

An Annotated Generic Check-list of Aquatic and
Semi-aquatic Insects of Utah

by

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Students of biology who deal with aquatic insects are seldom experts, but they must make insect identifications for their studies. Most of the available keys are designed for use throughout North America and the student usually works without much guidance as to what genera to expect in an area of study. A comprehensive knowledge of the relative abundance, habitat, and distribution of the aquatic insects in Utah would be of immense value to students. Unfortunately, the present state of our knowledge is far from comprehensive; in many cases we do not know what species are present in the state. Yet it seems desirable to start toward such a goal by means of this checklist. Most students will find it useful. But because it is incomplete, there is the danger that students will be led to regard their own generic determinations as inaccurate if they do not conform with the list. This error must be avoided. If a specimen is keyed to a genus not known to occur in Utah, it should be checked carefully in the literature or by a specialist. I would appreciate having all such new records and would also like to have all omissions and other errors called to my attention. My survey of the literature has been far from complete. The list has been compiled from many published sources, from unpublished data, unpublished theses, and from personal reports by colleagues, students, and friends. We are grateful for this aid in the compilation. Unpublished student theses which have been used are cited with the respective orders or families to which they pertain.

For each genus the ultimate aim is a listing of the species known to occur in Utah, their relative abundance as indicated by collections, the type of habitat in which they are commonly found, and the general area of the state in which they are known to occur. It is probable that most species are abundant in certain habitats so the relative abundance figures must be regarded as quite general. In some cases we mention specific sites known to be good for collecting a given taxon, with a bias toward those near universities and colleges. Where seasonality is given, it refers to larvae or aquatic adults, unless stated otherwise.

This checklist has been compiled as an aid to students whose interests are primarily the identification of those stages of insects that are found in marshes, ponds, lakes, streams or rivers.

COLLEMBOLA

The genera and species listed for the Collembola is likely to be quite inadequate, although in Utah we have encountered only those Collembola listed.

PODURIDAE

Podura aquatica Linnaeus. Common; found on surface of a wide variety of streams and ponds; widespread. In autumn frequently conspicuously abundant in fresh water marshes near Great Salt and Utah Lakes.

HYPOGASTRURIDAE

Xenylla sp. On pond margins, Uintah Basin.

ISOTOMIDAE

Isotomurus sp. On surfaces of freshwater marshes near Great Salt Lake. The family Isotomidae is also reported from the Huntington Creek drainage by Winget (1972).

EPHEMEROPTERA

The Ephemeroptera list is probably relatively complete except for the fact that there are some undescribed species, e.g., in Ameletus. Nevertheless, details of distribution are uncertain, as is total seasonality.

SIPHONURIDAE

Siphonurus occidentalis (Eaton). Abundant, montane, a spring brood in some Salt Lake and Utah Valley streams, in ponds or heavily vegetated stream margins, widespread. Common along Wasatch Front. Mid-May through October.

Parameletus columbiae McDunnough. Locally abundant in ponds with emergent Carex plants, northern Utah, above 7,000 feet, in first three weeks after spring snow melts. Christmas Meadows on Stillwater Fork of Bear River and formerly at margins of Silver Lake, Brighton.

Ameletus (4 or more species). Common in montane streams, especially small ones, widespread throughout the state. Known Utah species are A. velox Dodds, A. validus McDunnough, A. similior McDunnough and A. oregonensis McDunnough. Other undescribed species also are known. All times of year.

Analetris eximia Edmunds. Rare. Known from Green River at Hideout Canyon, now inundated in Flaming Gorge Reservoir. May be still present in Utah.

BAETIDAE

Callibaetis (5 species). Abundant in ponds throughout Utah. We follow the synonymies proposed in an unpublished Ph.D. thesis by G. Check, Univ. Minnesota, except we regard C. coloradensis as a valid species, not a synonym of C. ferrugineus. C. ferrugineus (Walsh), widespread and abundant in valleys (formerly identified under the synonym C.

nigritus Banks), C. coloradensis Banks, abundant, widespread in lakes and reservoirs in mountains, C. pictus (Eaton), common in southern Utah, but also in Salt Lake County (formerly identified as C. pacificus Seeman or C. doddsi Traver, synonyms), C. fluctuans (Walsh), widespread in Utah, common (formerly misidentified as the more southern species, C. montanus Eaton). C. californicus Banks, Washington County. All times of year.

Baetis (6 or more species). Abundant in running waters, widespread. Known Utah species are B. hageni Eaton, B. quilleri Dodds, B. tricaudatus Dodds, B. bicaudatus Dodds, B. dardanus McDunnough, B. insignificans McDunnough, and several undescribed species. All times of year.

Pseudocloeon turbidum McDunnough. Uncommon, Logan, Duchesne, Green, Sevier and Santa Clara Rivers, probably elsewhere in larger or warmer rivers.

Dactylobaetis cepheus Traver and Edmunds. Uncommon in medium or large rivers, e.g., Green, White and Virgin. May to July.

(Paracloeodes may occur in Utah. In Green River at Green River (city), Wyoming.)

Centroptilum (3 or more species). Locally common, generally uncommon in montane streams, rarely in mountain ponds, widespread. Known Utah species are C. oreophilum Edmunds, C. selanderorum Edmunds and C. conturbatum McDunnough. Records from May to August.

OLIGONEURIIDAE

Isonychia campestris McDunnough. Common locally in larger rivers, i.e., Green River in Wyoming, Utah and Colorado, also reported from lower Logan River. Spring through September.

Lachlania powelli Edmunds. (Name will probably fall as a junior synonym of saskatchewanensis Ide). Common locally, known only from Green and Colorado Rivers. July through September.

Homoeoneuria alleni Pescador and Peters. Rare, known only from Colorado River (Westwater Canyon) and Escalante River, sand inhabitant. June to August.

HEPTAGENIIDAE

Heptagenia (2 species). Abundant in medium to large rivers, widespread throughout Utah. Species are H. elegantula Eaton and H. solitaria McDunnough. All seasons.

Leucrocuta petersi Allen. Known from the Whiterocks, Uintah and Duchesne Rivers in the Uintah Basin (formerly Heptagenia petersi).

Nixe (2 species). Abundant. N. criddlei (McDunnough) is abundant from high mountains to low elevations and N. simplicioides (McDunnough) is common in scattered warmer streams. From June through October (Formerly in Heptagenia).

Stenonema terminatum (Walsh). Uncommon, known only from Jordan River and associated canals. May occur in lower Ogden, Bear, Logan Rivers, etc. Larvae (nymphs) May to September.

Cinygmula (5 species). Abundant in montane streams and rocky bottom streams, widespread throughout Utah. Known species in Utah are C. mimus Eaton, C. par McDunnough, C. ramaleyi Dodds, C. kootenai McDunnough and C. tarda McDunnough. All seasons.

Rhithrogena (5 species). Abundant in montane streams and rocky bottoms of larger rivers, widespread throughout Utah. Known Utah species in order of occurrence from headwaters down are R. robusta Dodds (cold streams), R. morrisoni (Banks) and R. hageni Eaton of middle sized trout streams, and R. undulata (Banks) in warm waters (marginal to brown trout or with warm water fish). All seasons.

Epeorus (subgenus Iron) (3 species). Abundant in montane streams, widespread throughout Utah. Known Utah species are E. longimanus (Eaton), E. albertae (McDunnough) and E. deceptivus (McDunnough). Larvae (nymphs) are keyed by Edmunds and Allen (1964). All seasons.

Anepeorus rusticus McDunnough. Rare, one record from Green River at Split Mountain, Dinosaur National Monument. Emergence in July.

Pseudiron centralis McDunnough. Rare, from Green River. June to September, emergence in August. Landa and Soldán (1985) have transferred this genus to a monotypic subfamily of the family Siphonuridae.

AMETROPODIDAE

Ametropus albrighti Traver. Rare except in some hard smooth, fine sand bottoms of Green River. September to June, emerges in May and June.

LEPTOPHLEBIIDAE

Paraleptophlebia (4 species). Common in montane streams, widespread throughout Utah. Known Utah species are P. heteronea McDunnough, P. memorialis Eaton (= pallipes Hagen), P. debilis Walker and P. packi Needham. All seasons, emerge June through October.

Leptophlebia gravastella McDunnough. Locally common, Green River, Uintah River, lower Strawberry River, others of Uintah Basin. Occurs only in spring season, May and June emergence.

Choroterpes albiannulata McDunnough. Locally common in warmer Colorado River drainage streams, August and September.

Traverella albertana McDunnough. Abundant in White, Green and Colorado Rivers and warmer tributaries. July through October.

Thraulodes gonzalesi Traver and Edmunds. One specimen only from Green River at Dinosaur Nat'l Monument. July.

EPHEMERELLIDAE

All species are keyed by Allen and Edmunds in a series of monographs (1959-1965). See unpublished Utah key by Edmunds.

Ephemerella (2 species). Abundant, E. infrequens McDunnough occurs at higher altitudes and colder streams, and the very abundant E. inermis Eaton occurs from 8,000 feet down to large silted rivers. All seasons.

Serratella (1 species). Serratella tibialis (McDunnough) is a common species at middle altitudes in most of Utah. June to September.

Drunella (3 species). D. coloradensis (Dodds) is abundant in small or middle sized streams, D. doddsi (Needham) is common in cool streams, and D. grandis (Eaton) is sometimes very abundant in middle sized or large trout streams throughout Utah. All seasons.

Attenella margarita (Needham) is uncommon in a few middle sized rivers, often with Timpanoga. From 5500 to 7500 feet elevations. July to September.

Timpanoga hecuba (Eaton). Found in middle sized rivers such as the middle Duchesne, Provo, and Weber Rivers. Emerges August-September, larvae all summer.

TRICORYTHIDAE (Leptohiphidae, according to Landa and Soldán, 1985)

Tricorythodes (2 species). T. minutus Traver is abundant in warmer streams throughout Utah. T. edmundsi Allen occurs in the Green River. All seasons.

Leptohiphes apache Allen. Uncommon. Virgin River in Zion National Park.

CAENIDAE

Caenis simulans McDunnough. Locally abundant in ponds, marshes and lakes up to 7,600 feet, widespread (i.e., duck marshes to Strawberry Reservoir). June to September.

Brachycercus sp. (probably prudens McDunnough). Rare, in Green River. June.

EPHEMERIDAE

Ephemera simulans Walker. One known locality, common at Uintah River at Fort Duchesne. All seasons, adults in July.

Hexagenia limbata Serville. Uncommon in rivers and canals in northern Utah, but common in Bear River near Randolph and Uintah River at Fort Duchesne. All seasons, with adults from June to October.

POLYMITARCYIDAE

Ephoron album (Say). Locally abundant in warmer rivers and canals in northern Utah. May to September; emerges August-September.

ODONATA

The Odonata are fairly well known for Utah, but the dragonflies (Anisoptera) are more studied than the damselflies (Zygoptera).

ANISOPTERA

CORDULEGASTRIDAE

Cordulegaster (2 species). C. diadema Selys is rare, backwaters of intermittent torrential streams in Washington Co. C. dorsalis Hagen, uncommon, backwaters of streams, Red Butte and City Creek Canyons in Salt Lake County, and from Sevier and Washington counties.

GOMPHIDAE

Erpetogomphus compositus Hagen. Common, sandy beds of streams, Box Elder, Tooele, Salt Lake and Washington counties.

Gomphus (3 species). G. externus Hagen, uncommon, silt and sand bottoms of rivers and canals, Box Elder, Salt Lake, Utah and Juab counties. G. intricatus Hagen, rare, silt and sand bottoms of rivers and canals, Daggett, Garfield and San Juan counties. G. olivaceus Selys, uncommon, same general habitat as G. externus, Salt Lake and Sevier counties.

Ophiogomphus (3 species). O. severus Hagen, abundant, gravelly beds of mountain lakes, streams and rivers, widespread in Utah. O. bison Selys, rare, Washington County (?). O. occidentis Hagen, rare, silt, Sevier River.

Progomphus borealis MacLachlan. Uncommon, burrowing in sandy beds of streams, San Juan and Washington counties.

AESHNIDAE

Oplonaeschna armata Hagen. Rare, small streams, Washington County.

Anax (2 species). A. junius Drury, common, active climbers in vegetation in ponds, widespread in Utah. A. walsinghami MacLachlan, common, warm spring ponds and streams, Tooele, Grand and Washington counties.

Aeshna (8 species). A. sitchensis Hagen, rare, climber on vegetation in ponds, Summit, Duchesne and Wasatch counties. A. eremita Scudder, common, climber on vegetation in ponds, Summit, Duchesne, Cache, and Wasatch counties. A. umbrosa Walker, common, ponds, intermittent torrential streams, rivers, lakes and springs, widespread in Utah. A. constricta Say, only adults known in Utah, rare. A. californica Calvert, uncommon, ponds and springs, Tooele, Salt Lake, Utah and Grand counties. A. multicolor Hagen, common, climbers on vegetation in ponds, widespread in Utah. A. interrupta Walker, common, climbers on vegetation in ponds and springs, widespread in Utah. A. palmata Hagen, common, ponds and streams, widespread in Utah.

CORDULIIDAE

Somatochlora semicircularis Selys. Common, ponds in Uinta Mountains.

Cordulia shurtleffi Scudder. Common, ponds and lakes, Summit, Wasatch and Duchesne counties.

LIBELLULIDAE

Brechmorhoga mendax Hagen. Rare, Santa Clara River at Veyo, Washington County.

Pantala (2 species). P. hymenea Kennedy, uncommon, streams, southern Utah. P. flavescens Smith and Pritchard, uncommon, streams, southern Utah.

Paltothemis lineatipes Karsch. Rare, streams, Garfield County.

Plathemis subornata Hagen. Common, muddy springs, drainage ditches and ponds, central to southern Utah.

Libellula (5 species). Common, ponds and slow streams. L. composita Hagen, common, ponds and small streams, Tooele and Millard counties. L. saturata Uhler, abundant, ponds and slow-moving streams, widespread in Utah. L. quadrimaculata Linnaeus, common, ponds, springs and streams, widespread in Utah. L. forensis Hagen, uncommon, ponds, widespread in Utah. L. pulchella Drury, common, variety of ponds, swamps, side pools of streams and canals, widespread in Utah.

Leucorrhinia (4 species). Common, ponds, lakes and bogs. L. borealis Hagen, common, bogs and ponds, Wasatch and Uinta counties. L. hudsonica Selys, common, ponds in Uinta Mountains. L. intacta Hagen, common, lakes and ponds in Uinta Mountains. L. proxima Calvert, rare, lakes, Summit County.

Sympetrum (7 species). Abundant, ponds and backwaters of streams. S. corruptum (Hagen), abundant, ponds, marshes, desert springs and lakes, widespread in Utah. S. costiferum Hagen, rare, swampy areas, bays of lakes and reservoirs and ponds, Duchesne, Utah, Millard and Wayne counties. S. pallipes Hagen, uncommon,

permanent ponds with a muddy bottom, Sevier County. S. danae Sulzer, known from adult records only in Utah. S. rubicundulum Say, rare, backwaters and side pools of streams, Sevier and Iron counties. S. obtrusum Hagen, rare, backwaters and side pools of streams, Sevier, Iron counties. S. occidentale fasciatum Bartenev, common, ponds with muddy bottoms, sloughs and swamps, widespread in Utah.

Tramea (2 species). Common, ponds and springs. T. lacerta Hagen, common, ponds and springs, Weber, Tooele and Washington counties. T. onusta Hagen, known in Utah from a sight record in Sanpete County.

Pachydiplax longipennis Burmeister. Rare, vegetation in springs, Washington County.

Erythemis (2 species). Common, marshes and ponds. E. collocata Hagen, common, marshes and ponds with soft muddy bottoms, widespread in Utah. E. simplicicollis Hagen, only adults known in Utah.

Orthemis ferruginea Fabricius. Only adults known in Utah, Washington County.

Ladona julia (Uhler). Only adults known in Utah from an otherwise unidentified locality.

YGOPTERA

CALOPTERYGIDAE

Hetaerina (2 species). Common, warmer rivers and slow streams. H. americana Fabricius. Common, most major rivers and warmer streams and springs with slow to moderate current. H. vulnerata Hagen, uncommon, slow streams in Washington and Kane counties.

Calopteryx aequablile (Say) is common locally in Raft River Mountains. C. maculatum Beauvais may occur there also.

LESTIDAE

Archilestes grandis (Rambur) is common locally in southern Utah; shallow ponds and slow shallow streams.

Lestes (3 species). Common, ponds. L. congener Hagen, common in permanent and semi-permanent ponds, widespread. L. disjunctus Selys, uncommon, eastern Utah. L. dryas Kirby, uncommon in northern Utah. L. unguiculatus Hagen may occur in Utah.

COENAGRIONIDAE

Argia (7 species). Common, slow streams and ponds. A. alberta Kennedy, rare, slow streams, widespread. A. emma Kennedy, common in most major streams in northern and central Utah. A. lugens Gloyd (= Hyponeura lugens), rare, permanent desert streams,

southern Utah. A. moesta (Hagen), common locally, Green and Colorado Rivers. A. nahuana Calvert, rare, permanent streams, Washington Co. A. sedula (Hagen), uncommon, permanent desert streams, southern Utah. A. vivida Hagen, common, slow rivers, streams and ponds, widespread.

Amphiagrion abbreviatum (Selys), common, ponds and streams, widespread.

Telebasis salva Hagen, rare, Washington Co., populations may be temporary.

Coenagrion resolutum Kirby. Uncommon, lakes and ponds at higher elevations.

Enallagma (8 species). Common, slow streams and ponds. E. anna Williamson, common in slow rivers and streams, northern Utah. E. boreale (Selys), common, permanent ponds, widespread but mostly northern Utah. E. civil (Hagen), uncommon, except in Sevier River drainage, ponds and streams. E. clausum Morse, uncommon, streams and wave washed edges of lakes, northern Utah. E. carunculatum Morse, common, ponds and streams, northern Utah. E. cyathigerum (Charpentier), common, ponds and streams, widespread. E. ebrium (Hagen), uncommon, ponds and streams, southwestern Utah.

Ischnura (6 species). Common, ponds and streams. I. barberi Currie, rare, ponds and streams, northern Utah. I. cervula Selys, common, ponds and streams, northern and central Utah. I. damula Calvert, common locally, springs in Kane, San Juan and Tooele Counties. I. denticollis (Burmeister), common locally, ponds and streams in a band from Box Elder County, through Tooele and Millard counties to Washington County. I. demorsa (Hagen), rare, springs in San Juan County, and I. perparva (Selys), common, ponds and streams, widespread.

ORTHOPTERA

The only Utah Orthoptera known to us are the pygmy mole crickets but it seems likely that other genera listed as widespread also occur in Utah.

TRIDACTYLIDAE

Ellipes minuta (Scudder). Common locally; hopping along the edge and onto the surface of the water of ponds and rivers; southern Utah.

PLECOPTERA

The Utah Plecoptera are quite well known and the list is likely to be relatively complete. Studies by Baumann continue to add to the knowledge of distribution and larval habitats. The data on emergence time of adults will aid in anticipating the presence of larvae (nymphs) at various times of the year.

NEMOURIDAE

Amphinemura (2 species). Common; widespread, throughout Utah. Late summer emergence in small mountain streams. Known species, A. banksi Baumann and Gaufin and A. mogollonica Baumann and Gaufin.

Malenka (2 species). Very common in the fall; small mountain streams and springs, widespread, throughout Utah. Known species, M. californica (Claassen) and M. coloradensis (Banks).

Podmosta (2 species). Uncommon; summer emergence in small mountain streams. Known species, P. decepta (Frison) and P. delicatula (Claassen).

Prostoia besametsa (Ricker). Common throughout northern Utah. Spring emergence in small to medium sized mountain streams.

Zapada (4 species). Very common throughout Utah in small to medium sized mountain streams. Known species, Z. cinctipes (Banks), Z. columbiana (Claassen), Z. haysi (Ricker) and Z. trigida (Claassen).

LEUCTRIDAE

Paraleuctra (4 species). Common in northern Utah in small mountain streams at higher elevations. Adults emerge January to August. Known species, P. jewetti Nebeker and Gaufin, P. occidentalis (Banks), P. rickeri Nebeker and Gaufin and P. vershina Gaufin and Ricker.

Perlomyia utahensis Needham and Claassen. Uncommon; small mountain streams at higher elevations. Northern and central Utah; adults emerge in spring and summer.

TAENIOPTERYGIDAE

Doddsia occidentalis (Banks). Rare. Northern Utah; adults emerge February to May.

Oemopteryx fosketti (Ricker). Common in large rivers in Uintah Basin, ^{found} ~~SE~~ + Cache Co. Adults emerge January to March.

Taenionema (3 species). Common; widespread, throughout Utah. Known species, T. nigripennis (Banks), T. pacifica (Banks) and T. pallida (Banks). Adults emerge from March to August.

CAPNIIDAE

Capnia (8 species). Common, throughout Utah. Known species, C. confusa Claassen, C. cygna Jewett, C. gracilaria Claassen, C. nana Claassen, C. uintahi Gaufin, C. utahensis Gaufin and Jewett, C. vernalis Newport, C. wanica Frison. Emerge from November to May.

Eucapnopsis brevicauda (Claassen). Common; small mountain streams, higher elevations, widespread in Utah. February to July emergence.

Isocapnia (5 species). Uncommon, northern half of Utah. Known species, I. crinita (Needham and Claassen), I. grandis (Banks), I. hyalita Ricker, I. missouri Ricker, I. vedderensis (Ricker). Emerge from March to June.

Mesocapnia frisoni (Baumann and Gaufin). Common, large rivers in southern part of state. Emerges January to May.

Utacapnia (3 species). Common, larger rivers such as Logan and Provo Rivers. Known species, U. logana (Nebeker and Gaufin), U. lemoniana (Nebeker and Gaufin) and U. poda (Nebeker and Gaufin). Emerge from February to June.

PTERONARCYIDAE

Pteronarcella badia (Hagen). Common, middle sized and larger rivers throughout Utah. Emerges from May to July. Larvae present throughout the year.

Pteronarcys (2 species). Common, larger rivers throughout Utah. Known species, P. californica Newport and P. princeps Banks. Larvae present throughout the year.

PERLODIDAE

Cultus aestivalis (Needham and Claassen). ^{Un}Common. Widespread in Utah, medium to larger streams. Adults emerge April to August.

Diura knowltoni (Frison). Common. Widespread in Utah, small to medium streams at higher elevations. Adults emerge April to June.

Isogenoides (3 species). Common, medium to larger rivers in Uintah Basin and southern part of Utah. Known species, I. colubrinus (Hagen), I. elongatus (Hagen) and I. zionensis Hanson. Adults emerge March to August.

Isoperla (8 species). Common, throughout Utah; small streams to large rivers. Known species, I. ebria (Hagen), I. fulva Claassen, I. longiseta Banks, I. mormona Banks, I. patricia Frison, I. petersoni Needham and Christensen, I. pinta Frison, I. quinquepunctata (Banks). Adults emerge April to August.

Kogotus modestus (Banks). ^{Un}Common. Widespread in Utah. Adults emerge April to September.

Megarcys signata (Hagen). Common, throughout Utah, small streams. Adults emerge April to July.

Pictetiella expansa (Banks). Uncommon, northern Utah. Adults emerge July to October.

Skwala parallela (Frison). Common, throughout Utah, medium to large rivers. Adults emerge February to July.

PERLIDAE

Claassenia sabulosa (Banks). ^{Un} Common in northern Utah.

Acroneuria abnormis (Newman). Uncommon. Green River. Adults emerge June to September.

Hesperoperla pacifica (Banks). Common, throughout Utah.

Perlesta placida (Hagen). Known from Uintah County. ? *Not confirmed*

CHLOROPERLIDAE

Paraperla frontalis (Banks). Uncommon, northern Utah. Emerges April to August.

Utaperla sopladora (Ricker). Rare. Scattered in Utah. May to July emergence.

Alloperla severa (Hagen). Common. Small streams, high elevations.

Suwallia pallidula (Banks). Common, small streams and medium sized rivers.

Sweltsa (5 species). Common, throughout Utah. Known species, S. borealis (Banks), S. coloradensis (Banks), S. fidelis (Banks), S. gaufini Baumann, S. lamba (Needham and Claassen). Emerges April to October.

Triznaka (3 ² species). Common, widespread in Utah. Known species, T. diversa (Frison), T. pintada (Ricker), T. signata (Banks). Emerge May to August.

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HEMIPTERA

The list of Hemiptera is good, having been updated by Dan and John T. Polhemus in 1982.

BELOSTOMATIDAE

Abedus herberti Hidalgo. Locally common, warm pools, Washington County.

Belostoma flumineum Say. Common, ponds in northern Utah. A second species, B. bakeri Montandon has been reported by Peter Hovingh to occur in desert springs in Millard County.

Lethocerus (2 species). L. griseus (Say), uncommon, ponds in northern Utah; L. americanus (Leidy), common in valley ponds, widespread.

GELASTOCORIDAE

Gelastocoris oculatus oculatus (Fabricius). Wet banks, sandbars and marshy areas; more common in southern half of Utah, but occurs in Salt Lake Valley.

GERRIDAE

Gerris (8 species). Abundant; on surfaces of lakes, ponds and streams; widespread. Known species are G. buenoi Kirkaldy, G. comatus Drake and Harris, G. gillettei Lethierry and Severin, G. incurvatus Drake and Hottes, G. marginatus Say, G. nyctalis Drake and Hottes, G. pingreensis Drake and Hottes (on high mountain beaver ponds), and G. remigis Say.

Limnoporus notabilis (Drake and Hottes). On ponds and streams, northern Utah.

Rheumatobates hungerfordi Wiley. Known from the Green River at Green River.

Metrobates trux Bueno. White River near Ouray. May be present on Bear and Green Rivers.

NAUCORIDAE

Ambrysus (2 species). Common in streams, widespread. Known species are A. mormon Montandon (throughout entire state) and A. woodburyi Usinger (Virgin River drainage and Colorado Plateau).

Pelocoris. In Nevada, may possibly occur in extreme western Utah.

NEPIDAE

Ranatra fusca Palisot de Beauvois. Uncommon; among tangled vegetation along edges of ponds; northern Utah.

VELIIDAE

Microvelia (5 species). Locally abundant; on surfaces at edges of streams, seeps, and ponds. Known species include M. americana Uhler, M. hinei Drake (southern Utah), M. pulchella Westwood, M. signata Uhler (from seeps in caves at Hovenweep Nat. Mon.), and M. torquata Champion (seeps in Escalante River, Glen Canyon area). One species in Great Salt Lake Desert and one unverified record from ponds east of the Kennecott Tailings pond.

Rhagovelia distincta Champion. Locally abundant; on surface of ponds and rivers; Colorado River drainage. (Records of R. obesa from Utah are incorrect, this species being known only east of the Mississippi River.) In Provo River in 1982 and Weber River by 1976, possibly as a result of Central Utah Project tunnels from Colorado River drainage.

NOTONECTIDAE

Buenoa margaritacea Torre-Bueno. This species has been collected in Utah only in Washington County.

Notonecta (7 species). Common, lakes and ponds in valleys and mountains; widespread. Known species are N. indica (Linnaeus), N. irrorata Uhler, N. kirbyi Hungerford, N. spinosa Hungerford, N. lobata Hungerford (southern Utah), N. undulata Say and N. unifasciata unifasciata Guerin.

PLEIDAE

Neoplea striola Fieber. May occur in the northern part of Utah, in ponds among tangled vegetation.

MESOVELIIDAE

Mesovelia mulsanti White. Uncommon. Occurs on ponds in Great Salt Lake Desert, also on ponds in Emigration Canyon, ca. 5500', Huntington Creek and Duchesne River.

MACROVELIIDAE

Macrovelia horni Uhler. Known from seeps in Davis Gulch, near the Escalante River; probably widespread in the Colorado Plateau. Also reported from Great Salt Lake Desert by Woodbury (1956).

HEBRIDAE

Merragata hebroides White. Known from the west desert of Utah.

Hebrus (4 species). Uncommon, on seeps and along shores of ponds. Known species are H. buenoi Drake and Harris, H. hubbardi Porter (Escalante River), H. obscura Polhemus and Chapman (vertical rock seeps, Colorado River drainage) and H. sobrinus Uhler.

SALDIDAE

Pentacora sphacelata (Uhler). Seacoast species; reported from the shore of Great Salt Lake.

Lampracantia crassicornis Uhler. In mountain spring meadows.

Micracanthia (5 species). Widespread; damp areas around springs and seeps. Known species are M. humilis (Say), M. fennica Reuter (circumpolar, in small pockets in dirt around edges of springs), M. bergrothi (Jakovlev) ripula Drake (circumpolar, in springs and seeps), M. quadrimaculata Champion, and M. utahensis Drake and Hottes (Emery County type locality).

Salda (4 species). Widespread; in wet meadows. Known species are S. provancheri Kelton and Lattin, S. buenoi McDunnough, S. obscura Provancher, and S. coloradensis Polhemus.

Ioscytus (2 species). Around alkalai marshes and springs. Utah species are I. politus Uhler and I. cobbeni Polhemus (southeastern Utah, Colorado Plateau).

Saldula (17 species). Abundant. Widespread; in a variety of damp dispersa (Uhler) habitats. Species in Utah are S. arenicola (Scholtz) (in mouse tunnels among grasses, in spring fed washes), S. balli Drake, S. explanatus (Fieber), S. explanatus (Uhler), S. opacula (Zetterstedt) (in bogs), S. ourayi Drake and Hottes, S. pallipes (Fabricius), S. varionis Drake and Hottes, S. azteca Drake and Hottes, S. andrei Drake, S. comatula Parshley, S. saltatoria (Linnaeus), S. opiparia Drake and Hottes (in marshes), S. nigrita Parshley (on stones in large rivers), S. bouchervillei Provancher (in damp meadows), S. severini Harris, and S. pexa Drake (on stones in streams; southeast Utah).

CORIXIDAE

Graptocorixa (2 species). Common in ponds; Washington and Kane Counties. Known species are G. abdominalis (Say) and G. serrulata (Uhler). (G. californica and G. uhleri may also occur in Utah.)

Arctocorixa sutilis Uhler. Common in pond and lakes of high mountains of northern Utah. (A. lawsoni may also occur in Utah.)

Callicorixa (4 species). Common in ponds, lakes and streams of valleys and mountains; widespread. Known species are C. alaskensis Hungerford, C. audeni Hungerford, C. tetoni Hungerford, and C. vulnerata (Uhler).

Cenocorixa (5 species). Common in ponds, lakes and streams of valleys and mountains; widespread. Known species are C. bifida (Hungerford), C. kuiterti (Hungerford), C. sorenseni Hungerford, C. utahensis (Hungerford), and C. wileyae (Hungerford). (C. andersoni and C. expleta may also occur in Utah.)

Corisella (4 species). Common in ponds and streams in valleys; widespread. Known species are C. decolor (Uhler), C. edulis (Champion), C. inscripta (Uhler), and C. tarsalis (Fieber).

Hesperocorixa laevigata (Uhler). Abundant; in ponds and streams; widespread. (H. atopodonta, H. vulgaris, and H. oblicua may occur in Utah.)

Sigara (4 species). Common; ponds and streams; northern and central Utah. Known species are S. grossolineata Hungerford, S. nevadensis (Walley), S. washingtonensis Hungerford, and S. ornani (Hungerford). (S. alternata may also occur in Utah.)

Trichocorixa (2 species). Uncommon; ponds, northern Utah. Known species are T. calva (Say) and T. verticalis interiores (Sailer). (T. uhleri may also occur in Utah.)

Hydrometridae

Hydrometra

Goshen Pond, Utah Co.
Little Ranch, Wash. Co.

NEUROPTERA

SISYRIDAE

Spongillafly probably occur in Utah; they live on or in freshwater sponges.

MEGALOPTERA

The Megaloptera list is probably fairly good, but the group is little studied in Utah.

SIALIDAE

Sialis (3 species). Uncommon; S. hamata Ross known from Logan Canyon, Blacksmith Fork and Parleys Canyon. The Sialis from City Creek, mouth of Red Butte Canyon, Weber and Provo Rivers may be this species. S. cornuta from Fruitland and Red Creek. S. velata also in Utah. In marginal slow waters of streams.

CORYDALIDAE

Corydalis cognata Hagen. Common; warmer streams of Colorado River drainage. Disappeared from Green River in Dinosaur National Monument as a result of rotenoning of fish at closing of Flaming Gorge Reservoir, still absent in 1973. Abundant in North Creek near Virgin, Utah and in Santa Clara River.

(Neohermes filicornis occurs in temporary streams in nearby Arizona and New Mexico.)

TRICHOPTERA

A reasonable amount of study has been made on the Trichoptera of Utah but because of the large number of genera and species and the specialized habitats of many genera, the list is likely to continue to grow. Drs. D. G. Denning, H. H. Ross and Oliver Flint greatly aided me in compiling my lists through 1973. The current list is greatly expanded as a result of the work of R. W. Baumann and J. D. Unzicker (1981).

PHILOPOTAMIDAE

Dolophiloides (2 species). Common, small mountain streams, widespread. Species known from Utah are D. novusamericanus (Ling) and D. aequalis (Banks).

Chimarra utahensis Ross. Uncommon, in rapid, clear warmer streams, presumably widespread, known from west-central and southern Utah.

Wormaldia (2 species). Common, in cold streams, presumably widespread. W. arizonensis (Ling) and W. gabriella (Banks) known from Utah.

PSYCHOMYIDAE

Psychomyia flavida Hagen. Fairly common, in cool streams, presumably widespread.

Tinodes (2 species). Fairly common, in rocky streams, mountainous portion of Utah. T. powelli Denning and T. provo Ross and Merkeley.

POLYCENTROPIDAE

Nictyophylax sp. Uncommon. Lakes or in slow currents.

Polycentropus (3 species). Common in lakes, streams and rivers. Known species, P. cinereus Hagen, P. halidus Milne and P. variegatus Banks.

HYDROPSYCHIDAE

Hydropsyche (7 species). Abundant, in streams and rivers, widespread. Species known from Utah are H. californica Banks, H. cockerelli Banks, H. occidentalis Banks, H. oslari Banks, H. philo Ross, H. protis Ross, and H. separata Banks. (Some of the species have been placed in Ceratopsyche (= Symphitopsyche) but Baumann and Unzicker place them back in Hydropsyche.) Aistad (1980) gives figures of the common Utah species of Hydropsyche, Arctopsyche, Cheumatopsyche and Parapsyche.

Cheumatopsyche (6 species). Common, in streams and rivers, widespread. Species known from Utah are C. arizonensis (Ling), C. campyla Ross, C. enonis Ross, C. gracilis (Banks), C. pettiti (Banks), and C. smithi Gordon.

Parapsyche (3 species). Common in upper reaches of cold streams, northern Utah. Species known from Utah are P. almota Ross, P. elsis Milne and P. spinata Denning.

Arctopsyche (2 species). Common, in cold streams, northern Utah mountains. Species known from Utah are A. grandis (Banks) and A. ladogensis (Kolenati).

Smicridea (2 species). Common in a variety of streams. Utah species are S. dispar (Banks) and S. signata (Banks).

Macronemum zebratum (Hagen). Uncommon, in warm rivers, known from Uintah River near Ft. Duchesne.

RHYACOPHILIDAE

Rhyacophila (18 species). Abundant in a wide range of streams, widespread. Species known from Utah are R. acropedes Banks, R. alberta Banks, R. angelita Banks, R. basalis Banks, R. bifila Banks, R. coloradensis Banks, R. harmstoni Ross, R. hyalinata Banks, R. jenniferae Peck and Smith, R. oreta Ross, R. pellisa Ross, R. rotunda Banks, R. vagrita Milne, R. valuma Milne, R. vao Milne, R. verrula Milne, R. vocala Milne, R. vofixa Milne and R. wallowa Denning.

GLOSSOSOMATIDAE

Anagapetus debilis (Ross). Uncommon, small cold mountain streams, probably widespread in mountains.

Protoptila (3 species). Uncommon, in larger rivers and streams, widespread. Species known from Utah are P. coloma Ross, P. erotica Ross and P. thoracica Ross.

Agapetus (2 species). Uncommon. Intermediate elevation streams. A. boulderensis Milne and A. malleatus Banks.

Culoptila cantha Ross is reported by Wiggins (1977) from the Green River near Dinosaur National Monument.

Glossosoma (9 species). Abundant, in variety of cold rocky streams, widespread. Species known from Utah are G. alascense Banks, G. califica Denning, G. montana Ross, G. parvulum Banks, G. schuhi Ross, G. traviatum Banks, G. velona Ross, G. ventrale Banks and G. verdonia Ross.

HYDROPTILIDAE

Hydroptila (7 species). Common, in streams, lakes or springs, and rivers, widespread. Species known from Utah are H. ajax Ross, H. arctia Ross, H. argosa Ross, H. consimilis Morton, H. hamata Morton, H. rono Ross and H. xera Ross.

Ochrotrichia (9 species). Abundant, in a wide variety of permanent and semi-permanent streams, widespread. O. arizonica Denning and Blickle, O. ildria Denning and Blickle, O. logana (Ross), O. lometa (Ross), O. potomus Denning, O. quadrispina Denning and Blickle, O. stylata (Ross), O. trapoiza Ross and O. zioni Denning and Blickle.

Stactobiella brustia (Ross) (= Tascobia). Uncommon, in cold streams.

Agraylea (2 species). Common, in ponds, lakes and slow areas of streams, widespread. Species known from Utah are A. saltesea Ross and A. multipunctata Curtis.

Neotrichia (3 species). Common, in rapid sections of streams and rivers, widespread. Species known from Utah are N. collata Morton, N. halia Denning and N. osmena Ross.

Mayatrichia (3 species). In rapid sections of rivers and streams. M. acuna Ross, M. ayama Mosely and M. mosleyi Blickle and Denning.

Ithytrichia clavata Morton. Common, in warmer streams and rivers, widespread.

Oxyethira (2 species). Uncommon, slow current or standing water. O. dualis Morton and O. serrata Ross.

Leucotrichia (2 species). Warmer waters and springs. Utah species are L. limpia Ross and L. pictipes (Banks).

Rioptila arizonica Blickle and Denning. Reported by Baumann and Unzicker from Utah.

PHRYGANEIDAE

Ptilostomis sp. Common locally, in larger streams and lakes, presumably widespread.

Banksiola crotchi Banks. Uncommon. Lakes, marshes and sluggish streams.

Agrypnia (4 species). Uncommon. Lakes, marshes and slow flowing rivers. Utah species are A. colorata Hagen, A. deflata (Milne), A. glacialis (Hagen) and A. improba (Hagen).

Phryganea cinerea Walker. Uncommon. Marshes and lake margins.

BRACHYCENTRIDAE

Brachycentrus (2 or more species). Abundant, in cool streams and rivers, widespread. Species known from Utah are B. americanus (Banks) and B. occidentalis Banks.

Oligoplectrum echo Ross. Cool streams, widespread.

Micrasema (4 species). Common. In small, cold, streams; usually in clumps of moss. Widespread. Species reported from Utah are M. alexanderi Denning, M. bactro Ross, M. diteris Ross and M. onisca (Ross).

Amiocentrus aspilus (Ross) is listed from Utah by Wiggins (1975).

LIMNEPHILIDAE

Limnephilus (19 species). Common, in ponds, lakes and streams, widespread. Species known from Utah are L. abbreviatus Banks, L. arizona Ross, L. assimilis (Banks), L. bucketti Denning, L. castor Ross and Merkeley, L. cockerelli Banks, L. coloradensis (Banks), L. externus Hagen, L. extractus Walker, L. harrimani Banks, L. kincaidii Banks, L. moestus Banks, L. picturatus MacLachlan, L. productus Banks, L. secludens Banks, L. selatus Denning, L. spinatus Banks, L. taloga Ross, L. thorus Ross and L. utahensis Denning.

Apatania (4 species). Streams at higher elevations. Utah species are A. chasica Denning, A. comosa (Denning), A. shoshone Banks and A. sorex (Ross).

Amphicosmoecus canax Ross. Uncommon, small, cool streams.

Dicosmoecus (2 species). Uncommon, rapid streams of various size. Utah species are D. atripes (Hagen) and D. gilvipes (Hagen).

Hesperophylax (5 species). Common, small streams and cold lakes, widespread. Species known from Utah are H. consimilis (Banks), H. designatus (Walker), H. incisus Banks, H. magnus Banks and H. occidentalis (Banks).

Neothremma alicia Banks. Common, in rapid, cool streams, presumably widespread.

Lenarchus fautini (Denning). Common in cold streams.

Chyranda centralis (Banks). Uncommon, small spring streams, mountains, presumably widespread.

Oligophlebodes (4 species). Common, in cold mountain streams, presumably widespread. Species known from Utah are O. minutus (Banks), O. ruthae Ross, O. sierra Ross and O. sigma Milne.

Psychoglypha (4 species). Uncommon, in mountain streams, presumably widespread. Species known from Utah are P. alaskensis (Banks), P. avigo (Ross), P. ormieae (Ross) and P. subborealis (Banks).

Ecclisomyia (2 species). Cool mountain streams. Common. E. conspersa Banks and E. maculosa Banks in Utah.

Homophylax flavipennis Banks. Small, cold streams. Rare.

Allomyia gnathos (Ross). Reported from Utah by Baumann and Unzicker.

Anobolia bimaculata (Walker). Marshes, slow streams and temporary pools. Reported from Utah by Baumann and Unzicker.

Asynarchus (4 species). Streams, ponds and temporary pools in mountains. Species are A. aldinus (Ross), A. circopa (Ross and Merkeley), A. curtus (Banks) and A. nigriculus (Banks).

Clistoronia formosa (Banks). Ponds and small lakes at higher elevations.

Grammotaulius lorettae Denning. Small weedy ponds at high altitudes.

Nemotaulius hostilis (Hagen). Reported from Utah by Baumann and Unzicker.

Neophylax. Flowing waters. Reported from Utah by Baumann and Unzicker. Utah species are N. occidentis Banks and N. splendens Denning.

Onocosmoecus (2 species). In cool ponds or slow running waters. Two species, O. alascensis (Banks) and O. unicolor Banks reported from Utah.

Psychoronia brevipennis (Banks). Streams at high elevations.

LEPIDOSTOMATIDAE

Lepidostoma (12 species). Common, in a wide variety of springs, ponds, lakes and slow areas of streams, widespread. Species known from Utah are L. aporna Denning, L. cascadenae (Milne), L. knowltoni Ross, L. mira Denning, L. moneka Denning, L. ormea Ross, L. pluviale (Milne), L. podager (MacLachlan), L. roafi (Milne), L. strophis Ross, L. unicolor Banks and L. veleda Denning.

SERICOSTOMATIDAE

Gumaga griseola (MacLachlan). Reported from Utah by Baumann and Unzicker.

HELICOPSYCHIDAE

Helicopsyche (2 species). Abundant, in small but warmer streams, also in lakes, widespread. Utah species are H. borealis Hagen and H. mexicana Banks.

LEPTOCERIDAE

Oecetis (2 species). Abundant, in a wide variety of streams, rivers and lakes, widespread. Species known from Utah are O. avara (Banks) and O. inconspicua (Walker).

Triaenodes (3 species). Common, lakes and streams, presumably widespread. Species known from Utah are T. frontalis Banks, T. griseus Banks and T. tardus Milne.

Nectopsyche (4 species) (formerly in Leptocella). Common, slow current in warmer streams and in lakes, presumably widespread. N. albida (Walker), N. diarina (Ross), N. gracilis (Banks) and N. Tahontanensis (Haddock) are reported from Utah.

Mystacides alafimbriata Hill-Griffin. Common, slow areas of larger streams or in lakes.

Ceraclea sp. Occurs in larger rivers of the Uintah Basin.

LEPIDOPTERA

Only a single species of aquatic Lepidoptera has been found in Utah rivers, but the study of insects in and on aquatic plants would likely enlarge the list.

PYRALIDAE

Petrophila kearfottalis (Dyar) (formerly in genus Parargyractis). Uncommon; reported locally from Jordan River; widespread.

HYMENOPTERA

"Aquatic" Hymenoptera are essentially parasites of egg, larvae or adults of aquatic insects and spiders. Thus only with specialized methods will a faunal list for Utah be compiled.

COLEOPTERA

The generic Coleoptera list is probably fair to good for most of the groups, but some families have had little effort expended in Utah. This list needs the addition of species names.

AMPHIZOIDAE

Amphizoa lecontei Matthews. Uncommon, margins of mountain streams and in mountain lakes, especially in brush and on roots, northern and central Utah. Known from several Wasatch Front streams, Uintah Mtns. and in Uintah basin drainage. *Rail Rivers*

HALIPLIDAE

Brychius hornii Crotch. Common in vegetation in mountain streams, widespread.

Haliplus (2 or more species). Widespread, common, in vegetation in streams and in ponds. Utah species are H. immaculicollis Harris and H. leechi Wallis.

Peltodytes (2 or more species). Common in vegetation in streams, ponds and lakes, widespread. One of the Utah species is P. callosus (LeConte).

DYTISCIDAE

Laccophilus (2 species). Common, ponds and streams, widespread. All seasons. Utah species are L. atristernalis Crotch and L. decipiens LeConte.

Bidessus (3 species). Abundant, streams and ponds, widespread, at all altitudes. Utah species are B. affinis (Say), B. subtilis (LeConte) (southern Utah), and B. amandus (LeConte).

Hygrotus (8 species). Common, ponds and slow moving streams, widespread. Utah species are H. sayi Balfour-Browne, H. medialis (LeConte), H. virgo (Fall), H. patruelis (LeConte), H. tumidiventris (Fall), H. masculinus (Crotch), H. unguicularis Crotch and H. impressopunctatus (Schaller).

Deronectes (5 species). Abundant, ponds, springs and streams, widespread, all elevations. Utah species are D. elegans (Panzer), D. griseostriatus (DeGeer), D. striatellus (LeConte), D. aequinoctialis (Clark) and D. coloradensis (Fall).

Hydroporus (11 species). Common, in pools in streams, ponds and lake margins, all altitudes and widespread, but especially northern and in mountains. The most common species are H. occidentalis Sharp, H. vilis LeConte, and H. percivinus Fall. The other species, H. planusculus Fall, H. tenebrosus LeConte, H. despectus Sharp, H. fuscipennis Schaum, H. axillaris LeConte, H. niger Say?, H. notabilis LeConte and H. transpunctatus Chandler, are more rare and limited in distribution.

Oreodytes (6 species). Common, fast flowing streams and rivers, Provo and Weber Rivers and many smaller streams. Utah species are O. obesus (LeConte), O. congruus (LeConte), O. scitulus (LeConte), O.

semiclarus (Fall), O. crassus (Fall) and O. septentrionalis (Gyllenhal).

Agabinus glabella (Motschuslky). Rare, Washington County.

Agabus (19 species). Abundant, streams and ponds, widespread, all elevations. Utah species are A. cordatus (LeConte), A. bjorkmanae Hatch, A. semivittatus LeConte, A. hypomelas Mannerheim, A. seriatus Say, A. lugens (LeConte), A. punctulatus Aubé, A. disintegratus (Crotch), A. austini Sharp, A. strigulosus (Crotch), A. griseipennis (LeConte), A. obliteratus LeConte, A. approximatus Fall, A. ajax Fall, A. anthracinus Mannerheim, A. ericksoni Gemminger and Harold, A. tristis Aubé, A. antennatus Leech, A. verisimilis Brown, A. minnesotensis Wallis and A. kenafensis.

Ilybius (3 species). Uncommon. Small ponds, widespread, and above 4200 ft. elevation, most frequent at high elevations. Utah species are I. subaeneus Erickson, I. angustior (Gyllenhal), and I. fraterculus (LeConte).

Coptotomus longulus (LeConte). Rare. Green River (area now under Flaming Gorge Reservoir) and Logan.

Rhantus (6 species). Abundant, ponds and margins and pools of streams, widespread, wide range of elevations. Utah species are R. binotatus (Harris), R. gutticolis (Say), R. mexicanus (LaPorte), R. hoppingi Wallis, R. anisonychus Crotch and R. frontalis (Marsham).

Colymbetes sculptilis Harris. Common, widespread, ponds, lakes and rivers.

^{Y i}
Dytiscus (3 species). Common, ponds and small, slow-moving streams, from 4200 ft. elevation to over 11,000 ft. Utah species are D. marginicollis LeConte, D. dawricus Gebler and D. ooligbukii Kirby.

Hydaticus modestus Sharp. Rare. Calleo and Salt Lake County.

Acilius semisulcatus Aube. Common, small lakes and ponds, widespread.

Thermonectes (2 species). T. marmoratus (Hope) is common locally in pools in desert region of southern Utah; T. basillaris (Harris) is rare in northern Utah.

Graphoderus (2 species). Rare, small ponds, widespread, from 4,000 to 11,000 ft. in elevation. Utah species are G. occidentalis Horn and G. perplexus Sharp.

Eretes sticticus (Linnaeus). Rare. Ponds, scattered widespread localities.

Cybister explanatus LeConte. Rare. Ponds.

CARABIDAE (Omophroninae)

Omophron (2 or more species). Common on wet sandy banks, southern Utah.

GYRINIDAE

Gyrinus (6 or more species). Abundant, in groups on surface of still or gently flowing water, widespread. Utah species are G. picipes Aubé, G. bifarius Fall, G. consobrinus LeConte, G. pleuralis Fall, G. plicifer LeConte and G. affinis Aubé.

HYDROPHILIDAE

Helophorus (3 or more species). Common, in mud on bottom of ponds and lakes, widespread. Utah species are H. oblongus LeConte, H. obscurus LeConte and H. nitidulus LeConte.

Hydrochara lineata LeConte. Rare in ponds, Ticaboo Creek in Glen Canyon.

Berosus (4 or more species). Common in ponds and streams, widespread. Among known Utah species are B. infuscatus LeConte, B. styliferous Horn, B. punctatissimus LeConte and B. maculosus Mannerheim.

Enochrus (1 or more species). Uncommon, ponds, southern Utah.

Hydrophilus triangularis (Say). Common in lowland ponds, widespread.

Tropisternus (6 or more species). Very common in ponds, lakes, and edges of streams, widespread. Among the Utah species are T. dorsalis (Brullé), T. ellipticus (LeConte) and T. californicus (LeConte).

Hydrobius (2 or more species). Common in streams, widespread. Known Utah species are H. fuscipes Linnaeus and H. scabrosus Horn.

Paracymus subcupreus Say. Common, mountain streams, northern Utah.

Crenitis moratus Horn. Uncommon, mountain streams, widespread.

Ametor (1 or more species). Uncommon, high mountain streams, widespread.

Helochares maculicollis Nulsant. Common, streams, northern Utah.

Laccobius ellipticus LeConte. Uncommon, ponds, southern Utah.

Enochrus (4 or more species). Common, streams and ponds, widespread. Among the Utah species are E. conjunctus Fall, E. hamiltoni (Horn) and E. obtusiusculus (Motschulsky).

Cymbiodyta (1 or more species). Common, streams and ponds, northern Utah.

SCIRTIDAE (= Helodidae)

Cyphon (1 or more species). One record, mosquito pools, Salt Lake County.

HYDRAENIDAE

Hydraenus (1 or more species). Reported from Huntington Creek by Winget (1972).

DRYOPIDAE

Helichus (2 or more species). Common, among rocks and debris in streams, widespread. Utah species are H. striatus LeConte and H. suturalis LeConte.

ELMIDAE

Zaitzevia parvula (Horn). Very common in rocks and debris in streams, widespread.

Elmis ornata Schaeffer. Common, mountain streams, northern Utah.

Narpus concolor LeConte. Rare, in streams, widespread.

Simsonia quadrinotata (Say). Rare, in larger rivers or lakes, widespread.

Heterlimnius (2 species). Very common, in streams, widespread. Utah species are H. quadrimaculatus (Horn) and H. corpulentis (LeConte).

Microcylloepus similis (Horn). Common, streams at lower elevation, widespread.

Optioservus (1 or more species). Common in streams of northern Utah.

Cleptelmis (1 or more species). Reported by Winget (1972) from Huntington Creek.

CHRYSOMELIDAE

Donacia (1 or more species). Common in ponds with emergent higher plants, specially in mountains, northern and central Utah.

CURCULIONIDAE

Bagous (1 or more species). Adults feeding on plants and crawling on bottom of ponds. Probably widespread. One species named from ponds near Utah Lake near Provo.

LIMNICHIDAE

Family reported from Huntington Creek by Winget (1972).

DIPTERA

The checklist of Diptera is extremely variable in quality. This partially reflects the degree to which each group is studied in Utah. Another problem is that the group is so large and in many families the habitat of the larvae in a genus may vary from aquatic to terrestrial. Many of the larvae are in damp mud or thin wet layers of muck. A few groups (e.g., mosquitoes) have been intensively studied. The list of Tipulidae only rarely includes species names because of the larval habitat variation, and the names are only rarely listed for the Chironomidae because the Utah fauna is so poorly known; almost all records of Chironomidae are from a few localities in northern Utah. Alexander (1948) lists the species with records for Tipulidae and other crane flies. Many species names and records ~~origin~~ for Chironomidae are given by Adamus (1976).

SUBORDER NEMATOCERA

TIPULIDAE

Antocha monticola Alexander. Common; abundant locally in silken cases on rocks in cool streams; north and central Utah mountains.

Cryptolabis (3 species). Uncommon; widespread. Sand in clear, cold streams.

Dactylolabis knowltoni Alexander. Uncommon; on wet seeps and walls; northern Utah mountains.

Dicranota (8 species). Common; found in mud and in streams; northern Utah.

Elliptera astigmatica Alexander. Uncommon; on wet mossy surfaces at falls and seeps; central Utah.

Erioptera (26 species). Common; some species in wet sand or mud; widespread.

Gonomyia (18 species). Common; in wet mud and sand at edge of streams; widespread.

Hexatoma (3 species). Common; in streams and rivers; the mature larvae on the wet banks; widespread in mountains.

Holorusia grandis (Bergroth). Common; in a wide variety of streams in silty areas and in dense leaf packs; widespread.

Limnophila (1 or more species). Reported from Huntington Creek by Winget (1972).

Limonia (21 species). Common; widespread. At edges of ponds, lakes and streams.

Pedicia (2 species). Common; edges, in streams and brooks, saturated leaves and moss; northern and central Utah.

Phyllolabis zionensis Alexander. Uncommon; known only from Zion National Park, Utah. Aquatic?

Prionocera uinticola (Alexander). Uncommon, probably in heavily vegetated ponds; Uinta Mountains.

X Tipula (51 or more species). Abundant; in streams ^{at} to muddy margins and in numerous non-aquatic habitats; widespread.

TANYDERIDAE

Protanyderus margarita Alexander. Uncommon; small streams with rock and sand bottoms; the adult was described from Zion National Park, Utah; larvae have been collected from the Virgin River at Springdale in October.

PTYCHOPTERIDAE (= LIRIOPEIDAE)

Bittacamorpha clavipes (Fabricius). Uncommon; larvae in shallow water heavily filled with vegetation; northern Wasatch and Uinta Mountains. Larvae from Red Butte Creek and Whiskey Spring in Daniels Canyon.

X Ptychoptera (~~3 or more~~ ³ species). ~~Reported from Huntington Creek by Hinget (1972), and central Utah. Utah species are P. larvia Osten-Sacken~~ Widespread in mountains of northern P. pendula Alexander and P. uta Alexander.

PSYCHODIDAE

Maruina (1 or more species). On wet rocks in spray of fast-flowing streams.

Psychoda (1 or more species). Often found in polluted waters, water treatment plant trickling filters, and in household drains, etc.

Pericoma (1 or more species). Uncommon. Mill Creek.

Telmatoscopus (1 or more species). Uncommon. Mill Creek.

BLEPHARICERIDAE

Bibliocephala grandis O.S. Common locally; in streams in northern Utah.

Agathon may occur in Utah.

Dioptopsis may occur in Utah.

DEUTEROPHLEBIIDAE

Deuterophlebia coloradensis Pennak. Uncommon except locally; on rocks in fast streams; northern Utah (abundant in lower Ashley Creek near Vernal, Utah).

CULICIDAE

Aedes (26 species). Abundant; mountains and valleys in temporary pools; widespread. Known species are Ae. campestris Dyar and Knab, Ae. cataphylla Dyar, Ae. cinereus Meigen, Ae. communis (DeGeer), Ae. dorsalis (Meigen), Ae. epactuis Dyar and Knab; Ae. excrucians

(Walker), Ae. fitchii (Felt and Young), Ae. flavescens (Muller), Ae. hexadontus (Dyar), Ae. impiger (Walker), Ae. implicatus Vockeroth, Ae. increpitus Dyar, Ae. intrudens Dyar, Ae. melanimon Dyar, Ae. nigromaculis (Ludlow), Ae. niphadopsis Dyar and Knab, Ae. pullatus (Coquillett), Ae. schizopinax Dyar, Ae. sierrensis (Ludlow), Ae. spencerii (Theobald), Ae. sticticus (Meigen), Ae. trivittatus (Coquillett), Ae. varipalpus (Coquillett), Ae. ventrovittis Dyar and Ae. vexans (Meigen).

Anopheles (3 species). Common in valleys at elevations below 7000 ft; in permanent or semi-permanent freshwater pools or marshes; widespread. Known species are An. earlei Vargas, An. franciscanus McCracken and An. freeborni Aitken.

Culex (8 species). Abundant in valleys at elevations below 7500 ft, primarily in semi-permanent or permanent pools or marshes. Cx. pipiens and tarsalis also in artificial containers or gutters in urban areas; widespread. Known species are Cx. apicalis Adams, Cx. erythrothorax Dyar, Cx. pipiens Linnaeus, Cx. quinquefasciatus Say, Cx. restuans Theobald, Cx. tarsalis Coquillett, Cx. territans (Walker) and Cx. thriambus Dyar.

Culiseta (6 species). Abundant in valleys and mountainous areas in semi-permanent or permanent pools. Known species are Cs. alaskaensis (Ludlow), Cs. impatiens (Walker), Cs. incidens (Thomson), Cs. inornata (Williston), Cs. minnesotae Barr and Cs. morsitans (Theobald).

Mansonia perturbans (Walker). Common locally in valleys along Wasatch front in northern Utah; restricted to permanent ponds and marshes as larvae and pupae respire through air spaces in roots or stems of submerged aquatic vegetation.

Psorophora signipennis (Coquillett). Reported only from Dugway, Utah, where it is uncommon; occurs in temporary desert pools.

Orthopodomyia signifera (Coquillett). Tree-hole species occurring in cottonwoods in southeast Utah.

CHAOBORIDAE

Chaoborus americanus (Johannsen). Common to abundant locally in Uinta and Wasatch Mountains; chiefly in small shallow lakes or permanent pools of moderate to large size. Chaoborus punctipennis (Say) and Chaoborus flavicans (Morgan) may also occur in Utah.

Mochlonyx velutinus (Ruthe). Uncommon in Uinta and Wasatch Mountains; in small temporary or semi-permanent pools.

Eucoethra underwoodi Underwood. Uncommon throughout Wasatch and Uinta Mountains; in small to moderate sized semi-permanent or permanent pools, especially in the woods.

DIXIDAE

Dixella (= Paradixa) (3 species). Common; on the surface films of freshwater streams and ponds; widespread. Known species are D. cornuta (Johannsen), D. neoaliciae (Garrett) and D. serrata (Garrett).

Dixa. Almost certainly occurs in Utah. Reported by Paul Adamus from Mill Creek.

SIMULIIDAE

Cnephia (4 species). Uncommon except locally in mountain streams of northern Utah. Known species are C. jeanae Peterson, C. macrocerca Peterson, C. mutata (Malloch), and C. villosa Peterson.

Eusimulium (7 species). Abundant; in running waters; widespread. Known species are E. alpinum Peterson, E. attenuatum Peterson, E. aureum (Fries), E. baffinense (Twinn), E. bicornis Dorogostajskij, Rubtzov, and Vlasenko, E. canonicolum Dyar and Shannon and E. latipes (Meigen).

Prosimulium (8 species). Abundant; in running waters; widespread. Known species are P. daviesi Peterson, P. exigens Dyar and Shannon, P. flaviantennus (Stains and Knowlton), P. fulvum (Coquillett), P. longilobum Peterson, P. onychodactylum Dyar and Shannon, P. uinta Peterson and P. unicum (Twinn).

Simulium (22 species). Abundant; in running waters; esp. some temporary streams; widespread. Known species are S. articum Malloch, S. argus Williston, S. bivittatum Malloch, S. canadense Hearle, S. corbis Twinn, S. decorum Walker, S. defoliarti Stone and Peterson, S. griseum Coquillett, S. hunteri Malloch, S. jacumbae Dyar and Shannon, S. mediovittatum Knab, S. meridionale Riley, S. nigrocoxum Stone, S. piperi Dyar and Shannon, S. rugglesi Nicholson and Mickel, S. trivittatum Malloch, S. tuberosum (Lundstrom), S. venator Dyar and Shannon, S. venustum Say, S. virgatum Coquillett, S. vittatum Zetterstedt and S. species #3 Peterson.

Twinnia nova Dyar and Shannon. Rare; one specimen reported from an unknown Utah locality.

CHIRONOMIDAE

SUBFAMILY TANYPODINAE

Tanypus (2 or more species). Probably widespread, lakes and streams.

Derotanypus (1 or more species). Northern Utah, lakes and streams.

Alotanypus venustrus (1 or more species). Salt Lake County.

Psectrotanypus (4 or more species). Northern Utah.

Thienemannimyia barberi. Green River.

Ablebesmyia (2 or more species). Northern Utah.

Conchepelopia geniodes. Dinosaur Natl. Park.

Paramerina (4 or more species). Northern Utah.

Procladius (4 or more species). Ponds and streams, northern Utah.

SUBFAMILY PODONOMINAE

Podonomus (1 or more species). Streams.

SUBFAMILY DIAMESINAE

Diamesa (8 or more species). Streams, probably widespread.

Pagastia partica. Provo River.

Pseudodiamesa (3 or more species). Common. Probably widespread.

Heptagyia (1 or more species). Uncommon. Streams (Mill Creek).

Prodiamesa (2 or more species). Streams (Mill Creek).

SUBFAMILY ORTHOCLADIINAE

Brillia (1 species). Common. Mill Creek.

Eukiefferiella (1 or more species). Uncommon. San Juan and Colorado Rivers.

Nanocladius (16 or more species). Northern Utah, streams (probably widespread).

Orthocladius (10 or more species). Widespread. In streams.

Symbiocladius equitans (Claassen). Widespread. As a commensal or parasite under the wing pads of Rhithrogena mayflies.

Cricotopus (13 or more species). Northern Utah (widespread?).

Rheocricotopus (4 or more species). In streams, northern Utah.
Widespread?

Psectrocladius (8 or more species). Widespread, streams and rivers.

Corynoneura (2 or more species). Northern Utah, in streams.

SUBFAMILY CHIRONOMINAE

Chironomus (10 or more species). Abundant, widespread, lakes, ponds and streams. C. utahensis has very large hatches whenever marshes are ice free along Great Salt Lake.

Cryptochironomus (4 or more species). Northern Utah (widespread?).
Lakes and marshes.

Dicrotendipes (5 or more species). Northern Utah (widespread?).
Lakes and streams.

Glyptotendipes (3 or more species). Widespread, marshes.

Microtendipes (2 or more species). Widespread in Utah, lakes and
rivers.

Paratendipes (1 or more species). Uncommon. Widespread.

Phaenopsectra (3 or more species). Northern Utah, creeks, reservoirs
and marshes.

Polypedilum (3 or more species). Widespread in Utah, lakes and
streams.

Pseudochironomus richardsoni. Northern Utah, marshes.

Stictochironomus (3 or more species). Northern Utah, rivers, lakes
and creeks.

Micropsectra (5 or more species). Common, Northern Utah, creeks and
rivers.

Stempellina (1 or more species). Uncommon, Mill Creek.

Tanytarsus (4 or more species). Widespread in Utah.

Atanytarsus vanderwulpi Northern Utah.

Rheotanytarsus (1 or more species). Widespread in Utah rivers and
creeks.

Zavrelia (1 or more species).

CERATOPOGONIDAE (= HELEIDAE)
SUBFAMILY DASYHELEINE

Dasyhelea (2 or more species). Common; may be present in algae mats;
presumably widespread. Utah species are D. grisea and D.
mutabilis (?).

SUBFAMILY FORCIPOMYIINAE

Atrichopogon. Probably occurs in Utah; on wet stones, floating logs,
or algae in streams or ponds.

Forcipomyia calcarata (Coquillett). Common; may be aquatic as some
species are found in moss, etc. presumably widespread.

SUBFAMILY ~~HELEINAE~~ CERATOPOGONINAE

Culicoides (about 20 species). Abundant; in a wide variety of ponds rich in organic matter, in fresher edges of Great Salt Lake; widespread.

Palpomyia. Occurring in a wide variety of lakes, ponds and streams in the muddy or sandy margins or bottoms, often occurring in algae mats; presumably widespread.

SUBORDER BRACHYCERA
STRATIOMYIDAE

Adoxomyia (1 or more species). Uncommon; possibly aquatic; northern Utah.

Euparyphus (4 or more species). Common; found in wet moss; algae, and on mud, in and beside small streams and ponds, widespread.

Nemotelus (5 or more species). Common; one species found in hot springs; widespread.

X Odontomyia (= Eulalia) (4 or more species). Common; occurring in muddy, sluggish streams and ponds, feeding on algae or organic matter; presumably widespread. ^

Myxosargus (1 or more species). Uncommon; widespread.

Stratiomys (9 or more species). Common; found in a wide variety of ponds, streams, saline pools, and hot springs, widespread.

TABANIDAE

Apatolestes (1 or more species). Widespread.

Chrysops (12 or more species). Abundant; widespread.

Pangonia (1 or more species). Widespread.

Sylvius (2 or more species). Widespread.

Atylotus (2 or more species). Widespread.

Haematopota (1 or more species). Presumably widespread.

Stenotabanus (1 or more species). Common; widespread.

Tabanus (28 species). Abundant; widespread.

ATHERICIDAE

Atherix variegata Walker. Abundant; occurring in a wide variety of streams; widespread.

DOLICHOPODIDAE
EMPIDIDAE

Larvae have been collected from Mill Creek Canyon (Adamus 1976) and from Provo River in Provo Canyon (October).

A Utah species of this family has been reported in drift from Mill Creek. It was identified as Wiedemannia (Adamus, 1976), which is indicated by Merritt and Cummins to be Eastern.

SYRPHIDAE

Chrysogaster (8 species). Larvae of this genus have been recorded as being aquatic although few if any have been collected in Utah.

Eristalis (10 species). Uncommon; occurring in shallow pools of generally polluted ponds; widespread.

Helophilus (9 species). Larvae of this genus have been reported as being aquatic although few if any have been collected in Utah.

EPHYDRIDAE

SUBFAMILY EPHYDRINAE

Coenia (4 species). Common; occurring in saline marsh ponds feeding on floating organic matter; widespread in lowlands.

Hydropyrus (= Ephydra) (7 species). Abundant; occurring in saline pools and in Great Salt Lake; widespread.

Scatella (9 species). Abundant; occurring in saline and alkaline pools, and other ponds and pools; widespread over a wide elevational range.

Scatophila despecta (Haliday). Uncommon; one species known on wet rocks and in greenhouses; Kane County.

Setacera needhami Johannsen. Uncommon; apparently limited to fresh water; northern Utah.

SUBFAMILY PARYDRINAE

Brachydeutera (1 or more species). Reported by G. Musser (1959) from Glen Canyon area. Larvae at edges of ponds.

Hyadina (3 species). Common; widespread. Larvae feed on blue-green algae at stream or pond margins.

Ochthera mantis mantis (DeGeer). Abundant; saline and alkaline marsh pools; widespread. Larvae in ponds, predators on midge larvae.

Pelina (3 species). Abundant; widespread. Larvae feed on blue-green algae at lake or pond margins.

SUBFAMILY NOTIPHILINAE

Dichaeta caudata (Fallen). Common; burrowers in freshwater lakes, streams and pools; widespread.

Hydrellia (4 or more species). Common; leaf miners in aquatic and subaquatic plants, especially Potamogeton; widespread.

(Ilythea may occur in Utah.)

Notiphila (10 species). Common; in silt in the bottom of ponds, lakes and streams, and obtain oxygen by inserting hollow spines in the roots of aquatic plants; widespread at lower elevations.

Paralimna punctipennis (Wiedemann). Uncommon; reported as occurring in Utah, larvae in mud at pond margins.

Typopsilopa atra (Loew). Uncommon; widespread. Larvae is detritus at pond margins.

SUBFAMILY PSILOPINAE

Allotrichoma (1 or 2 species). Common; widespread. Burrowers. (One species known to breed in pig manure.)

Athyroglossa (2 species). Uncommon; possibly occurring in damp earth along mountain streams; widespread.

Atissa liboralis (Cole). Uncommon; reported as occurring in saline ponds around Salt Lake City.

Clanoneurum americanum Cresson. Uncommon, possibly salt marsh or leaf miners, northern Utah.

Discocerina (3 species). Uncommon, in moss or algae, widespread.

SCIOMYZIDAE (= TETANOCERIDAE)

Tetanocera. Fairly common in pools rich in organic matter and with muddy bottoms; probably widespread. The larvae burrow in snails.

Dictya. Reported from Glen Canyon by G. Musser (1959). The larvae burrow in snails.

MUSCIDAE

Limnophora. Common locally in some streams; widespread.

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