

Data Management and Support for Statewide Surveys of Fish and Macroinvertebrates.

Final Report
To
Kansas Department of Wildlife and Parks
From
Kansas Biological Survey
For Contract Period: July 1, 2004 – July 31, 2005
Submitted: July 18, 2005

Macroinvertebrate Data Analysis

Introduction

In July 2005 a contract was executed between the Kansas Department of Wildlife and Parks (KDWP) and the Kansas University Center for Research for data management and support services for analysis of macroinvertebrates specimens collected in conjunction with KDWPs' statewide survey of fish and macroinvertebrates. The Kansas Biological Survey (KBS) was identified as being responsible for the macroinvertebrate data analysis services. This report covers the support services provided by KBS during the contractual period which included a one-month no-cost extension of time.

The methods and procedures used to sort samples, identify specimens, and manage the data were the same as those used during the previous contract with KDWP and are described in that Final Report dated June 14, 2004. A total of 27,522 specimens representing 287 different taxa (Table 1) were identified from 262 sample bottles collected from 143 different collection sites. All samples received from KDWP have been sorted into taxonomic groups. Although KBS processed and identified about 60% more specimens during this contract period than previous contract period, there still remain approximately 3,800 vials of sorted specimens yet to be identified and/or entered into the database.

Unknowns existed on the part of both KDWP and KBS when the first contract was entered into in 2003. These unknowns included the number of individual bottles of specimens that would actually be received by KBS from KDWP, the amount of time needed to sort samples, and the number of specimens that would be contained in each bottle that would need to be identified and entered into a database. Each of these variables impacts the number of samples and specimens that can be completely processed. Because more samples were received than anticipated, and some samples contained significantly greater numbers of specimens than anticipated, not all the samples were completed during the 2003-2004 contract period. Consequently, KBS was left with a backlog of material to be processed at the beginning of contract period beginning in

July 2005. A backlog of material, although reduced from the previous contract period, still remains.

Results and Discussion

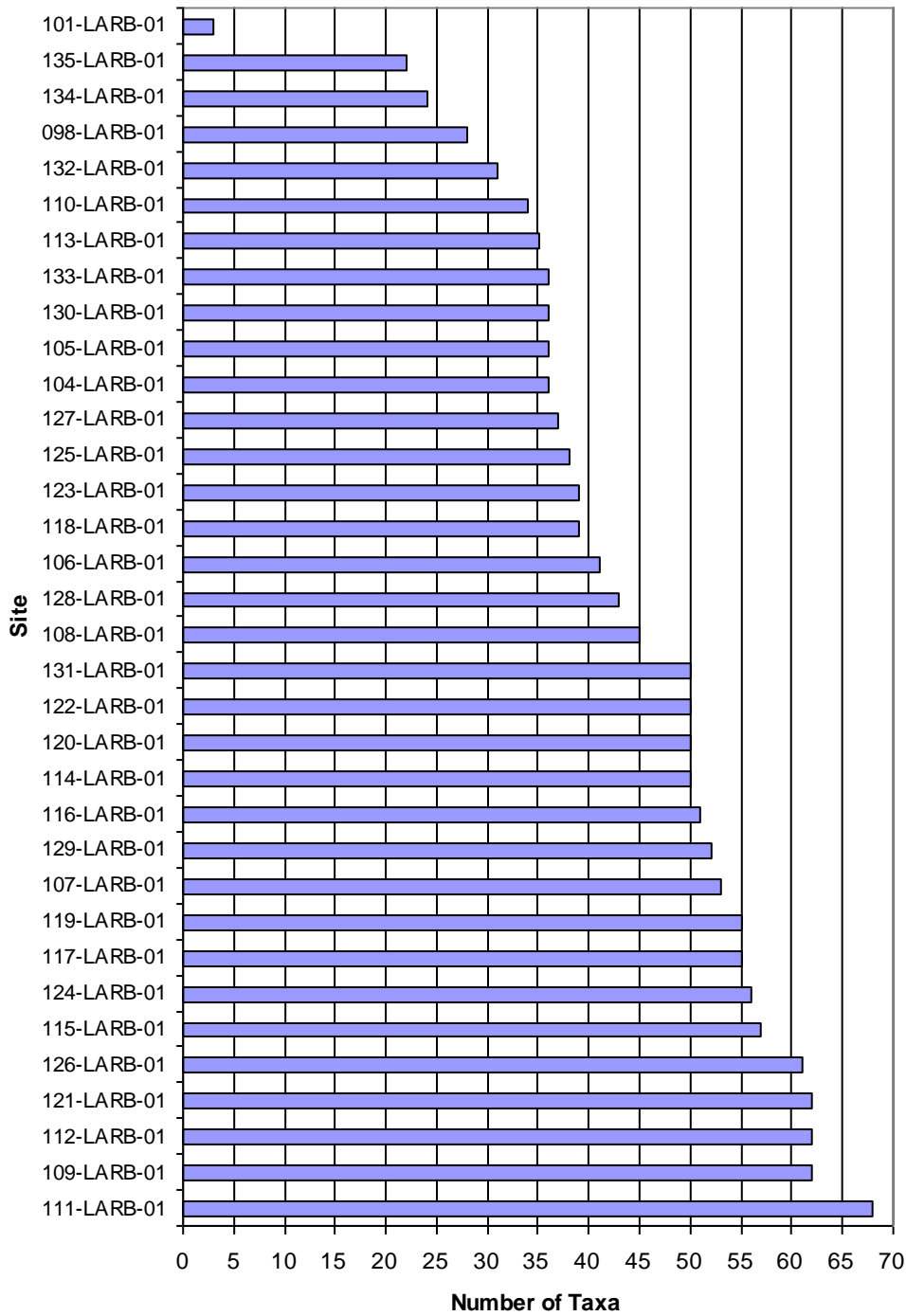
Specimen data for all the samples processed during the contract period is contained in the most recent spreadsheet electronically sent to Kristen Hase, KDWP Environmental Services Section. An indication of the numbers of taxa found at each sample site is graphically displayed on the three pages following the list of taxa. The three graphs are arranged by KDWP sampling area: Lower Arkansas Basin (LARB); RFM sampling sites; Upper Arkansas Cimarron sites.

The LARB sample sites generally contained more taxa than the other two sampling efforts. The RFM and UAC sites had similar numbers of taxa at each site, however, 17 UAC sites had 5 or few taxa while only one site in each of the LARB and RFM sampling efforts. The average number of taxa found in each sampling area were: LARB – 44 taxa; RFM – 17.4 taxa; and UAC – 9.6 taxa. A meaningful comparison of the condition of individual streams beyond a basic comparison of the number of taxa found in samples is difficult due to differences in size of the streams sampled, differences in sampling effort, different time of year that samples were collected, and different ecological regions of the State where samples were collected.

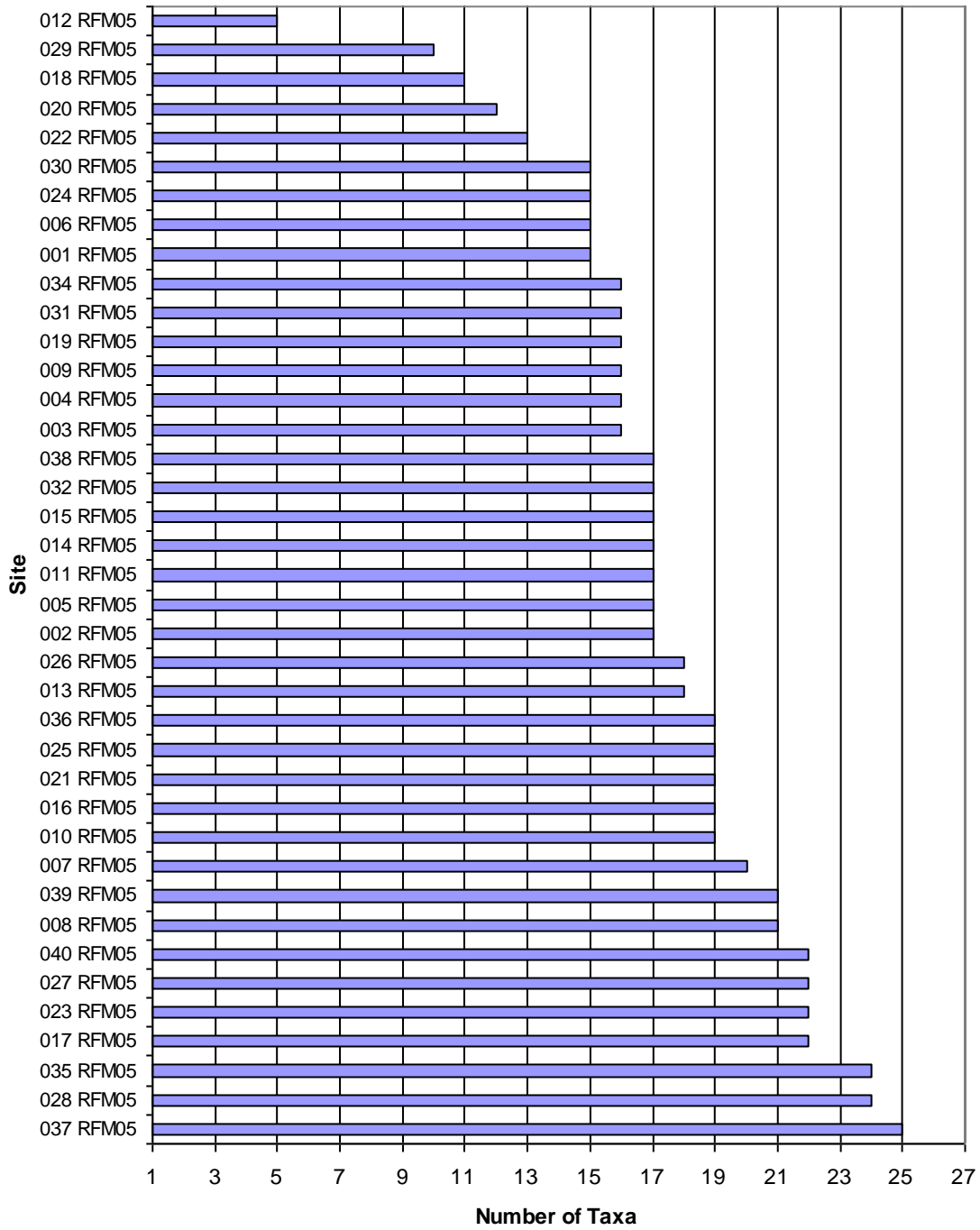
Table 1 (List of Taxa)

Acarina	Caenidae	Cymbiodyta	Gomphidae	Hydroptilidae	Microvelia	Pentatomidae	Somatochlora
Acerpenna	Caenis	Cyphon	Gomphus	Hygrobatidae	Mimetidae	Perlesta	Sphaeriidae
Acilius	Callibaetis	Cymellus	Gordius	Ilybius	Miridae	Petrophila	Sphaerium
Acrididae	Caloparyphus	Dasyhelea	Gymnochthebius	Ironoquia	Misumenops	Physa	Staphylinidae
Acylophorus	Calopteryx	Dicranota	Gyretes	Ischnura	Muscidae	Physella	Stenacron
Aeshnidae	Camelobaetidius	Dictynidae	Gyrinus	Isocapnia	Nabidae	Pirata	Stenelmis
Agabus	Canaceidae	Dineutus	Haliplus	Isonychia	Nasiaeschna	Pisauridae	Stenonema
Allocaepnia	Cantharidae	Dipheter	Helichus	Isoperla	Nectopsyche	Pisidiidae	Stenus
Allocranonyx	Carabidae	Diptera	Helicopsyche	Labiobaetis	Nematomorpha	Pisidium	Stratiomys
Amaurobiidae	Centroptilum	Dromogomphus	Helisoma	Laccobius	Neocurtilla	Placobdella	Stygobromus
Anax	Ceraclea	Dubiraphia	Helobdella	Laccodytes	Neoperla	Planariidae	Syrphidae
Anopheles	Ceratopogonidae	Dugesia	Helochares	Laccophilus	Neoplea	Potamyia	Tabanus
Anthopotamus	Ceratopsyche	Dytiscidae	Helocombus	Leptohyphidae	Neoporus	Probezzia	Taxon
Antocha	Cercobrachys	Elateridae	Helophorus	Leptophlebia	Neotrichia	Procloeon	Tetanocera
Araneae	Cercyon	Empididae	Hemerodromia	Leptophlebiidae	Neotridactylus	Progomphus	Tetragnatha
Araneidae	Chaetarthria	Enallagma	Heptagenia	Leucrocuta	Nigronia	Pseudocloeon	Tetragnatha laboriosa
Argenna	Chaoborus	Enochrus	Heptageniidae	Libellula	Noctuidae	Pseudosuccinea	Tetragnathidae
Argia	Chauliodes	Entomobryidae	Hetaerina	Limnophila	Nyctiophylax (Paranyctiophylax)	Ptiliidae	Tettigoniidae
Argulus	Cheumatopsyche	Ephemerella	Heterosternuta	Limnophora	Ochthebius	Quedius	Thermonectus
Arigomphus	Chimarra	Ephemeroptera	Hexagenia	Limonia	Ochthera	Ranatra	Thomisidae
Ateuchus	Chironomidae	Ephoron	Hexatoma	Lirceus	Odonata	Rhagovelia	Thripidae
Atrichopogon	Choroterpes	Ephydriidae	Homoeoneuria	Lycosa	Oecetis	Rheumatobates	Tipula
Baetidae	Chrysomelidae	Eretes	Homoptera	Lycosidae	Oligochaeta	Rhyacophila	Tipulidae
Baetis	Chrysops	Erigoninae	Hyaella	Lygaeidae	Omophron	Rhyacophilidae	Tortricidae
Basiaeschna	Coccinellidae	Erpetogomphus	Hydatophylax	Lymnaea	Ophiogomphus	Saldula	Trepobates
Belostoma	Coenagrionidae	Erpobdella	Hydraena	Macromia	Orconectes	Salticidae	Triaenodes
Berosus	Coleoptera	Erpobdellidae	Hydrobiomorpha	Macronychus	Oreodytes	Scarabaeidae	Trichocorixa
Bezzia	Copelatus	Fallceon	Hydrochus	Macrovelia	Ormosia	Sciomyzidae	Trichoptera
Bidessonotus	Corbicula fluminea	Ferrissia	Hydrometra	Megaloptera	Palmacorixa	Scolytidae	Tricorythodes
Bivalvia	Cordulia	Forcipomyia	Hydroperla	Melampsalta	Paracloeodes	Scydmaenidae	Tropicus
Brachycentrus	Coreidae	Formicidae	Hydrophilidae	Melanotus	Paracymus	Sialis	Tropisternus
Brachycercus	Corixidae	Gelastocoris	Hydrophilus	Menetus	Paraplea	Sigara	Unionicolidae
Brachyvatus	Corydalus	Geometridae	Hydroporus	Merragata	Pelocoris	Simuliidae	Uvarus
Braconidae	Curculionidae	Gerris	Hydroporus ouachitus	Mesovelia	Peltodytes	Simulium	Veliidae
Branchiobdellidae	Cybister	Glenognatha	Hydropsyche	Metrobates	Pentacora	Sitophilus	Viviparus
Caecidotea	Cydnidae	Glossiphoniidae	Hydropsychidae	Microcylloepus	Pentagenia	Sminthurides	Zealeuctra

Numbers of Taxa at LARB Sites



Number of Taxa at RFM Sites



Number of Taxa at UAC Sites

