



TEXAS TECH UNIVERSITY

Natural Science Research Laboratory

# OCCASIONAL PAPERS

Museum of Texas Tech University

Number 279

30 October 2008

## DRAGONFLY (ODONATA: ANISOPTERA) HOLDINGS OF THE MUSEUM OF TEXAS TECH UNIVERSITY

*BRYAN A. REECE AND NANCY E. MCINTYRE*

### ABSTRACT

Specimens of dragonflies held in the Museum of Texas Tech University were reviewed. Prior to our work, this collection had only been partially sorted and not cataloged. Most specimens are from the state of Texas, with fewer individuals having been collected from other states and countries. The holdings for Texas include some undersampled areas. A total of 54 new county records were uncovered for the state of Texas.

Key words: Anisoptera, dragonfly, Museum of Texas Tech University, Odonata

### INTRODUCTION

Dragonflies and damselflies (Insecta: Odonata) appear to be useful as bioindicators, with members of the suborder Anisoptera (dragonflies) being the focus of attention in studies of diversity and ecological health (Oertli et al. 2002). Because of the increasing importance attributed to presence/absence or diversity of species of the anisopteran fauna in natural areas, it is obviously important to have a good understanding of the distribution and diversity of species of these insects. The state of Texas has a wide variety of suitable habitats that support large populations of odonate insects and recent work by Abbott (2005a, 2006, 2007, 2008) has provided new data on distributions. However, because of undersampling, many of the odonate communities around the state remain unknown. Recent

surveys have focused attempts on sampling the assemblages of odonates inhabiting the Southern High Plains (Abbott 2001, 2005b; Abbott et al. 2003; Reece and McIntyre, in press), an area identified as needing additional collecting to more completely document existing biodiversity.

However, a valuable resource has been overlooked in previous documentation: the holdings of the Natural Science Research Laboratory (NSRL) at the Museum of Texas Tech University (TTU). Until recently, access to this resource has not been easily available and thus it has been underutilized. Therefore, an analysis of dragonfly species housed at the Museum of TTU was conducted.

## METHODS

The odonate collection at the NSRL had not been previously sorted and cataloged systematically, thereby limiting its potential utility. During 2006-2007, dragonfly specimens were sorted into two groups: 1) those with firm identifications, and 2) those as yet unidentified. Unidentified specimens were identified using Needham et al. (2000) and, when possible, specimens were cross-referenced with vouchers identified by M.

J. Westfall Jr. (also housed at the Museum of TTU). Species were then tabulated and organized based on taxonomic relationship and collection locality. Individual specimens were given a unique TTU-Z catalog number with corresponding barcode for quick specimen tracking and are housed in the Invertebrate Zoology Collection of the Museum of TTU.

## RESULTS

Most specimens housed in the collection were collected in the state of Texas, although additional states and other countries also are represented (Appendix I). The Museum of TTU contains 29 species representing collecting localities from 52 counties in Texas (Fig. 1), with collecting dates ranging from the 1920's to 2008. Fifty-four specimens representing 21 species were previously unreported from the counties in which they were collected in Texas (Appendix II), although for some records, specific locality data were not available.

The largest number of specimens and species in the collection were obtained from habitats in Kimble

and Lubbock counties. The large number of samples for these two counties is likely due to the proximity to the two Texas Tech University campuses in Junction, Texas (Kimble Co.) and Lubbock, Texas (Lubbock Co.).

Although these specimens represent several previously undocumented records for these counties, all species that were identified in our study do occur relatively near or within their known distributions. In total, 398 specimens of 458 individuals were identified to species in this investigation; the remainder could only be identified to genus or family.

## DISCUSSION

The specimens representing the Odonata housed in the invertebrate collection at the Museum of TTU were collected from only 52 of the 254 counties in Texas. However, these holdings cover much of the state, particularly the Southern High Plains, and therefore are useful in understanding the distributions of dragonflies in this area. The large number of county

records reiterates the fact that this area has been undersampled and further studies in this region are likely to advance our understanding of the diversity of this important group of insects. Furthermore, by making this information available, it can be utilized by other researchers in the future.

## ACKNOWLEDGMENTS

We thank James Cokendolpher and Mary Belden for their assistance (Invertebrate Zoology Collection, Museum of TTU) and John Abbott (University

of Texas, Austin) for helpful discussion during the processing of specimens. Comments from several reviewers improved the manuscript.

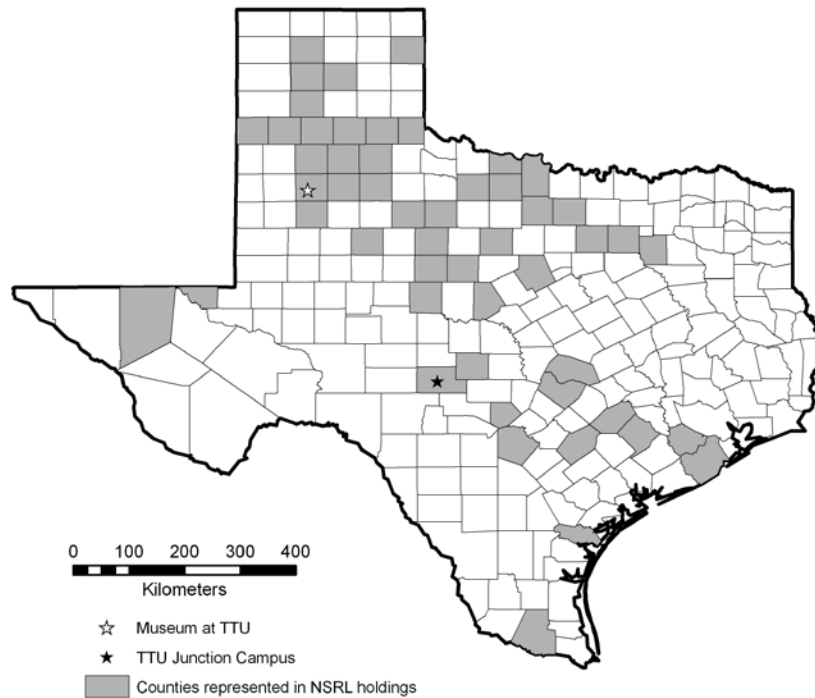


Figure 1. Map of the counties of Texas from which odonates were collected and deposited into the Natural Science Research Laboratory (NSRL) at the Museum of Texas Tech University.

### LITERATURE CITED

- Abbott, J. C. 2001. Distribution of dragonflies and damselflies (Odonata) in Texas. *Transactions of the American Entomological Society* 127:199-228.
- Abbott, J. C. 2005a. Dragonflies and damselflies of Texas and the south-central United States: Texas, Louisiana, Arkansas, Oklahoma, and New Mexico. Princeton University Press, Princeton, New Jersey.
- Abbott, J. C. 2005b. New and notable records of Odonata from Texas. *Southwestern Entomologist* 30:169-174.
- Abbott, J. C., editor. 2006. Dragonflies and damselflies (Odonata) of Texas. Volume 1. Odonata Survey of Texas, Austin, Texas.
- Abbott, J. C., editor. 2007. Dragonflies and damselflies (Odonata) of Texas. Volume 2. Odonata Survey of Texas, Austin, Texas.
- Abbott, J. C., editor. 2008. Dragonflies and damselflies (Odonata) of Texas. Volume 3. Odonata Survey of Texas, Austin, Texas.
- Abbott, J. C., R. A. Behrstock, and R. R. Larsen. 2003. Notes on the distribution of Odonata in the Texas Panhandle, with a summary of new state and county records. *Southwestern Naturalist* 48:444-448.
- Needham, J. G., M. J. Westfall, Jr., and M. L. May. 2000. Dragonflies of North America. Scientific Publishers, Inc., Gainesville, Florida. 939 pp.
- Oertli, B., D. A. Joye, E. Castella, R. Juge, D. Cambin, and J.-B. Lachavanne. 2002. Does size matter? The relationship between pond area and biodiversity. *Biological Conservation* 104:59-70.
- Reece, B. A., and N. E. McIntyre. In press. New county records of Odonata of the playas of the Southern High Plains, Texas. *Southwestern Naturalist*.

*Addresses of authors:*

**BRYAN A. REECE**

*Department of Biological Sciences  
Texas Tech University  
Lubbock, TX 79409-3131 USA  
b.reece@ttu.edu*

**NANCY E. MCINTYRE**

*Department of Biological Sciences  
Texas Tech University  
Lubbock, TX 79409-3131 USA  
nancy.mcintyre@ttu.edu*

## APPENDIX I

Anisoptera holdings at the Museum of Texas Tech University. Species are presented in alphabetical order with number of specimens, collection location, and TTU-Z catalog numbers indicated. Country is the United States unless otherwise indicated in all capital letters.

## Family Aeshnidae

*Anax junius* (Drury) (55).—Kansas: Pawnee Co. (31208). Oklahoma: Delaware Co. (31277). Pennsylvania: Luzerne Co. (30986). Texas: (31233); Archer Co. (22445, 22456); Baylor Co. (22444); Bexar Co. (22432); Briscoe Co. (31212, 31214); Carson Co. (31218); Childress Co. (31213, 31216, 31217, 31241); Clay Co. (22418, 22458, 22460); Crosby Co. (31226); Culberson Co. (35288); Dickens Co. (31224, 31225); Colorado Co. (31211, 31236); Hale Co. (31228); Hemphill Co. (31234, 31238); Kaufman Co. (31229, 31230); Lubbock Co. (22390, 22440, 31207, 31209, 31210, 31220, 31221, 31237, 31239, 31240, 31242, 31243, 31246, 31260, 39797); Lynn Co. (31235, 31244, 31245); Moore Co. (32005); Motley Co. (31215); Parmer Co. (31219); Randall Co. (31223) Scurry Co. (31227); Swisher Co. (31222, 31232); Wichita Co. (22462).

*Boyeria vinosa* (Say) (1).—Pennsylvania: Luzerne Co. (30973).

*Rhionaeschna confusa* (Rambur) (4).—ARGENTINA: Buenos Aires (35001-35004).

*Rhionaeschna multicolor* (Hagen) (14).—New Mexico: Chaves Co. (35268). Texas: Crosby Co. (34945, 35000); Culberson Co. (35795); Jones Co. (34941, 34942); Lubbock Co. (31247, 31258, 34940, 34943, 34944, 34946, 34947) Lynn Co. (31248).

Undetermined (1).—Pennsylvania (30980).

## Family Corduliidae

*Epithea (Tetragoneuria) petechialis* (Muttkowski) (1).—Texas: Lubbock Co. (31231).

## Family Gomphidae

*Dromogomphus spinosus* (Selys) (1).—Texas: Kimble Co. (22236).

*Erpetogomphus designatus* (Hagen) (4).—Texas: Brown Co. (31284); Kimble Co. (22235); Loving Co. (22233); Lubbock Co. (22234).

*Gomphus externus* (Hagen) (5).—Texas: Kimble Co. (22237-22241).

*Hagenius brevistylus* (Selys) (3).—Texas: Kimble Co. (22230-22232).

*Octogomphus* sp (1).—MEXICO: Nuevo Leon, Sabinas Hidalgo (22451).

*Stylurus plagiatus* (Selys) (2).—Texas: (22242), Kimble Co. (22243).

Undetermined (3).—Texas: Kimble Co. (31252, 31254). Washington: Whitman Co. (22449).

## APPENDIX I (CONT.)

## Family Libellulidae

*Brechmorhoga mendax* (Hagen) (2).—Texas: Jones Co. (22463); Kimble Co. (31255).

*Celithemis eponina* (Drury) (1).—Texas: Lubbock Co. (31184).

*Diplacina braueri* (Selys) (1).—PHILIPPINES: Luzon, Pampanga (Magalang) (31261).

*Diplacodes trivialis* (Rambur) (2).—PHILIPPINES: Luzon, Pampanga (Angeles City) (31268, 31269).

*Dythemis fugax* (Hagen) (10).—Texas: Brown Co. (22419, 22434); Crosby Co. (31190, 31191); Kimble Co. (31185, 31186, 31188, 31274); Lubbock Co. (31189); Travis Co. (31187).

*Dythemis velox* (Hagen) (12).—Texas: (31197); Brown Co. (22425); Kimble Co. (31193, 31194, 31198, 31253, 31256, 31257, 32156); Lubbock Co. (31195, 31196), Wichita Co. (22452).

*Erythemis simplicicollis* (Say) (23).—Texas: (22329); Archer Co. (22426); Callahan Co. (31161, 31163); Erath Co. (31159, 31166); Fort Bend Co. (31175); Jones Co. (11568, 22466); Kimble Co. (31167, 31170, 31172, 31174, 31176); Lubbock Co. (31162, 31168, 31169, 31171, 31177); San Patricio Co. (31160, 31164, 31165); Travis Co. (31173).

*Libellula auripennis* (Burmeister) (1).—Mississippi: Harrison Co. (35764).

*Libellula comanche* (Calvert) (3).—Unknown (34997). Texas: Lubbock Co. (34998); Travis Co. (34999).

*Libellula croceipennis* (Selys) (2).—Texas: Kimble Co. (31205, 31206).

*Libellula flavida* (Rambur) (1).—Pennsylvania: Luzerne Co. (30974).

*Libellula luctuosa* (Burmeister) (24).—Oklahoma: Payne Co. (31099). Texas: (31100); Childress Co. (31112); Crosby Co. (31114, 31119); Erath Co. (31120); Kimble Co. (31101, 31104, 31108, 31110, 31116-31118); Lubbock Co. (31027, 31102, 31105, 31113, 31115); Lynn Co. (31109); Randall Co. (31103); Stonewall Co. (31111); Travis Co. (31107); Wichita Co. (22427); Wise Co. (31106).

*Libellula pulchella* (Drury) (7).—Colorado: Weld Co. (31154). Pennsylvania: Columbia Co. (30989). Texas: Briscoe Co. (31158); Crosby Co. (31153); Hall Co. (31157); Lubbock Co. (31155, 31156).

*Libellula saturata* (Uhler) (7).—New Mexico: Sierra Co. (31200). Texas: Carson Co. (31204); Colorado Co. (31201); Crosby Co. (31203); Culberson Co. (35259); Lubbock Co. (31199); Lynn Co. (31202).

*Miathyria marcella* (Selys) (6).—Texas: Colorado Co. (22328); Fort Bend Co. (22326); San Patricio Co. (22323-22325, 22327).

*Neurothemis fluctuans* (Fabricius) (1).—PHILIPPINES: Luzon, Pampanga (Magalang) (31262).

*Neurothemis terminata* (Ris) (2).—PHILIPPINES: Luzon, Pampanga (Angeles City) (31265, 31266).

## APPENDIX I (CONT.)

- Orthemis ferruginea* (Fabricius) (14).—Texas: (31086, 31091); Castro Co. (31092); Colorado Co. (31087, 31093); Hall Co. (31090); Hidalgo Co. (31096, 31097); Kimble Co. (31085, 31088, 31089); Lubbock Co. (31094); Lynn Co. (31095); Williamson Co. (31083).
- Orthetrum sabina* (Drury) (2).—PHILIPPINES: Luzon, Pampanga (Angeles City) (31263, 31264).
- Pachydiplax longipennis* (Burmeister) (19).—Mississippi: Harrinson Co. (31124). Texas: Brazoria Co. (15099); Crosby Co. (31122); Dickens Co. (31135); Haskell Co. (31123, 31129); Kaufman Co. (31134, 31136); Kimble Co. (31275); Lubbock Co. (15330, 31121, 31125, 31126, 31130, 31132, 31133); Lynn Co. (31128); Scurry Co. (31131); Williamson Co. (31127).
- Pantala flavescens* (Fabricius) (10).—MEXICO: Colima (31137). Texas: (31143, 31144); Brown Co. (22455); Carson Co. (31142); Floyd Co. (31139); Kimble Co. (31140); Lubbock Co. (31138, 31141, 39959).
- Pantala hymenaea* (Say) (9).—New Mexico: Hidalgo Co. (31147, 31148). Texas: (31145, 31146); Hale Co. (31150); Kimble Co. (31152, 31251); Lubbock Co. (31149, 31151).
- Perithemis tenera* (Say) (24).—Unknown (30943). Ohio: Green Co. (30990-30992). Texas: (30940, 30945, 31249); Archer Co. (22468); Dickens Co. (30946); Hall Co. (30937-30939); Kimble Co. (30944); Lubbock Co. (30941, 30942, 30947, 30952-30954); Stonewall Co. (30950); Tarrant Co. (30948, 30951); Wichita Co. (22439); Williamson Co. (30949).
- Plathemis lydia* (Drury) (25).—Michigan: Saginaw Co. (30998). Ohio: Green Co. (3100). Pennsylvania: Columbia Co. (30964). Texas: (31002-31004); Callahan Co. (30995); Clay Co. (22441); Crosby Co. (30960); Dallas Co. (30955, 31001); Hall Co. (30962, 30963, 30993, 30999); Scurry Co. (30996, 30997); Taylor Co. (30958); Wichita Co. (22459).
- Sympetrum* sp. (9).—Colorado: Larimer Co. (35271, 35278). Michigan: Saginaw Co. (22349, 22351-22354, 22357). Pennsylvania: Luzerne Co. (30981).
- Sympetrum ambiguum* (Rambur) (1).—Texas: (31192).
- Sympetrum corruptum* (Hagen) (74).—New Mexico: Hidalgo Co. (31037, 31038). Texas: (31012, 31013, 31017, 31025, 31031); Archer Co. (22420, 22429); Brown Co. (22417, 22430); Castro Co. (31064); Colorado Co. (31015); Crosby Co. (31028, 31030, 31032, 31036); Fayette Co. (31010); Floyd Co. (31051, 31052, 31055, 31058, 31061); Hall Co. (31008); Jones Co. (22465); Kimble Co. (31050, 31059, 31060); Lubbock Co. (22464, 31005, 31007, 31009, 31011, 31014, 31018-31022, 31024, 31026, 31029, 31033-31035, 31039, 31040, 31045, 31046-31048, 31053, 31054, 31056, 31057, 31063, 31065, 31067, 31069); Lynn Co. (31041); Mason Co. (31062); Potter Co. (31049, 31068, 31070); Randall Co. (31980, 34799-34801, 34804); Runnels Co. (31023); Swisher Co. (31016); Wichita (22423).
- Sympetrum obtrusum* (Hagen) (2).—Idaho: Latah Co. (31273); Nez Perce Co. (31271).
- Sympetrum vicinum* (Hagen) (11).—Texas: Brown Co. (31285, 31288); Culberson Co. (31291); Erath Co. (22411); Hemphill Co. (31278); Jack Co. (22448); Kaufman Co. (22409); Lubbock Co. (22410, 31276, 31279); Wichita Co. (22467).

## APPENDIX I (CONT.)

*Tramea lacerata* (Hagen) (13).—Texas: Bexar Co. (22437); Brown Co. (22435); Clay Co. (22454, 22461); Crosby Co. (31073, 31079); Kendall Co. (31071, 31075); Lubbock Co. (31072, 31074, 31076-31078).

*Tramea onusta* (Hagen) (8).—Texas: Brown Co. (22447); Gonzales Co. (31182); Jones Co. (34939); Lubbock Co. (31179, 31180, 31183); Parmer Co. (31181); Stephens Co. (31178).

*Tramea* sp. (1).—MEXICO: Coahuila (22370).

Undetermined (36).—Unknown (22368). ARGENTINA: Misiones Province (30969). ECUADOR: Napo Province (22414, 22416); Pastaza Province (22412). HONDURAS: Chaloma (22413). MEXICO: Coahuila (22372, 35762); Colima (22369, 22415); Tamaulipas (22450). Colorado: Larimer Co. (22348). Idaho: Latah Co. (30988). Michigan: Saginaw Co. (22350, 22355, 22356). Mississippi: Harrison Co. (35276, 35309, 35313, 35314, 35317, 35321, 35737, 35738, 35739, 35740, 35741, 35765, 35799); Jackson Co. (35772). Texas: Brewster Co. (22428); Culberson Co. (35287, 35291, 35295, 35302, 35322).



## APPENDIX II

Species collected in Texas held at the Museum of Texas Tech University. New county records are indicated by bold type.

County	Species
Archer	<b>Anax junius (Drury)</b> <i>Erythemis simplicicollis</i> (Say) <b>Sympetrum corruptum (Hagen)</b> <i>Perithemis tenera</i> (Say)
Baylor	<b>Anax junius (Drury)</b>
Bexar	<i>Anax junius</i> (Drury) <i>Tramea lacerata</i> (Hagen)
Brazoria	<i>Pachydiplax longipennis</i> (Burmeister)
Briscoe	<i>Anax junius</i> (Drury) <i>Libellula pulchella</i> (Drury)
Brown	<i>Dythemis fugax</i> (Hagen) <i>Dythemis velox</i> (Hagen) <i>Erpetogomphus desginatus</i> (Hagen) <b>Pantala flavescens (Fabricius)</b> <b>Sympetrum corruptum (Hagen)</b> <b>Sympetrum vicinum (Hagen)</b> <b>Tramea lacerata (Hagen)</b> <b>Tramea onusta (Hagen)</b>
Callahan	<i>Erythemis simplicicollis</i> (Say) <b>Plathemis lydia (Drury)</b>
Carson	<i>Anax junius</i> (Drury) <b>Libellula saturata (Uhler)</b> <b>Pantala flavescens (Fabricius)</b>
Castro	<b>Orthemis ferruginea (Fabricius)</b> <i>Sympetrum corruptum</i> (Hagen)
Childress	<b>Anax junius (Drury)</b> <b>Libellula luctuosa (Burmeister)</b>
Clay	<i>Anax junius</i> (Drury) <i>Plathemis lydia</i> (Drury) <i>Tramea lacerata</i> (Hagen)
Colorado	<i>Anax junius</i> (Drury) <b>Libellula saturata (Uhler)</b> <b>Miathyria marcella (Selys)</b> <i>Orthemis ferruginea</i> (Fabricius) <b>Sympetrum corruptum (Hagen)</b>

## APPENDIX II (CONT.)

County	Species
Crosby	<i>Anax junius</i> (Drury) <b><i>Dythemis fugax</i> (Hagen)</b> <i>Libellula luctuosa</i> (Burmeister) <i>Libellula pulchella</i> (Drury) <b><i>Libellula saturata</i> (Uhler)</b> <i>Pachydiplax longipennis</i> (Burmeister) <i>Plathemis lydia</i> (Drury) <b><i>Rhionaeschna multicolor</i> (Hagen)</b> <i>Sympetrum corruptum</i> (Hagen) <i>Tramea lacerata</i> (Hagen)
Culberson	<i>Anax junius</i> (Drury) <i>Libellula saturata</i> (Uhler) <i>Rhionaeschna multicolor</i> (Hagen) <i>Sympetrum corruptum</i> (Hagen) <i>Sympetrum vicinum</i> (Hagen)
Dallas	<i>Plathemis lydia</i> (Drury)
Dickens	<b><i>Anax junius</i> (Drury)</b> <i>Pachydiplax longipennis</i> (Burmeister) <i>Perithemis tenera</i> (Say)
Erath	<i>Erythemis simplicicollis</i> (Say) <i>Libellula luctuosa</i> (Burmeister) <i>Sympetrum vicinum</i> (Hagen)
Fayette	<b><i>Sympetrum corruptum</i> (Hagen)</b>
Floyd	<i>Pantala flavescens</i> (Fabricius) <i>Sympetrum corruptum</i> (Hagen)
Fort Bend	<i>Erythemis simplicicollis</i> (Say) <i>Miathyria marcella</i> (Selys)
Gonzales	<i>Tramea onusta</i> (Hagen)
Hale	<i>Anax junius</i> (Drury) <i>Pantala hymenaea</i> (Say)
Hall	<b><i>Libellula pulchella</i> (Drury)</b> <b><i>Orthemis ferruginea</i> (Fabricius)</b> <b><i>Perithemis tenera</i> (Say)</b> <b><i>Plathemis lydia</i> (Drury)</b> <i>Sympetrum corruptum</i> (Hagen)
Haskell	<b><i>Pachydiplax longipennis</i> (Burmeister)</b>
Hemphill	<i>Anax junius</i> (Drury) <b><i>Sympetrum vicinum</i> (Hagen)</b>

## APPENDIX II (CONT.)

County	Species
Hidalgo	<i>Orthemis ferruginea</i> (Fabricius)
Jack	<i>Sympetrum vicinum</i> (Hagen)
Jones	<b><i>Brechmorhoga mendax</i> (Hagen)</b> <b><i>Erythemis simplicicollis</i> (Say)</b> <b><i>Rhionaeschna multicolor</i> (Hagen)</b> <i>Sympetrum corruptum</i> (Hagen) <b><i>Tramea onusta</i> (Hagen)</b>
Kaufman	<b><i>Anax junius</i> (Drury)</b> <i>Pachydiplax longipennis</i> (Burmeister) <b><i>Sympetrum vicinum</i> (Hagen)</b>
Kendall	<b><i>Tramea lacerata</i> (Hagen)</b>
Kimble	<i>Brechmorhoga mendax</i> (Hagen) <i>Dromogomphus spinosus</i> (Selys) <i>Dythemis fugax</i> (Hagen) <i>Dythemis velox</i> (Hagen) <i>Erpetogomphus desginatus</i> (Hagen) <i>Erythemis simplicicollis</i> (Say) <b><i>Gomphus externus</i> (Hagen)</b> <i>Hagenius brevistylus</i> (Selys) <b><i>Libellula croceipennis</i> (Selys)</b> <i>Libellula luctuosa</i> (Burmeister) <i>Orthemis ferruginea</i> (Fabricius) <i>Pachydiplax longipennis</i> (Burmeister) <i>Pantala flavescens</i> (Fabricius) <i>Pantala hymenaea</i> (Say) <i>Perithemis tenera</i> (Say) <i>Plathemis lydia</i> (Drury) <i>Stylurus plagiatus</i> (Selys) <i>Sympetrum corruptum</i> (Hagen)
Loving	<i>Erpetogomphus desginatus</i> (Hagen)
Lubbock	<i>Anax junius</i> (Drury) <i>Celithemis eponina</i> (Drury) <i>Dythemis fugax</i> (Hagen) <i>Dythemis velox</i> (Hagen) <i>Epithea (Tetragoneuria) petechialis</i> (Muttkowski) <i>Erpetogomphus desginatus</i> (Hagen) <i>Erythemis simplicicollis</i> (Say) <i>Libellula comanche</i> (Calvert) <i>Libellula luctuosa</i> (Burmeister) <i>Libellula pulchella</i> (Drury) <i>Libellula saturata</i> (Uhler) <i>Orthemis ferruginea</i> (Fabricius) <i>Pachydiplax longipennis</i> (Burmeister)

## APPENDIX II (CONT.)

County	Species
Lubbock (cont.)	<i>Pantala flavescens</i> (Fabricius) <i>Pantala hymenaea</i> (Say) <i>Perithemis tenera</i> (Say) <i>Plathemis lydia</i> (Drury) <i>Rhionaeschna multicolor</i> (Hagen) <i>Sympetrum corruptum</i> (Hagen) <i>Sympetrum vicinum</i> (Hagen) <i>Tramea lacerata</i> (Hagen) <i>Tramea onusta</i> (Hagen)
Lynn	<b><i>Anax junius</i> (Drury)</b> <b><i>Libellula luctuosa</i> (Burmeister)</b> <b><i>Libellula saturata</i> (Uhler)</b> <i>Orthemis ferruginea</i> (Fabricius) <b><i>Pachydiplax longipennis</i> (Burmeister)</b> <b><i>Rhionaeschna multicolor</i> (Hagen)</b> <i>Sympetrum corruptum</i> (Hagen)
Mason	<i>Sympetrum corruptum</i> (Hagen)
Moore	<i>Anax junius</i> (Drury)
Motley	<i>Anax junius</i> (Drury)
Parmer	<i>Anax junius</i> (Drury) <i>Tramea onusta</i> (Hagen)
Potter	<i>Sympetrum corruptum</i> (Hagen)
Randall	<i>Anax junius</i> (Drury) <i>Libellula luctuosa</i> (Burmeister) <i>Sympetrum corruptum</i> (Hagen)
Runnels	<b><i>Sympetrum corruptum</i> (Hagen)</b>
San Patricio	<i>Erythemis simplicicollis</i> (Say) <i>Miathyria marcella</i> (Selys)
Scurry	<b><i>Anax junius</i> (Drury)</b> <b><i>Pachydiplax longipennis</i> (Burmeister)</b> <b><i>Plathemis lydia</i> (Drury)</b>
Stephens	<b><i>Tramea onusta</i> (Hagen)</b>
Stonewall	<b><i>Libellula luctuosa</i> (Burmeister)</b> <b><i>Perithemis tenera</i> (Say)</b>
Swisher	<i>Anax junius</i> (Drury) <i>Sympetrum corruptum</i> (Hagen)

## APPENDIX II (CONT.)

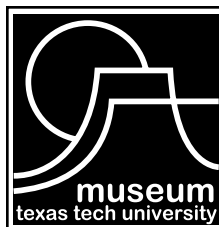
County	Species
Tarrant	<i>Perithemis tenera</i> (Say)
Taylor	<i>Plathemis lydia</i> (Drury)
Travis	<i>Dythemis fugax</i> (Hagen) <i>Erythemis simplicicollis</i> (Say) <i>Libellula comanche</i> (Calvert) <i>Libellula luctuosa</i> (Burmeister)
Wichita	<b><i>Anax junius</i> (Drury)</b> <b><i>Dythemis velox</i> (Hagen)</b> <b><i>Libellula luctuosa</i> (Burmeister)</b> <i>Perithemis tenera</i> (Say) <i>Plathemis lydia</i> (Drury) <i>Sympetrum corruptum</i> (Hagen) <b><i>Sympetrum vicinum</i> (Hagen)</b>
Williamson	<i>Orthemis ferruginea</i> (Fabricius) <i>Pachydiplax longipennis</i> (Burmeister) <i>Perithemis tenera</i> (Say)
Wise	<i>Libellula luctuosa</i> (Burmeister)





**PUBLICATIONS OF THE MUSEUM OF TEXAS TECH UNIVERSITY**

Institutional subscriptions are available through the Museum of Texas Tech University, attn: NSRL Publications Secretary, Box 43191, Lubbock, TX 79409-3191. Individuals may also purchase separate numbers of the Occasional Papers directly from the Museum of Texas Tech University.



**ISSN 0149-175X**

*Museum of Texas Tech University, Lubbock, TX 79409-3191*