.C.S.(L.T.)
 July 10, 1946. H.C.S.(L.T.)
 July 16, 1946. H.C.S.(L.T.)
 July 22, 1945. H.C.S.(L.T.)
 July 23, 1946. H.C.S.(L.T.)
 July 28, 1945. H.C.S.(L.T.)
 July 30, 1945. H.C.S.(L.T.)
 August 1, 1946. H.C.S.(L.T.)
 August 6, 1946. H.C.S.(L.T.)
 August 8, 1945. H.C.S.(L.T.)
 September 13, 1945. H.C.S.(L.T.)
 Ft. Thompson, June 28, 1946. H.C.S.
 Kennebec, July 7, 1947. H.C.S.(L.T.)
 Kingsbury County, July 2, 1947. C.T.(P.C.)
 Vermillion, June 7, 1946. H.C.S.(L.T.)
 June 14, 1946. H.C.S.(L.T.)
 Yankton, June 18, 1930. H.C.S.
- 8935 *Ampedes linteus* (Say)
 Yankton, June 20, 1926. G.I.G.
- 8955 *Ampedes obliquus* (Say)
 Vermillion, July 1, 1946. H.C.S.(L.T.)
 July 11, 1946. H.C.S.(L.T.)
 July 22, 1945. H.C.S.(L.T.)
- 8955a *Ampedus areolatus* (Say)
 Elk Point, July 22, 1945. H.C.S.(L.T.)
- 8959 *Ampedus manipularis* (Cand.)
 State Game Lodge, June 24, 1937. H.C.S.
- 8960 *Ampedus pedalis* (Germ)
 Springfield, August 27, 1926. H.C.S.
- 8972 *Magapenthes insignis* (Lec.)
 Vermillion, August 1, 1946. H.C.S.(L.T.)
- 8988 *Megapenthes stigmosis* (Lec.)
 Englewood, July 20, 1928. H.C.S.
 Lead, July 23, 1947. H.C.S.
 Pluma, July 26, 1947. H.C.S.
- 9015 *Melanotus castanipes* (Payk.)
 Hill City, June 8, 1946. H.C.S.
- 9019 *Melanotus decumanus* (Er.) =
canadensis (Cond.), acc. to
 Dietrich
 Brookings, June 10, 1921. H.C.S.
 June 15, 1923. H.C.S.
 June 30, 1919. H.C.S.
 July 4, 1945. H.C.S.(L.T.)
 July 5, 1937. H.C.S.
 July 8, 1945. H.C.S.(L.T.)
 July 10, 1945. H.C.S.(L.T.)
 July 12, 1945. H.C.S.(L.T.)
 July 17, 1945. H.C.S.(L.T.)
 July 18, 1945. H.C.S.(L.T.)
 July 20, 1945. H.C.S.(L.T.)
 July 21, 1945. H.C.S.(L.T.)
 July 22, 1945. H.C.S.(L.T.)
 July 25, 1945. H.C.S.(L.T.)
 July 28, 1945. H.C.S.(L.T.)
 July 29, 1945. H.C.S.(L.T.)
 July 30, 1945. H.C.S.(L.T.)
 Chester, June 18, 1929. G.B.S.
 July 9, 1929. G.B.S.
 Elk Point, June 18, 1946. H.C.S.(L.T.)
 June 24, 1946. H.C.S.(L.T.)
 July 18, 1945. H.C.S.(L.T.)
 July 22, 1945. H.C.S.(L.T.)
 July 30, 1945. H.C.S.(L.T.)
 Gayville, June 30, 1942. H.C.S.
 Harrisburg, June 23, 1926. H.C.S.
 Hecla, June 26, 1944. H.C.S.(L.T.)
 Hill City, June 22, 1946. H.C.S.(L.T.)
 McNeely, June 17, 1926. H.C.S.
 Meckling, June 17, 1926. H.C.S.
 Springfield, June 21, 1924. H.C.S.
 Vermillion, June 14, 1946. H.C.S.(L.T.)

June 15, 1946. H.C.S.(L.T.)
 June 24, 1946. H.C.S.(L.T.)
 June 25, 1946. H.C.S.(L.T.)
 July 1, 1946. H.C.S.(L.T.)
 July 8, 1946. H.C.S.(L.T.)
 July 10, 1946. H.C.S.(L.T.)
 July 21, 1945. H.C.S.(L.T.)
 July 22, 1945. H.C.S.(L.T.)

9025 *Melanotus ignobilis* (Melsh.)

Brookings, July 17, 1946. H.C.S.(L.T.)
 July 22, 1945. H.C.S.(L.T.)
 July 23, 1945. H.C.S.(L.T.)
 July 27, 1945. H.C.S.(L.T.)
 July 28, 1945. H.C.S.(L.T.)
 August 1, 1943. H.C.S.(L.T.)
 August 2, 1943. H.C.S.(L.T.)
 August 10, 1943. H.C.S.(L.T.)
 August 16, 1946. H.C.S.(L.T.)
 Elk Point, July 28, 1945. H.C.S.(L.T.)
 Ft. Thompson, Sept. 1, 1943. H.C.S.(L.T.)
 Vermillion, July 6, 1946. H.C.S.(L.T.)
 July 24, 1945. H.C.S.(L.T.)
 Yankton, August 30, 1923. H.C.S.

9034 *Melanotus divarcarinus*
(Blatchley)

Brookings, July 25, 1945. H.C.S.(L.T.)
 Buffalo Gap, August 9, 1932. H.C.S.
 Elk Point, July 12, 1925. H.C.S.
 July 13, 1936. H.C.S.(L.T.)
 July 22, 1945. H.C.S.(L.T.)
 July 28, 1945. H.C.S.(L.T.)
 Ft. Thompson, June 21, 1944. H.C.S.(L.T.)
 Vermillion, June 6, 1946. H.C.S.(L.T.)
 June 11, 1946. H.C.S.(L.T.)
 June 12, 1946. H.C.S.(L.T.)
 June 16, 1946. H.C.S.(L.T.)
 June 24, 1946. H.C.S.(L.T.)
 June 27, 1946. H.C.S.(L.T.)
 July 30, 1945. H.C.S.(L.T.)
 Yankton, August 18, 1927. H.C.S.

9035 *Melanotus communis* (Gyll.)
Var. "A" of Dietrich

Brookings, June 2, 1923. H.C.S.
 July 20, 1942. H.C.S.(L.T.)
 August 10, 1943. H.C.S.(L.T.)
 Colton, June 17, 1930. G.I.G.
 Forestburg, June 23, 1944. H.C.S.
 Salem, June 12, 1929. H.C.S.
 Springfield, June 1, 1924. H.C.S.
 June 16, 1926. H.C.S.
 June 19, 1924. H.C.S.
 June 21, 1924. H.C.S.
 June 24, 1938. H.C.S.
 Vermillion, July 30, 1945. H.C.S.(L.T.)

Wewela, June 19, 1930. G.I.G.

9035 *Melanotus communis* (Gyll.)
Var. "B" of Dietrich

Brookings, June 12, 1921. H.C.S.
 June 15, 1928. H.C.S.
 June 23, 1921. H.C.S.
 June 29, 1928. H.C.S.
 July 3, 1931. H.C.S.
 July 10, 1943. H.C.S.
 Highmore, July 15, 1945. H.C.S.(L.T.)
 Martin, June 16, 1945. H.C.S.
 Springfield, June 15, 1928. G.I.G.
 June 16, 1926. G.I.G.
 June 18, 1928. G.I.G.
 June 18, 1930. G.I.G.

9036 *Melanotus fissilis* (Say)

Aberdeen, July 7, 1944. H.C.S.
 Armour, June 27, 1940. H.C.S.
 Belle Fourche, July 6, 1941. H.C.S.
 Brookings, April 29, 1931. G.B.S.
 June 1, 1921. H.C.S.
 June 5, 1946. H.C.S.(L.T.)
 June 7, 1928. H.C.S.
 June 7, 1946. H.C.S.
 June 11, 1918. H.C.S.(L.T.)
 June 11, 1921. H.C.S.
 June 12, 1921. H.C.S.
 June 12, 1923. H.C.S.
 June 14, 1921. H.C.S.
 June 16, 1946. H.C.S.(L.T.)
 June 18, 1944. H.C.S.(L.T.)
 June 20, 1946. H.C.S.(L.T.)
 June 22, 1921. H.C.S.(L.T.)
 June 24, 1921. H.C.S.(L.T.)
 June 24, 1946. H.C.S.(L.T.)
 June 25, 1919. H.C.S.
 June 25, 1946. H.C.S.(L.T.)
 June 27, 1945. H.C.S.(L.T.)
 June 28, 1945. H.C.S.(L.T.)
 June 29, 1945. H.C.S.(L.T.)
 June 30, 1919. H.C.S.(L.T.)
 June 30, 1945. H.C.S.
 July 2, 1921. H.C.S.
 July 2, 1945. H.C.S.(L.T.)
 July 4, 1945. H.C.S.(L.T.)
 July 5, 1945. H.C.S.(L.T.)
 July 6, 1945. H.C.S.(L.T.)
 July 7, 1946. H.C.S.(L.T.)
 July 8, 1919. H.C.S.(L.T.)
 July 8, 1945. H.C.S.(L.T.)
 July 8, 1946. H.C.S.(L.T.)
 July 10, 1943. H.C.S.(L.T.)
 July 13, 1943. H.C.S.(L.T.)
 July 15, 1945. H.C.S.(L.T.)
 July 15, 1946. H.C.S.(L.T.)
 July 16, 1924. H.C.S.

- July 17, 1945. H.C.S.(L.T.)
 July 18, 1945. H.C.S.(L.T.)
 July 18, 1946. H.C.S.(L.T.)
 July 22, 1945. H.C.S.(L.T.)
 July 23, 1945. H.C.S.(L.T.)
 July 23, 1946. H.C.S.(L.T.)
 July 24, 1945. H.C.S.(L.T.)
 July 25, 1945. H.C.S.(L.T.)
 July 27, 1943. H.C.S.(L.T.)
 July 28, 1945. H.C.S.(L.T.)
 August 1, 1945. H.C.S.(L.T.)
 August 1, 1946. H.C.S.(L.T.)
 August 2, 1943. H.C.S.(L.T.)
 August 10, 1943. H.C.S.(L.T.)
 August 30, 1943. H.C.S.(L.T.)
 Chester, June 19, 1929. G.B.S.
 Deadwood,
 Dell Rapids, August 3, 1918. H.C.S.
 Elk Point, June 18, 1946. H.C.S.(L.T.)
 July 8, 1946. H.C.S.(L.T.)
 July 18, 1945. H.C.S.(L.T.)
 July 22, 1945. H.C.S.(L.T.)
 July 28, 1945. H.C.S.(L.T.)
 August 1, 1946. H.C.S.(L.T.)
 Hamlin County, June 3, 1946. H.C.S.(P.C.)
 Hecla, May 26, 1944. H.C.S.(L.T.)
 May 28, 1944. H.C.S.(L.T.)
 June 2, 1944. H.C.S.(L.T.)
 June 17, 1943. H.C.S.(L.T.)
 June 18, 1944. H.C.S.(L.T.)
 June 21, 1944. H.C.S.(L.T.)
 June 26, 1944. H.C.S.(L.T.)
 July 4, 1944. H.C.S.(L.T.)
 July 7, 1944. H.C.S.(L.T.)
 July 16, 1944. H.C.S.(L.T.)
 August 2, 1944. H.C.S.(L.T.)
 Highmore, July 20, 1945. H.C.S.(L.T.)
 Hot Springs, June 21, 1932. H.C.S.
 Martin, June 8, 1926. H.C.S.
 Lake Oakwood, Brookings County,
 Pierre,
 Sisseton, September 23, 1945. H.C.S.
 Springfield, June 21, 1924. H.C.S.
 Vermillion, June 8, 1946. H.C.S.(L.T.)
 June 16, 1946. H.C.S.(L.T.)
 June 18, 1946. H.C.S.(L.T.)
 June 28, 1946. H.C.S.(L.T.)
 July 1, 1946. H.C.S.(L.T.)
 July 10, 1946. H.C.S.(L.T.)
 July 15, 1946. H.C.S.(L.T.)
 July 21, 1945. H.C.S.(L.T.)
 July 24, 1945. H.C.S.(L.T.)
 July 25, 1945. H.C.S.(L.T.)
 August 1, 1946. H.C.S.(L.T.)
 Yankton, August 18, 1927. G.I.G.
- 9044 *Melanotus infaustus* (Lec.)
 Brookings, July 4, 1943. H.C.S.(L.T.)
 July 17, 1945. H.C.S.(L.T.)
 Chester, June 19, 1929. G.B.S.
 Oelrichs, August 7, 1932. H.C.S.
 Tyndall, June 25, 1935. H.C.S.
 Vermillion, July 20, 1945. H.C.S.(L.T.)
- 9045 *Melanotus cribulosus* (Lec.)
 Highmore, July 1, 1944. H.C.S.(L.T.)
 Tyndall, June 25, 1935. H.C.S.
- 9048 *Melanotus pertinax* (Say)
 Volga,
- 9051 *Melanotus americanus* (Hbst.)
 Springfield, June 21, 1924. H.C.S.
- Melanotus* N. Sp. acc. to Lane
- Aberdeen, July 20, 1945. H.C.S.
 Beadle County, June 21, 1946. C.T.(P.C.)
 June 11, 1946. C.T.(P.C.)
 June 15, 1946. C.T.(P.C.)
 Brookings, June 20, 1944. H.C.S.(L.T.)
 June 22, 1943. H.C.S.(L.T.)
 July 8, 1945. H.C.S.(L.T.)
 July 22, 1945. H.C.S.(L.T.)
 Chamberlain, June 21, 1944. H.C.S.(L.T.)
 July 14, 1945. H.C.S.(L.T.)
 Ethan, June 15, 1928. H.C.S.
 Turner County, July 7, 1946. C.T.(P.C.)
 Vermillion, June 11, 1921. H.C.S.
- Melanotus* N. Sp. acc. to Lane
- Elk Point, July 18, 1945. H.C.S.(L.T.)
 Yankton, June 18, 1930. G.I.G.
- 9070 *Cardiophorus fenestratus* Lec.
 State Game Lodge, June 24, 1937. H.C.S.
- 9082 *Cardiophorus convexus* (Say)
 Chamberlain, May 26, 1947. H.C.S.
 Elk Point, July 18, 1945. H.C.S.(L.T.)
 July 22, 1945. H.C.S.(L.T.)
 Ft. Thompson, July 14, 1944. H.C.S.(L.T.)
 Hill City, June 10, 1946. H.C.S.(L.T.)
 June 12, 1946. H.C.S.(L.T.)
 June 24, 1946. H.C.S.(L.T.)
 July 8, 1946. H.C.S.(L.T.)
 August 6, 1946. H.C.S.(L.T.)
 Hot Springs, June 27, 1932. H.C.S.
 Vermillion, June 11, 1921. H.C.S.
- 9117 *Horistonotus uhleri* (Horn)
 Elk Point, July 22, 1945. H.C.S.(L.T.)
 July 30, 1945. H.C.S.(L.T.)
 Vermillion, July 30, 1945. H.C.S.(L.T.)

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