BEETLE BIODIVERSITY RESPONSE TO VEGETATION RESTORATION OF MID-VALLEY RIPARIAN WOODLAND IN THE LOWER RIO GRANDE VALLEY OF SOUTHERN TEXAS

A Thesis

by

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ABSTRACT

In ecological restoration, habitat managers intervene in a degraded ecosystem to aid its recovery. To assess a restored habitat, one or more characteristics such as biodiversity, ecosystem functioning, and community structure are measured in relation to a reference habitat. While many restoration projects focus on vertebrates, arthropod taxa may be a more informative group, and beetles (Insecta: Coleoptera) in particular are a significant part of most ecosystem functions.

In the four southernmost counties of Texas, the Rio Grande forms a fertile flood plain and delta; however, 98% of the riparian habitat on the Texas side has been cleared for farmland and urban expansion. Recent ecological restoration in some regions of the Lower Rio Grande Valley has consisted of revegetating reclaimed farmland and protecting it from further degradation. Here, an evaluation of the success of the restoration of mid-valley riparian woodland sites based on a survey of beetle communities is conducted at five sites between September 2008 and June 2010. The five sites included three reference sites of primary habitat from coastal brushlands potholes, a sabal palm forest, and a mid-valley riparian woodland, and two restored sites of mid-valley riparian woodland which varied in the age of their restored habitat vegetation. Beat samples and ultraviolet blacklight bucket trap samples were taken once every two weeks, while pitfall traps and Lindgren funnel traps ran continuously and were serviced once every two weeks. The sampling methods employed were designed to capture a wide variety of beetles with different biological characteristics.

In total, 113,490 beetles from 69 families and 977 species and morphospecies were collected at the five sites. *Canthon viridis* (Palisot de Beauvois) (Scarabaeidae) dominated the sabal palm forest while *Tro*Pic*us pusillus* (Say) (Heteroceridae) was dominant at the other four sites. Calculations of the Simpson's and Shannon diversity indices and of species richness suggest that beetle species biodiversity in the restored sites is converging with that of the primary forest site. The information presented here should be of use to habitat managers for monitoring current restoration efforts in the Lower Rio Grande Valley and should inform future restoration strategies.

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1. INTRODUCTION AND BACKGROUND

Ecological restoration science

With global ecosystem services valued at $16-54 trillion per year (Costanza et al. 1997), along with the fact that human alterations of the global environment has triggered a major extinction event (Chapin III et al. 2000), growing attention is being paid to the value of well-functioning ecosystems. Restoration projects are increasingly being implemented in many regions of the world that contain impoverished ecosystems (Clewell and Aronson 2013). These projects are globally supported by policy initiatives such as the Convention on Biological Diversity (United Nations 1992), and by international organizations such as the Society for Ecological Restoration.

Ecological restoration was initially defined as bringing an ecological system back into a former state (MacMahon 1997). The ideal former state has historically meant a well-defined, indigenous, historic, and stable ecosystem that existed prior to anthropogenic disturbance (National Research Council 1992, Society for Ecological Restoration 1994). In modern ecological restoration, ecosystem managers intervene in a habitat to speed the recovery of degraded ecosystems and to align the ecological trajectory of the habitat towards obtaining the attributes of a reference site so that the habitat no longer needs intervention (Dobson et al. 1997, Society for Ecological Restoration 2004). Characteristics targeted by ecosystem managers of natural ecosystems can be summarized into the following categories (Franklin 1988, Hobbs and Norton 1996, Clewell et al. 2005):

1. *Biodiversity*. Biodiversity includes the taxonomic and genetic diversity of life forms and the resultant species composition. Species composition includes the characteristic assemblage of species present and their relative abundances.

2. *Structure*. Structure includes the vertical arrangement of vegetation and soil components and the horizontal arrangement of system components.

3. *Ecosystem Functions and Services*. Ecosystem function includes the performance of basic ecological processes, such as nutrient cycling, decomposition, and carbon fixation. Ecosystem services, including goods such as food, refer to the benefits that humans obtain from the ecosystem functions, either directly or indirectly (Costanza et al. 1997)

The following are four examples encompassing the majority of situations in which ecological restoration is carried out (Hobbs and Norton 1996).

1. A site that is highly degraded, such as from a mining operation, is restored. Restoration of the physical and chemical properties of the substrate is necessary to enable the return of plant life (Bradshaw 1987, Schaller 1993). In these cases, trace quantities of toxic elements may be more limiting than other environmental gradients such as soil nutrient levels.

2. Degraded production land, such as forest or agricultural land, is restored. Restoration of these lands requires reestablishing the soil in addition to the vegetation. This normally involves reversing soil erosion and salinization problems with the goal of enabling sustainable production from the land (Aronson et al. 1993).

3. Conservation value of protected land reduced by pollution, biotic exchange, or other form of degradation is restored. Restoration in this case aims to remove or minimize the degrading force, such as an invasive pest, from the protected land.
4. Conservation value of productive land reduced by fragmentation, habitat loss, or other factors is restored. Natural and semi-natural vegetation on portions of productive land can facilitate the conservation of biodiversity in the long term (Hobbs 1993, Morton et al. 1995).

The specific goals of ecological restoration projects vary greatly. Some issues that must be addressed before determining specific goals and objectives, and evaluating the success of a particular project include: (1) which specific attributes of the natural ecosystem are most important to restore, (2) do any non-native species have value in restoring the attributes, and (3) how closely do these attributes need to resemble the targeted status for the ecosystem to be considered restored (Bridgewater 1990, Hobbs and Norton 1996). The major goal of most ecological restoration projects is to reestablish the biodiversity that was present before degradation (Jordan et al. 1990, Sala et al. 2000). The specific 'snap-shot' in time that a restoration project hopes to achieve plays a large role in the planning and strategy employed by ecosystem managers for many projects. The North American ecosystems that existed prior to European colonization have historically been thought of as pristine, and therefore, customarily have been the non-degraded ecological targets of most restoration projects in North America (Jackson and Hobbs 2009). However, it has been shown that many Native American cultures altered their habitats on a far larger scale than was previously

understood (Jackson et al. 2001, Vale 2002), particularly with fire. In most of Europe, centuries of land use has extensively modified the original ecosystem. This makes it difficult to identify an ideal reference ecosystem. Jackson and Hobbs (2009) and Seastedt et al. (2008) have challenged the unrealistic goal of identifying, reaching, and sustaining a 'pristine' ecosystem and thus promote a revision of the conventional approach. They note that many changes in largely uncontrollable variables in the environment, such as CO_2 levels and temperatures, will likely make any attempt to return habitats to a specific past condition impossible. Instead of a static goal, ecosystem drift in response to human influence must be acknowledged, and restorationists must find ways to compensate for this while assisting the novel ecosystems in fostering biodiversity and supporting ecosystem services. More recently, the definition of ecological restoration and the corresponding goals of many restoration projects have been altered to reflect this fact, and the use of reference sites for a comparison in measuring success as opposed to the site's actual former state is encouraged (Ruiz-Jaen and Aide 2005). Due to the nature of the task and the fact that many scientifically rigorous restoration efforts began only in the late 20^{th} century (Young et al. 2005, Clewell and Aronson 2013), the success of many restoration projects in reaching their goals is still largely unknown (Benayas et al. 2009).

Evaluating the progress or success of a restoration project remains a problematic endeavor. The Society for Ecological Restoration (SER) (2004) listed nine attributes that indicate when an ecosystem has been restored and no longer needs assistance. However, few studies have the time, finances, and expertise to measure each of the nine attributes.

In practice, most projects focus largely on monitoring biodiversity characteristics. Even though the interdependence between biodiversity and ecosystem functioning is not fully understood, it is generally accepted that species richness minimally has an asymptotic relationship with the maintenance and resiliency of ecosystem functioning (McNaughton 1977, Tilman and Downing 1994, Pimm et al. 1995). Walker (1992) suggests that, because "all species are not created equal", an approach that focuses on functional groups, or guilds, and the redundancy within these groups, will provide more information on the integrity of the ecosystem. To measure or sample the entire biota is impossible, and researchers sample a subset of the biota to extrapolate an approximation of the overall diversity.

Restoration of the Lower Rio Grande Valley (LRGV)

In Texas, habitat fragmentation is expanding as the demands of rising population strain natural resources and alters land use (Collins 1984). The Texas Parks and Wildlife Department, U. S. Fish and Wildlife Department, private landowners, and others are involved in restoring many types of habitat ranging from semiarid grasslands to freshwater marshes and subtropical thorn woodlands (Wagner 1997). Ecological restoration projects have begun at many sites in the diverse habitats of the Lower Rio Grande Valley region of south Texas, a region that the U. S. Fish and Wildlife Department and the Texas Parks and Wildlife Department have identified as in need of restoration and conservation in order to preserve its unique flora and fauna (U. S. Fish and Wildlife Service 1997).

Prior to European colonization, human disturbance in the LRGV was minimal (Rappole et al. 1986). However, written records of human encroachment of the natural habitat date back at least 100 years (Schwarz 1896). Since 1920, an estimated 95% of the former LRGV native brushland has been cleared for agriculture, urban development, and recreation (Jahrsdoerfer and Leslie Jr 1988) and 98% of riparian habitats on the United States side have been cleared (U. S. Department of the Interior 1980). Three dams built by the U. S. and Mexico between 1954 and 1975 have altered the remaining riparian habitat of the Rio Grande through flood control and reduced river flow (U. S. Fish and Wildlife Service 1997). Heavy rainfall and poor drainage still result in occasional flooding in the area. Habitat fragmentation and degradation now threatens over 100 endangered or threatened plants and animals found in the area (U. S. Fish and Wildlife Service 1997).

Many sizeable areas of the Lower Rio Grande Valley of south Texas have recently been preserved and targeted for restoration by federal, state, and non-government organizations, including the U. S. Fish and Wildlife Service, Texas Parks and Wildlife Department, local governments, Frontera Audubon Society, National Audubon Society, The Nature Conservancy, and private land owners. The preserved areas are interspersed and include different types of mature remnant forests, fallow former farmland, and sites revegetated with native woody plants. Among the largest and most significant of the preserved tracts is the LRGV NWR, which currently encompasses more than 364 km^2 and will eventually grow to ca. 536 km^2 (U. S. Fish and Wildlife Service 1997).

The goals of the LRGV NWR include the conservation and restoration of the natural biodiversity through a land acquisition program that will create a wildlife corridor stretching along the last 443 km of the Rio Grande (U. S. Fish and Wildlife Service 2014). Acquired tracts of land are revegetated with a mixture of seedlings of native plant species. The exact composition of plant seedlings used depends on their availability at local nurseries. The land is then allowed to revegetate without further intervention. It is important to note that while the soil structure and composition has indubitably been altered from its use in agriculture and flood control, the restoration does not include any direct amelioration of the soil.

Lower Rio Grande Valley (LRGV)

The LRGV is located in the four southernmost counties of Texas- Cameron, Hidalgo, Starr, and Willacy- and an encompasses an area approximately 79,700 km^2 (Lonard 1985). This area is within the Tamaulipan province of Dice (1943) and is the distinct Matamoran District of the Tamaulipan province of Blair (1950). The LRGV is not a traditional valley, but rather the delta and flood plain of the Rio Grande (Jahrsdoerfer and Leslie Jr 1988). The Rio Grande forms the southern border of the region. Historically, the cyclical flooding of the river provided fertile soils for the region, and many oxbow lakes (resacas) lined by natural levees line the river. The flood plain is about 1 km wide at the base of the Falcon Dam near the northwestern border of the region, and gradually widens to 50 km at the mouth of the Rio Grande where it empties into the Gulf of Mexico in Cameron County (Lonard and Judd 2002). Historically, rainfall ranges from 38-76 cm per year, but is highly erratic both seasonally and annually

(Clover 1937), and is the limiting factor in plant growth (Blair 1950). Monthly rainfall averages between 2.5-5 cm with the exception of September, which averages almost 15 cm. Temperatures range from an average high of 34°C in the late summer, to lows of ca. 12°C in December and January. This results in the LRGV having a year-round growing season, one of only three such areas in the United States (Blair 1950). Winters without a single freezing temperature are not a rarity (Lonard and Judd 2002); however, severe freezes can occur and can cause considerable damage to native and agricultural plants (Lonard and Judd 1985).

The historical combination of periodic flooding, fertile delta soil, and occasional droughts resulted in a subtropical LRGV biota adapted to semiarid conditions (U. S. Fish and Wildlife Service 1997). The LRGV flora varies from a lush, mesic assemblage near the Rio Grande to a xeric flora farther inland. Until relatively recently, the flora of the region was only subjectively described (Clover 1937, Davis 1942, Diamond, D. D et al. 1987, Jahrsdoerfer and Leslie Jr 1988, Lonard and Judd 1991, McLendon 1991). Of the vegetation in the area, only the riparian vegetation, which has been extensively deforested, has been quantitatively studied. Lonard and Judd (2002) identified Hackberry (*Celtis laevigata* Willd.), mesquite (*Prosopis glandulosa* Torr.), and cedar elm (*Ulmus crassifolia* Nutt.) as the dominant tree species at their seven study sites along the Rio Grande, with black mangrove (*Avicennia germinans* (L.) L.), granjeno (*Celtis pallida* Torr.), and colima (*Zanthoxylum fagara* (L.) Sarg.) as the dominant shrubs. Much of the ground cover in the region is dominated by two introduced grasses, Guinea grass (*Panicum maximum*) and buffel grass (*Pennisetum ciliare*) (Lonard and

Judd 2002). The unique area supports a neotropical fauna that includes migratory birds, mammals, snakes, lizards, and salamanders, and includes more than a dozen species of which are federally listed as threatened or endangered. In addition, two major migratory bird flyways, the Mississippi and Central, converge north of the area and millions of birds migrate through this area each spring and fall (U. S. Fish and Wildlife Service 1997).

The U. S. Fish and Wildlife Service (1984) recognizes eleven biotic communities within the LRGV region based on soil type, hydrology, and historical and existing natural vegetation: (1) clay loma/wind tidal flats, (2) coastal brushland potholes, (3) sabal palm forest, (4) mid-valley riparian woodland, (5) mid-delta thorn forest, (6) woodland potholes and basins, (7) upland thorn scrub, (8) barretal, (9) upper valley flood forest, (10) ramaderos, and (11) Chihuahuan thorn forest. Three of these communities were represented in this study (descriptions based on U. S. Fish and Wildlife Service (1997) and Lonard and Judd (2002):

Sabal palm forest. Sabal palms once grew and dominated along the banks of the Rio Grande 128 km inland from its mouth. The last remaining remnants of this riparian forest are located southeast of Brownsville, TX, on the U. S. bank.

Mid-valley riparian woodland. A bottomland riparian forest growing along the Rio Grande and bordering the sabal palm forest in the east and the Starr/Hidalgo county line in the west. In the absence of periodic flooding, some of the hardwood species such as *Ulmus crassifolia* have been displaced (Riskind et al. 1987), and the U. S. Fish and

Wildlife Service occasionally flood the largest refuge in this area, the Santa Ana National Wildlife Refuge, for this reason (M. Castillo, pers. comm.).

Coastal brushland potholes. A very dense and brushy woodland covering the eastern third of Willacy County. This biotic community is marked by areas of lower elevation that periodically fill with rain. Nine federally listed endangered or threatened species are found here, including two rare cats, the ocelot and jaguarondi. The area is also considered a "globally important bird area" by the American Bird Conservancy as 415 species of birds have been recorded from the area (U. S. Fish and Wildlife Service 2014).

Beetles as a study group

Vertebrates are the focus of the large majority of conservation and restoration projects. This is because wildlife recovery is the major motivation behind many projects. Vertebrates often have direct economic value and vertebrate projects typically receive more funding than other conservation and restoration objectives (Rosenberg et al. 1986, Clark and May 2002, Ruiz-Jaen and Aide 2005). Terrestrial arthropods, meanwhile, are often small, inconspicuous, and labor-intensive in their identification and analysis. However, the use of terrestrial arthropods in the monitoring of restoration projects has relatively recently begun to gain traction as many have noted their unique importance in the majority of the world's ecosystems, their responsiveness to environmental stress, and the varied roles they play in many ecosystem functions (Rosenberg et al. 1986, Wilson 1987, Parsons 1991, Kremen et al. 1993, Pik et al. 2002). Insects are by far the most speciose group of organisms on Earth and play an essential part in many forest

ecosystem functions due to their roles in nutrient recycling, plant propagation, plant and animal regulation and as food for insectivores (Wilson 1987, Gullan and Cranston 2005). The annual value of the ecological services provided by insects in the United States has been estimated to be at least $57 billion (Losey and Vaughan 2006). The population dynamics of many insect species are very sensitive to environmental variables because of their short generation times, large reproductive output, high densities, and specialized ecological niches (Hutcheson 1990). This makes insects an informative study group for monitoring restoration projects. Beetles (Insecta: Coleoptera), the most speciose group of insects with more than 350,000 described species, in particular are easily sampled, occupy most trophic niches, and also aid in the restoration process (Urbanska et al. 1997, Arnett and Thomas 2000). Beetles were chosen in this study as an indicator of ecosystem health and proxy for restoration success due to their functional significance and the relationship between beetles and habitat characteristics (Kholin 1993, Tonhasca, Jr. 1993, Jeanneret et al. 2003, Lassau et al. 2005).

Justification for this study

The focus of this study was to assess the success of selected restoration efforts in the Lower Rio Grande Valley by comparing the richness and diversity of beetle communities at restored forest habitats to reference forest habitats with mature growth. As previously noted, a common goal of most restoration projects is to realign the disturbed habitat to its historic state and trajectory, but this is not always possible due to irremediable existing conditions that alter the trajectory. Work by the Society for Ecological Restoration (2004) states that the general characteristics of that trajectory can

be established through studying comparable habitats. In this study, intact habitats with similar environmental conditions were investigated along with the reference habitat. Specifically, the mature mid-valley riparian woodland beetle community was compared with beetle communities from mature sabal palm forest and mature coastal brushland pothole habitats. Then, the same mature mid-valley riparian beetle community was compared with beetle communities sampled from two adjacent plots of the same habitat, but which vary in the ages of their restored habitat vegetation.

Significance and strength of this study

In studies that assess and monitor the biological diversity of terrestrial arthropods, the use of morphospecies in sorting has become a widely accepted method to reduce the burden on taxonomists (Oliver and Beattie 1996, Pik et al. 1999). Krell (2004), however, explained many of the pitfalls in the use of this method, and noted that morphospecies provide only taxonomically uncertain data, which are, thus, useless for inventories, a critical tool for many ecosystem restoration projects. In the Scarabaeidae family alone, for example, there are phytophagous, carnivorous, coprophagous, and saprophagous species. Therefore, in this study, great effort was made in making taxonomic identifications to species. In addition to having a greater accuracy in the data, future studies will be able to reference this publication for investigations into the relationship between biodiversity and ecosystem functioning in restored habitats.

2. METHODS AND MATERIALS

Insect sampling

Beetle communities were sampled at each of the five sites. A trapping array consisting of four Lindgren funnel traps (LFT) and four pitfall traps (PFT) was installed at each site. All traps were unbaited. Each trapping array was operated over four sampling periods: 1) September 2, 2008 – November 13, 2008, 2) February 27, 2009 – May 21, 2009, 3) September 4, 2009 – November 18, 2009, and 4) February 28, 2010 – June 5, 2010. Trap array samples were recovered every two weeks. In addition, four beat samples and one four-hour ultraviolet blacklight (UV) bucket sample were taken while recovering the samples from each trapping array. Propylene glycol together with captured specimens and debris were strained from each UV, LFT, and PFT catch container using a fine-mesh kitchen strainer. A dilute solution of recycled-ethyl alcohol was used in wash bottles to rinse any specimens/debris adhering to inside of the UV, LFT, and PFT catch containers. Propylene glycol was recycled back into the traps, or replaced if too diluted by rainfall. Specimens collected via beating were placed directly into a kill jar containing ethyl acetate.

Lindgren funnel traps (LFT)

These traps mimic tree trunks and attract insects that characteristically land on tree trunks (**Figure 1a**). Flying insects collide with the trap and are funneled down into a catch container at the bottom of the trap (Lindgren 1983). Each LFT consisted of a vertically-aligned series of twelve black funnels with a 20 cm diameter suspended from a

tree branch or between trees using rope. Each LFT was equipped with a “wet” catch container, to which propylene glycol was added to kill and preserve captured specimens. To help better exclude rainwater, a circular, clear plastic rain shield ca 45 cm in diameter was added above each trap. Each LFT was approximately 114.3 cm tall and the bottom of each trap was positioned approximately 1 m above the soil.

Beat samples

Beat samples were performed with an 1 m square, white nylon beat sheet (**Figure 1b**). Beetles were taken by striking the limbs of shrubs and trees with a beat stick. Beetles dislodged from the branches were collected on the beat sheet placed underneath the limb and collected with forceps and an aspirator. Each sample consisted of beating ten different bushes or tree branches, with each plant struck twice before collecting the beetles.

Ultraviolet light traps (UV)

Ultraviolet light samples were taken using direct current universal blacklight bucket traps were purchased from BioQuip® (catalog number 2851U) hung from a branch approximately 1.25 m above the ground (**Figure 1c**). For power, the UV traps were connected to a deep cycle marine/rv battery through a timer. The UV traps ran for four hours starting fifteen minutes before sunset once every two weeks. Propylene glycol was added to the collecting bucket as a killing and preserving agent. Samples were collected the day following their operation, and all captured specimens were transferred to a sample jar.

Pitfall traps (PFT)

These traps are designed to catch insects on the surface of the ground (**Figure 1d**). Each PFT consisted of two PVC pipes ca. 30 cm tall sunk vertically into the ground. The PVC pipes were placed 60 cm apart and connected with a 7.5 cm tall barrier designed to direct beetles crawling along the barrier into the traps. A cup was placed inside each PVC pipe and filled with propylene glycol to a height of 5 cm. Custom-built sheet metal rain shields were placed over each pitfall cup. Each rain shield was triangular in shape (all sides originally ca. 30 cm in length) and each had all three corners bent downward at 90-degree angles to serve as supports. When in place, the supports elevated the roof of the shield about 5 cm above the soil surface.

Figure 1.The four collecting methods: a) Lindgren funnel trap, b) beating, c) ultraviolet light bucket trap, d) pitfall trap

Lab methods

In the laboratory within a few days of recovery from the field, each sample was transferred to a guppy net and gently rinsed in water. Rinsed samples were placed in sample bottles with fresh 80% ethanol until sorted. Beetle specimens were removed from

each sample by placing the sample in a white sorting tray with 80% ethanol and examined with a dissecting microscope. Beetles pulled from each sample were stored in vials of 80% ethanol before being removed and air-dried. Air-dried specimens were examined and easily identified taxa were counted, recorded, and most were discarded. Retained specimens were dry-mounted (pinned or pointed) and labeled with full collection data for later identification. Voucher specimens were deposited in the Texas A&M University Insect Collection (TAMUIC).

Pinned and point-mounted beetle specimens were identified primarily by Edward G. Riley using modern taxonomic publications and the entomological reference collections contained in the TAMUIC. Beetles belonging to families Dystiscidae, Haliplidae, Hydrophilidae, and Noteridae and were identified primarily by the author.

Analytical methods

For diversity at each site, or alpha diversity, the species richness, Simpson's Diversity Index, and Shannon Diversity Index were calculated at each site using the raw data (Magurran 2004). These two diversity indices are calculated using richness and the relative abundances of each species. The values of these indices were converted to 'effective species', or the number of equally common species, for a true diversity measure. Effective species is also known as the Shannon Exponential. Beta diversity, or species composition similarity between two sites, were calculated using Sørensen's Similarity Index (Sørensen 1948) and the Bray-Curtis Similarity Index. Sørensen's Similarity Index is a ratio that includes the number of shared species between two sites

and the overall number of species, while the Bray-Curtis Similarity Index also takes into account the differences in abundance among those shared species (Magurran 2004).

Replication within each site was not possible in this study. To make inferences about the population, variability of the mean is needed. In bootstrapping (random resampling, with replacement of the dataset) the parameters of the resampled data are treated as analogous to the inscrutable parameters of the original data, and the properties underlying the population can be indirectly derived (Efron 1979, Varian 2005). By replicating this process 100 times, the mean along with its variance and confidence intervals were calculated for richness, Simpson's Diversity Index, and Shannon Diversity Index at each site. Also, a rarefaction curve extrapolating the accumulation of species over an additional two years of sampling was also calculated for each site (Colwell et al. 2004). For comparisons of parameters calculated using bootstrapping, non-overlapping confidence intervals is a conservative indication of significant difference (Payton et al. 2003). Statistics were computed using EstimateS (Version 9, R. K. Colwell, http://purl.oclc.org/estimates).

3. REVEGETATION RESTORES BEETLE BIODIVERSITY TO THE LEVEL OF THE PRIMARY SITES IN THE LOWER RIO GRANDE VALLEY

Introduction

Each of the three LRGV biotic communities, sabal palm forest, coastal brushland potholes, and mid-valley riparian woodland, sampled in this study (**Figure 2**) have been affected by loss of habitat due to urbanization, agricultural expansion, and flood control; however, the impact of each of these factors varies considerably between the different habitats. In turn, the management strategies vary correspondingly with the particular threats that each face. In order to evaluate success of the restoration strategy of land acquisition followed by the revegetation of native plants, primary habitats within the three biotic communities (Sabal Palm Grove, Laguna, and McManus) were compared and a baseline established for the comparisons between the restored mid-valley riparian woodland habitat (La Coma 1 and La Coma 2) and the primary mid-valley riparian woodland reference habitat (McManus). Success is defined as restored sites having the same or trending towards having the same biodiversity as the reference habitat with biodiversity measured by beetle species richness, diversity, and similarity.

Site Descriptions

Laguna Atascosa National Wildlife Refuge (LAG)

The Laguna Atascosa NWR covers 20.23 km^2 in the coastal brushland potholes biotic community and is located along the Gulf of Mexico between Harlingen and South Padre Island. Dense thorny brush, freshwater wetlands, mudflats, and wind-blown clay dunes

known as ‘lomas’ characterize the area. As with other protected habitats in the LRGV, water management plays a large role in restoring the habitat of the refuge. Common plants include *Prosopis glandulosa* Torr. (Fabaceae), *Celtis pallida* Torr. (Ulmaceae), *Acanthocereus tetragonus* (L.) Humm. (Cactaceae), and *Spartina spartinae* (Trin.) Merr. *ex* A.S. Hitchc. (Poaceae). The trapping array was located at 26.22375°N, 97.35454°W within the refuge (**Figures 2, 3**).

Sabal Palm Grove Sanctuary (SPG)

Most of the remaining original sabal palm forest is located south of Brownsville within the 2.13 km^2 Sabal Palm Grove Sanctuary. The sabal palm forest biotic community is dominated by *Sabal texana* (O. F. Cook) Becc. (Arecacaea), *Ebenopsis* ebano (Berl.)Barneby & Grimes (Fabaceae), *Leucaena pulverulenta* (Schlecht.) Benth. *(Fabaceae),Chiococca alba* (L.) A.S. Hitchc. (Rubiaceae), *Ehretia anacua* (Teran & Berl.) I. M.Johnston (Boraginaceae), *Condalia hookeri* M.C. Johnston (Rhamnaceae), *and Celtispallida* Torr. (Ulmaceae). It is bordered on the south and east by the Rio Grande and contains a few resacas. Many of the species found in the sabal palm forest reach their northernmost range limit and do not occur anywhere else in the United States (NAS 2006). The trapping array was placed at 25.84799°N, 97.41881°W within a 0.13 km^2 section of old growth dominated by mature sabal palm (**Figures 2, 3**).

Las Palomas Wildlife Management Area (WMA), McManus Unit (MCM)

The Las Palomas WMA consists of 18 units in Cameron, Hidalgo, and Presidio counties covering a total of 13.4 km^2. 10 km south of Donna, TX lies one of the units,

McManus, which consists entirely of original mid-valley riparian woodland. This type of woodland is dominated by *Fraxinus berlandieriana* DC. (Oleaceae), *Celtis laevigata* Willd. (Ulmaceae), *Salix nigra* Marsh. (Salicaceae), *Ulmus crassifolia* Nutt. (Ulmaceae), *Ebenopsis ebano* (Berl.) Barneby & Grimes (Fabaceae), and *Ehretia anacua* (Teran & Berl.) I. M. Johnston (Boraginaceae). The trapping array was placed within the 21.6 ha McManus unit at 26.05380°N, 98.04987°W. The quadrilateral McManus unit is bordered on three sides by agricultural fields active year-round and on the fourth side by the La Coma units of the Lower Rio Grande Valley National Wildlife Refuge. McManus is located within a bend in the Rio Grande (**Figures 2, 3**).

La Coma 1 (LAC1) and La Coma 2 (LAC2)

The La Coma tracts were formerly agricultural fields and purchased to become part of the Lower Rio Grande Valley National Wildlife Refuge. Seven of the eleven La Coma tracts had been revegetated before this study with the remaining La Coma tracts remaining fallow. The revegetation consisted of planting seedlings of native plants evenly spaced in rows. The exact species used depended upon the inventory of local nurseries at the time of the revegetation. Two of the tracts were chosen based on the date of revegetation. The first track, hereby designated La Coma 1, was revegetated fourteen years before the start of the study on October 21, 1995, and is 12.9 ha. The trapping array for La Coma 1 was placed at 26.05302°N, 98.04665°W. The second track, La Coma 2, was revegetated seven years before the start of the study on January 7, 2001, and is 8.13 ha. The trapping array for La Coma 2 was placed at 26.05611°N, 98.03635°W (**Figures 2, 3**).

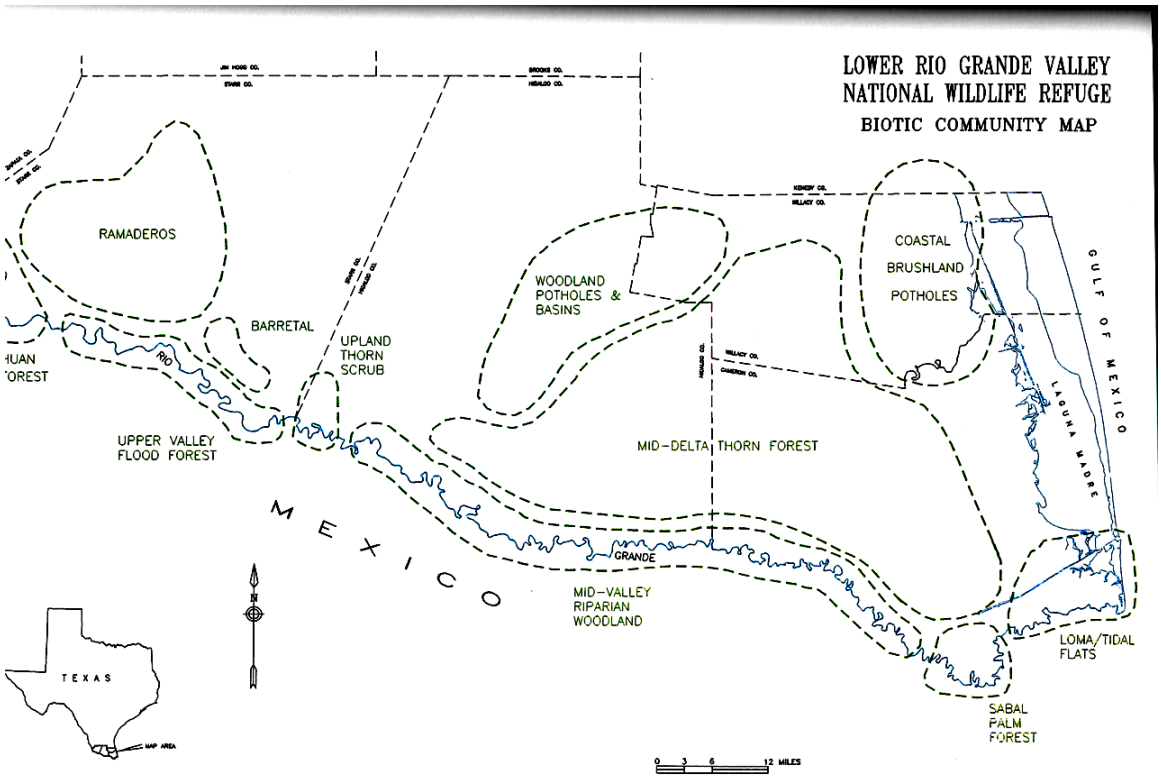

Figure 2. Map of the four counties of the LRGV indicating the eleven biotic communities.

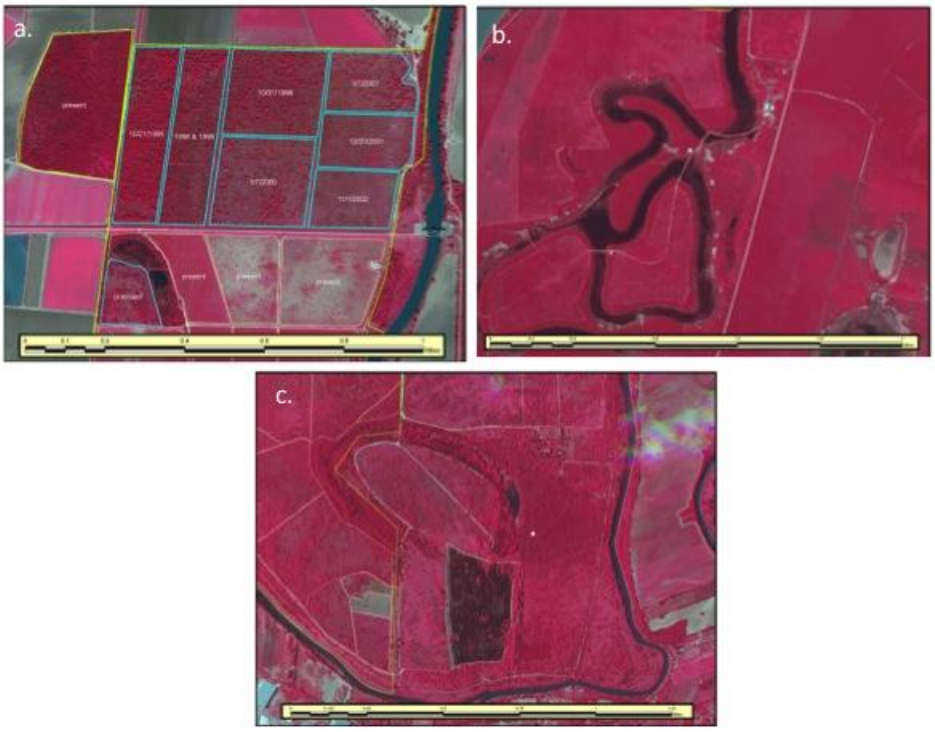

Figure 3. Near infrared satellite images of study sites: a) MCM, LAC1 and LAC2, b) LAG, and c) SPG.

Highlights of overall collection results

In total, 113,490 beetles from 69 families and 977 species and morphospecies were collected at the five sites (**Appendices 1-5**). 88% of the specimens were identified to species (**Appendix 6**). At least 31 of the species are believed to be new to science. As is common in insect surveys, a few taxa dominated with a long 'tail' of decreasingly

abundant taxa. Heteroceridae (43,184 specimens) and Scarabaeidae (20,163 specimens) dominated this overall survey, and together represented more than the other 67 families combined. *Tropicus pusillus* (Heteroceridae) was by far the most commonly collected species (42,019 specimens) and accounted for 37.0% of the total catch (**Figure 4**).

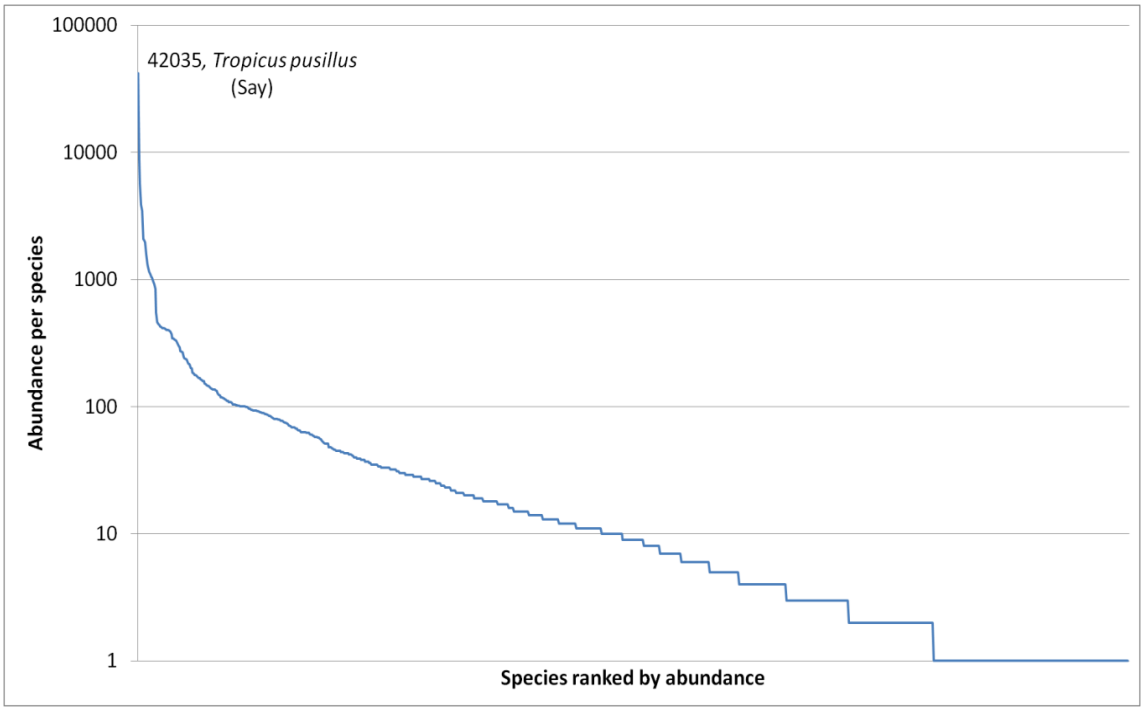

Figure 4. Species ranked abundance, all sites.

Figure 5 shows the variability of the number of beetles collected per sampling period per site. LAG has the largest variance with a range of 259 to 20,979 beetles collected per sampling period. The range for MCM was 214 to 13,211, LAC2 was 136 to 5,186, LAC1 was 86 to 4,665, and SPG was 221 to 2,501 beetles per sampling period.

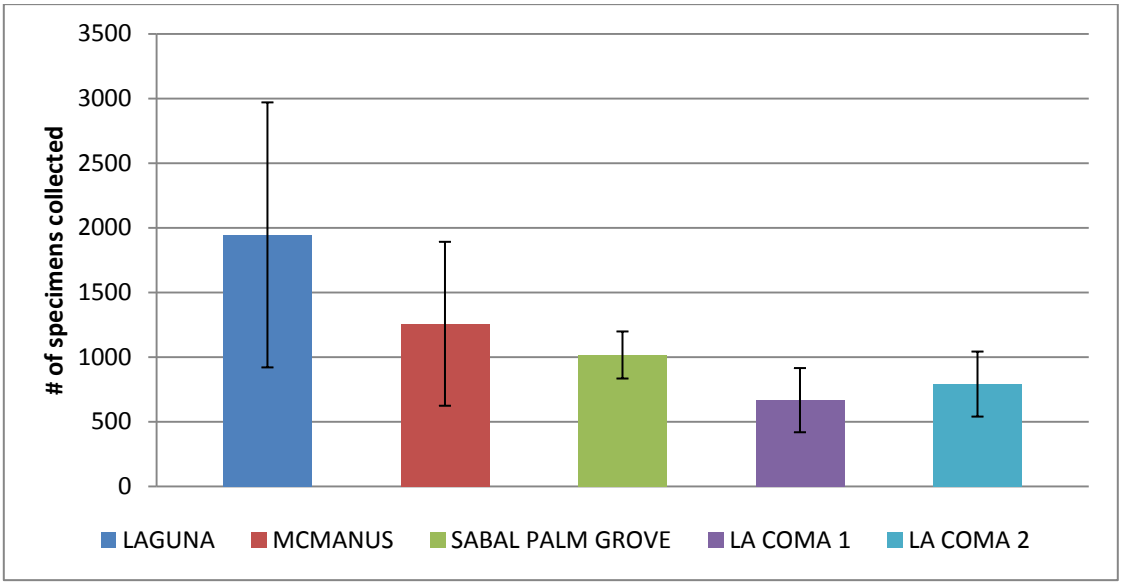

Figure 5. Beetle abundance per sampling period per site.

Overall collection results by collecting method

As described in the methods, four different collecting methods were used: beating, Lindgren funnel traps (LFT), pitfall traps (PFT), and ultraviolet blacklight bucket traps (UV). In order to see the contribution of each collecting method to the overall study, abundance and diversity were measured for each collecting method (**Table 1**). The beat samples collected 6,931 specimens from 387 species. The Simpson's Index for the beat samples was 0.970, the Shannon Index was 4.38, and 80.2 effective species. The LFT collected 9,916 specimens and 541 species. The Simpson's Index was 0.984 and the Shannon Index was 4.96 for 143 effective species. The PFT collected 26,052 specimens from 338 species. The Simpson's Index for the PFT catch was 0.821 and the Shannon Index was 2.53 for 12.6 effective species. The UV traps collected 70,591 specimens, 43,179 of which were Heteroceridae. There were 595 species collected by UV for a Simpson's Index of 0.640, Shannon Index of 2.43, and 11.4 effective species. This highlights differences in the composition of the catch for each type of collecting method.

Table 1. Collection results by collecting method

Collecting method	Specimens collected	Species richness	Family richness	Simpson's Index	Shannon Index	Effective species	Unique species
Beating	6931	387	46	0.970	4.38	80.2	77
LFT	9916	541	58	0.984	4.96	143	94
PFT	26052	338	47	0.821	2.53	12.6	62
UV	70591	595	66	0.640	2.43	11.4	217

Site-specific collecting results

Sabal Palm Grove Sanctuary (SPG)

A total of 20,314 specimens from 64 families were collected at SPG during the study. The Scarabaeidae were the most abundant family with 12,534 specimens (61.7% of the total) and 26 pecies. 11,426 S carabaeidae s pecimens were collected by pit-fall trap, 1,081 by UV, and 27 by LFT. *Canthon viridis* (Palisot de Beauvois) was the dominant Scarab with 7,578 specimens collected, all but one of which were taken by pit-fall trap. The Hydrophilidae were the next most abundant family with 1915 specimens (9.4% of the total). The Hydrophilidae were dominated by two species, *Berosus exiguous* (Say) and *B. infuscatus* LeConte, and 13 of the 15 Hydrophilidae species were collected exclusively by UV light trap. There were 61 species at SPG with an abundance of two, and 153 species with an abundance of one. The SPG had 19.83 effective species. The SPG shared 249 species with MCM. ***Laguna Atascosa National Wildlife Refuge (LAG)***

A total of 38,890 specimens from 62 families were collected at LAG during the study. 21,863, or 56.2%, of the beetles collected at LAG were water beetles (Dytiscidae, Haliplidae, Heteroceridae, Hydrophilidae, and Noteridae) of which 99.9% were collected by UV. The Heteroceridae were the most abundant family with 15,450 specimens followed by the Hydrophilidae with 5,529 specimens. The Carabidae was the most abundant non-water beetle family represented by 4,157 specimens. There were 75 species at LAG with an abundance of two, and 154 species with an abundance of one. LAG was the most diverse of the three primary sites with 25.23 effective species. LAG shared 286 species with MCM.

Las Palomas Wildlife Management Area, McManus unit (MCM)

A total of 25,142 specimens from 57 families were collected at MCM during the study. MCM was also largely dominated by Heteroceridae with 13,866 specimens collected, or 55.2%. All three of the Heteroceridae species were entirely collected by UV trap. The next most abundant family were the Scarabaeidae with 2,154 specimens. There were 56 species with an abundance of two and 141 species with an abundance of one. MCM was the least diverse of the primary sites with only 11.76 effective species.

Lower Rio Grande Valley National Wildlife Refuge, La Coma unit 1 (LAC1)

A total of 13,328 specimens from 57 families were collected at LAC1. 7,638 of the 13,328 specimens (57.3%) collected were *Tro*Pic*us pusillus* (Say) (Heteroceridae) and were collected entirely by UV. Of the 474 total species collected at LAC1, there were 65 species with an abundance of two and 131 species with an abundance of one. LAC1 had 17.2 effective species. LAC1 shared 307 species with MCM.

Lower Rio Grande Valley National Wildlife Refuge, La Coma unit 2 (LAC2)

A total of 15,816 specimens from 60 families were collected at LAC2. The abundance of the families at LAC2 was more evenly distributed than at LAC1 and MCM with Heteroceridae (35.2% of the total) and Curculionidae (9.77%) as the two dominant families. The species richness at LAC2 was 539, the Shannon Index was 3.79, the Simpson's Index was 0.875, and there were 44.1 effective species. LAC2 shared 316 species with MCM.

Although each of the sites had their own characteristic dominant species, *Tro*Pic*us pusillus* (Say) dominated four out of the five sites described. Dominant beetles at each of the sites are shown in **Figures 6-10.**

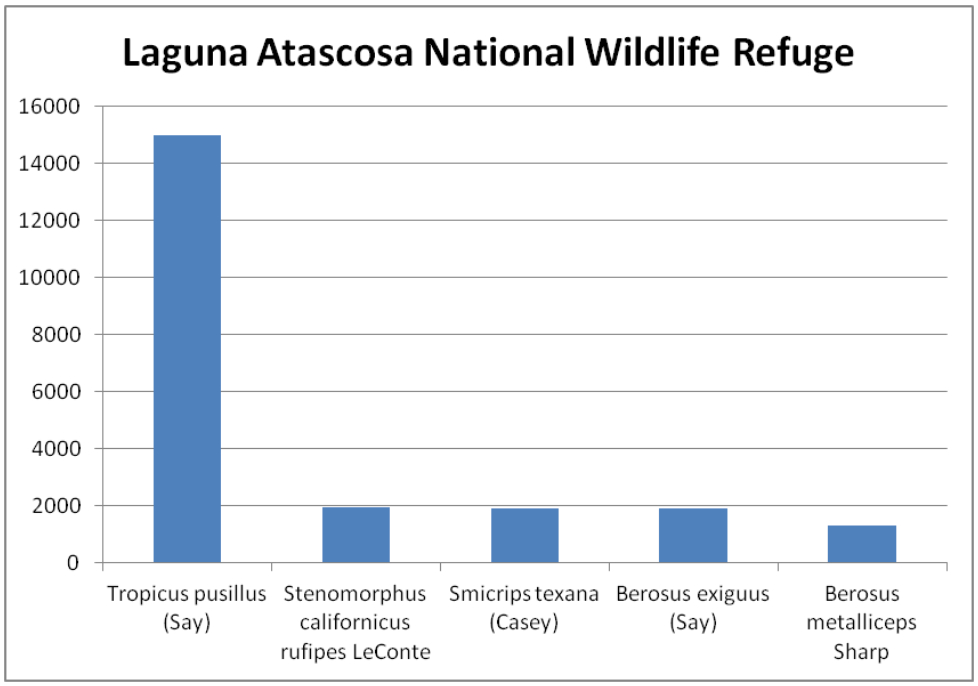

Figure 6. LAG dominant beetle species

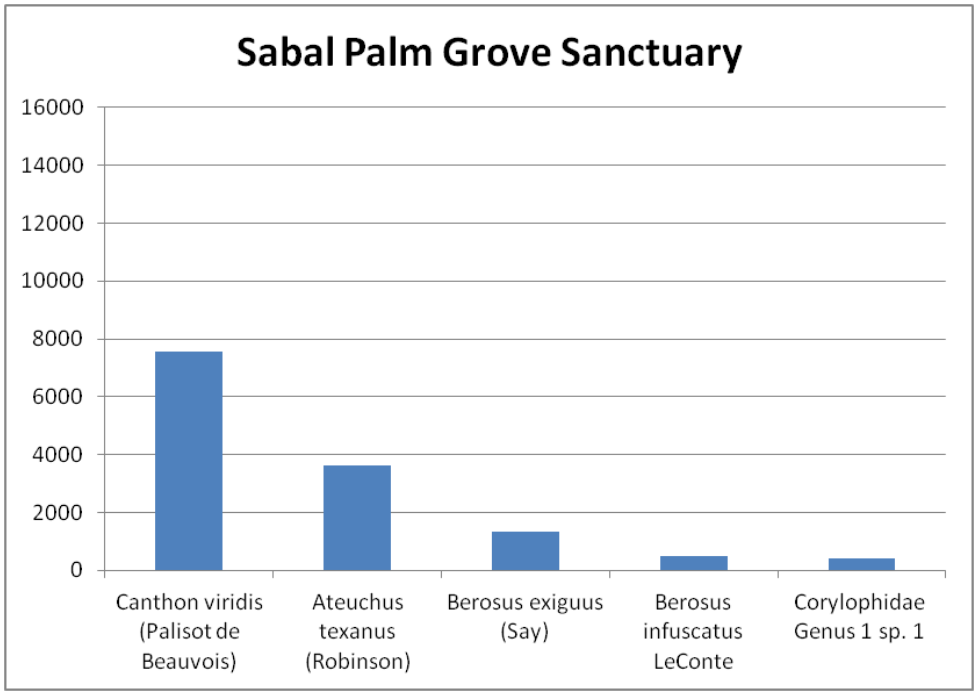

Figure 7. SPG dominant beetle species

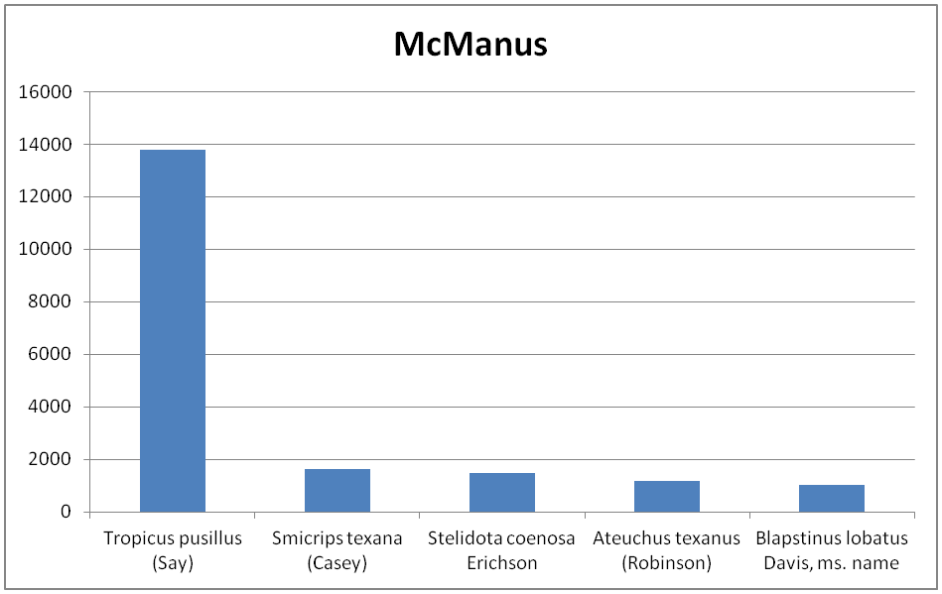

Figure 8. MCM dominant beetle species

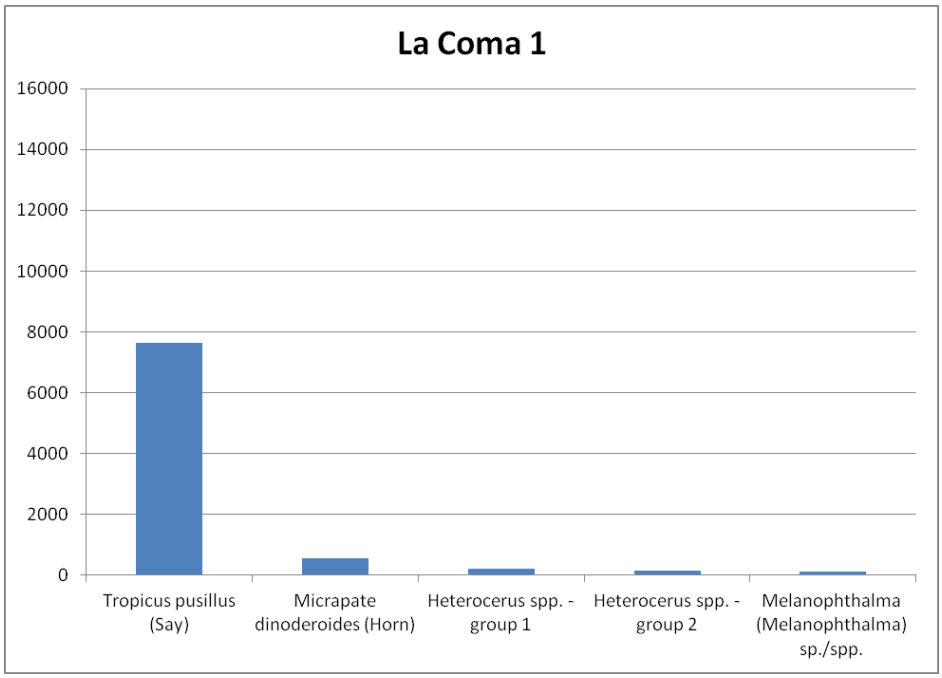

Figure 9. LAC1 dominant beetle species

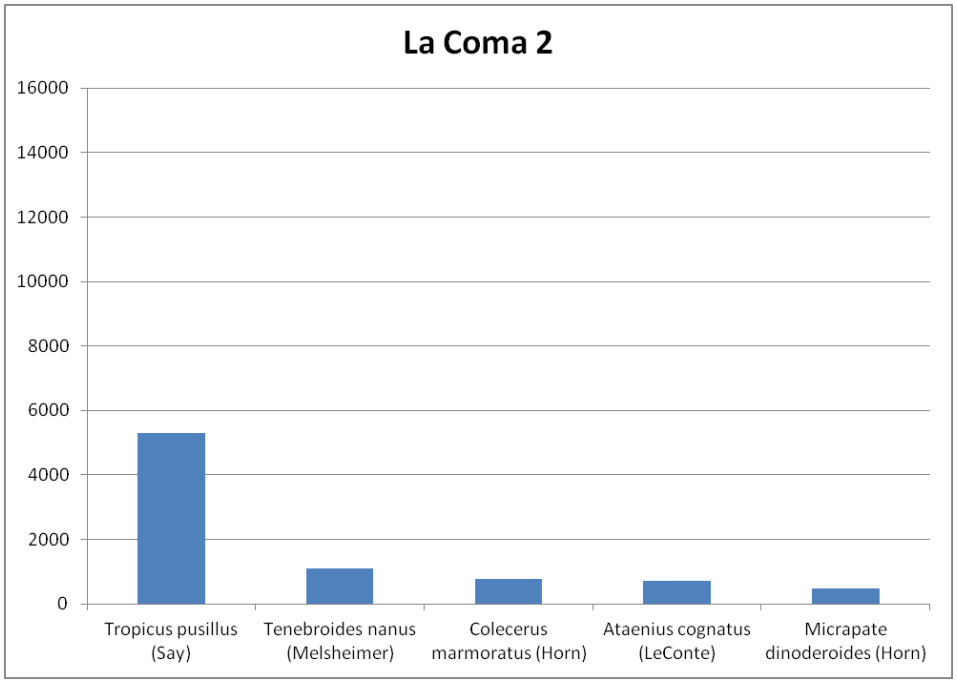

Figure 10. LAC2 dominant beetle species

Biodiversity comparisons of the beetle communities from three different biotic primary habitats

Prior to making comparisons between the primary and restored sites, it was necessary to assess the variability between three primary sites from different biotic communities, Sabal Palm Grove Sanctuary (SPG), Laguna Atascosa (LAG) and McManus (MCM). As described in the methods, alpha diversity describes the richness and diversity at each individual site, and beta diversity describes the similarity in species composition between two sites. Also, the basic diversity indices, Simpson's and Shannon, were converted to effective species richness to allow for more direct comparisons of their true diversities. Of the primary sites, the lowest alpha diversity was found at MCM (**Table 2**). For beta diversity, Sørensen's Similarity Index indicates that LAG and SPG are comparable in their species composition similarity to MCM; however, the Bray-Curtis Similarity Index indicates that the species composition at SPG is more dissimilar to MCM than LAG (**Table 3**).

Data for **Figures 11-13** were boostrapped using EstimateS (Version 9, R. K. Colwell, http://purl.oclc.org/estimates). To determine statistical significance of richness and diversity, the 95% confidence intervals for each parameter were compared, and non-overlap of the confidence intervals guarantees a significant difference ($P<0.05$) (Payton et al. 2004). Species richness was highest at LAG ($S=473\pm18.62$) while SPG (389 ± 19.14) and MCM ($S=397\pm18.13$) had species richnesses that were not significantly different (**Figure 11).** All three primary sites were significantly different in their Shannon diversity indices with LAG having the highest (3.3 ± 0.13) followed by the SPG

(2.95±0.05) and then MCM (2.64±0.18) (**Figure 12**). Rarefaction curves for the three primary sites show that LAG would have a significantly higher species richness than the other two sites after extrapolating for an additional 40 sampling periods (**Figure 13**). With these methods, significant differences were found between the beetle communities at the three different biotic habitats.

Table 2. Alpha diversity at the primary sites

Site	Specimens collected	Species richness	Family richness	Simpson's Index	Shannon Index	Effective species
LAG	38890	572	62	0.838	3.228	25.23
SPG	20314	447	64	0.821	2.987	19.83
MCM	25142	447	57	0.687	2.465	11.76

Table 3. Beta diversity at the primary sites

	McManus and Laguna	McManus and Sabal Palm Grove
Sørensen's Similarity Index	0.566	0.555
Bray-Curtis Similarity Index	0.579	0.177

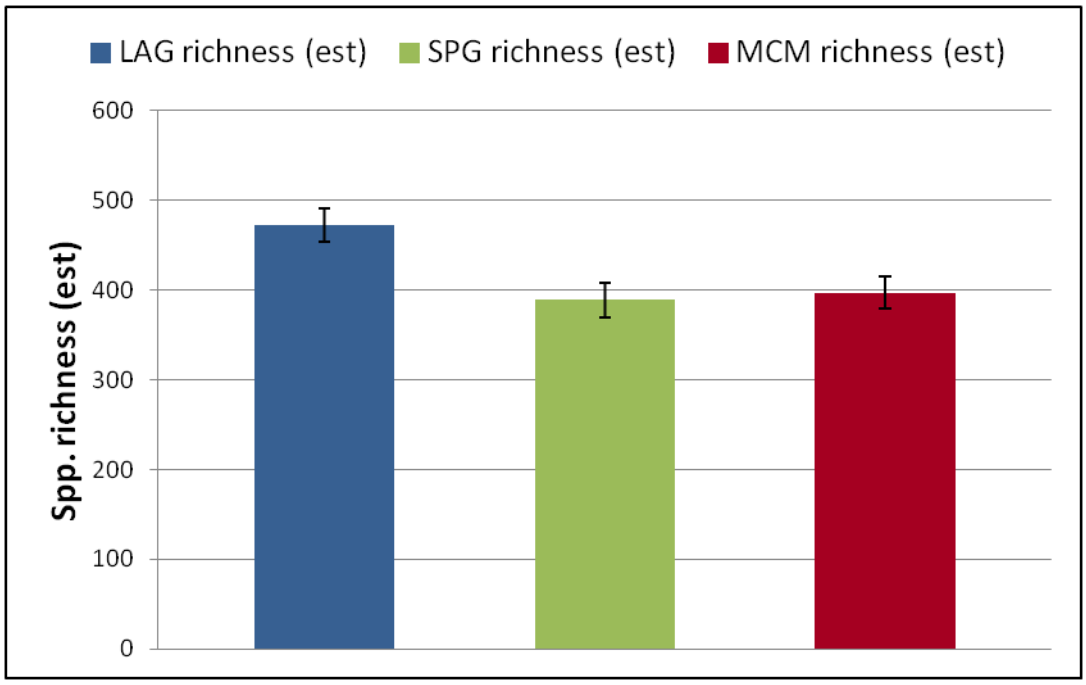

Figure 11. Species richness (est.), primary sites. Error bars represent 95% confidence intervals.

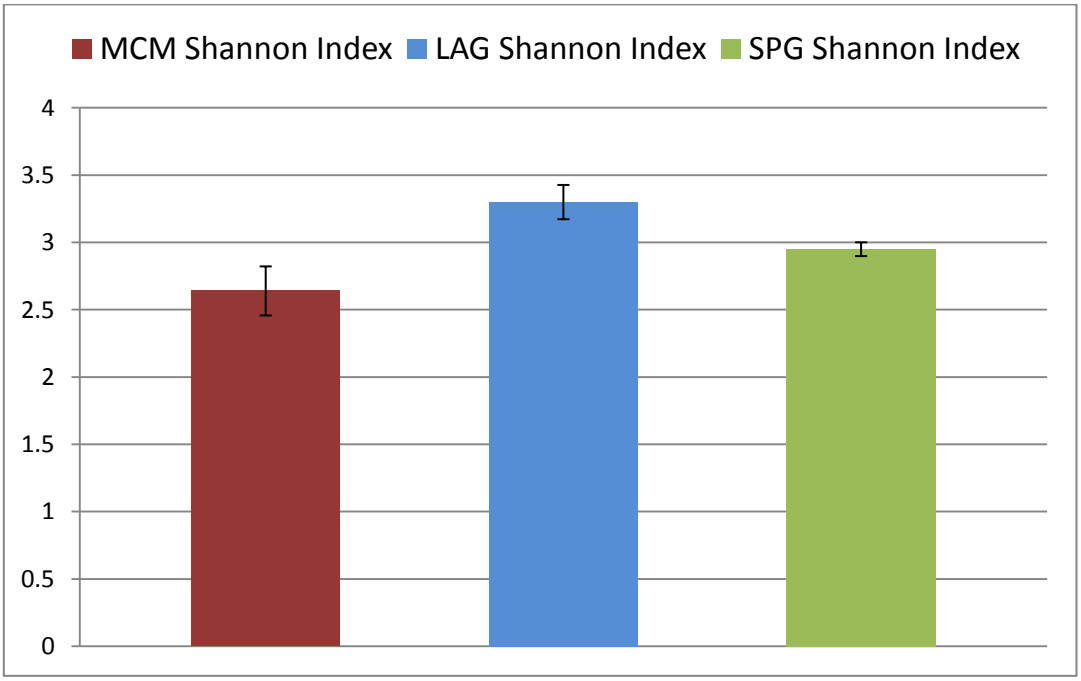

Figure 12. Shannon Diversity Index, primary sites. Error bars represent 95% confidence intervals.

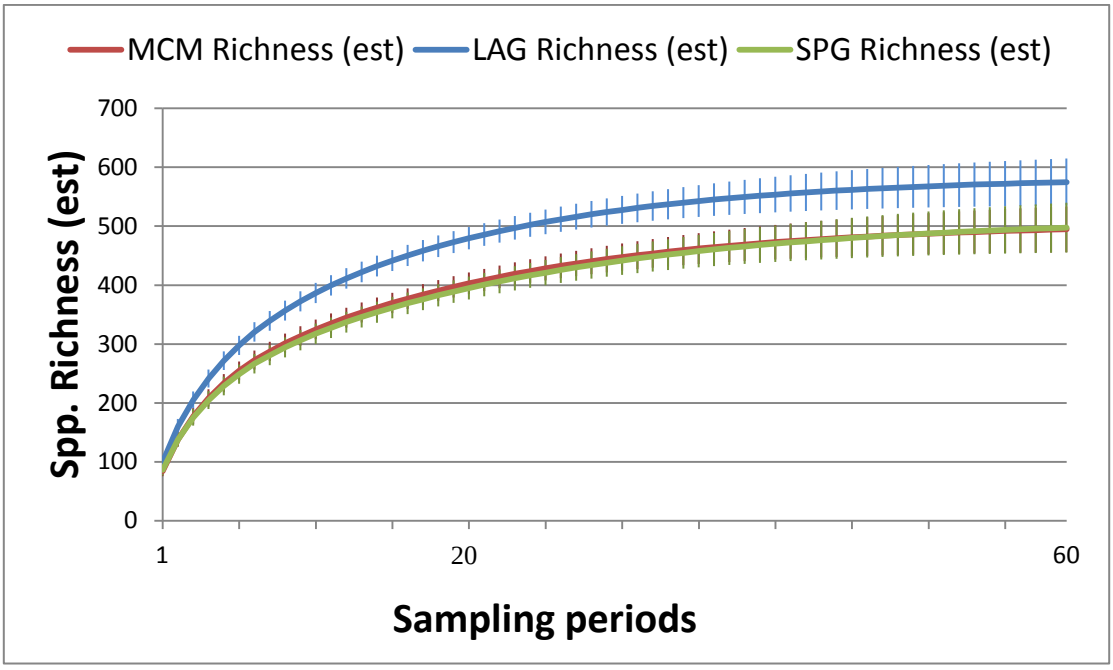

Figure 13. Species rarefaction curves at the primary sites. Error bars represent 95% confidence intervals.

Biodiversity comparisons of the beetle communities from primary and restored mid-valley riparian woodland habitats

To evaluate the success of the revegetation efforts in the LRGV, the beetle richness, diversity, and species composition of a mature mid-valley riparian woodland habitat was compared with two adjacent restored sites of the same habitat: one site restored seven years prior to the start of the study and one site restored fourteen years prior to the start of the study (**Table 4)**. The alpha diversity for each of the three mid-valley riparian woodland sites was calculated, as previously described, and quantified by the Simpson's and Shannon diversity indices, and effective species. LAC1 is closer to MCM than LAC2 in diversity as measured by the two diversity indices, the number of

effective species, and species richness (**Table 5).** The two indices of beta diversity (**Table 6**) show the same result, that LAC1 is more similar to MCM than LAC2, with the Bray-Curtis Similarity Index more evident.

Data for **Figures 14-16** were boostrapped using EstimateS (Version 9, R. K. Colwell, http://purl.oclc.org/estimates). To determine statistical significance of richness and diversity, the 95% confidence intervals for each parameter were compared, and non-overlap of the confidence intervals guarantees a significant difference ($P<0.05$) (Payton et al. 2004). MCM had the lowest computed richness and diversity followed by LAC1 and then LAC2 (Figures 14, 15). Rarefaction curves of the three sites show that with increased sampling effort it is likely that MCM and LAC1 will no longer have a statistically significant different species richness but LAC2 will remain with a higher species richness (**Figure 16**).

Table 4. Summary of revegetation dates and areas for the sites to be compared

Site	Date revegetated	Area (ha)
MCM	NA	21.62
LAC1	10/21/1995	12.89
LAC2	1/7/2001	8.132

Table 5. Alpha diversity at the mid-valley riparian woodland sites

Site	Specimens collected	Species richness	Family richness	Simpson's Index	Shannon Index	Effective species
MCM	25142	447	57	0.687	2.465	11.763
LAC1	13328	474	57	0.669	2.843	17.173
LAC2	15816	539	60	0.875	3.787	44.129

Table 6. Beta diversity at mid-valley riparian sites

	McManus and La Coma 1	McManus and La Coma 2
Sørensen's Similarity Index	0.665	0.640
Bray-Curtis Similarity Index	0.513	0.357

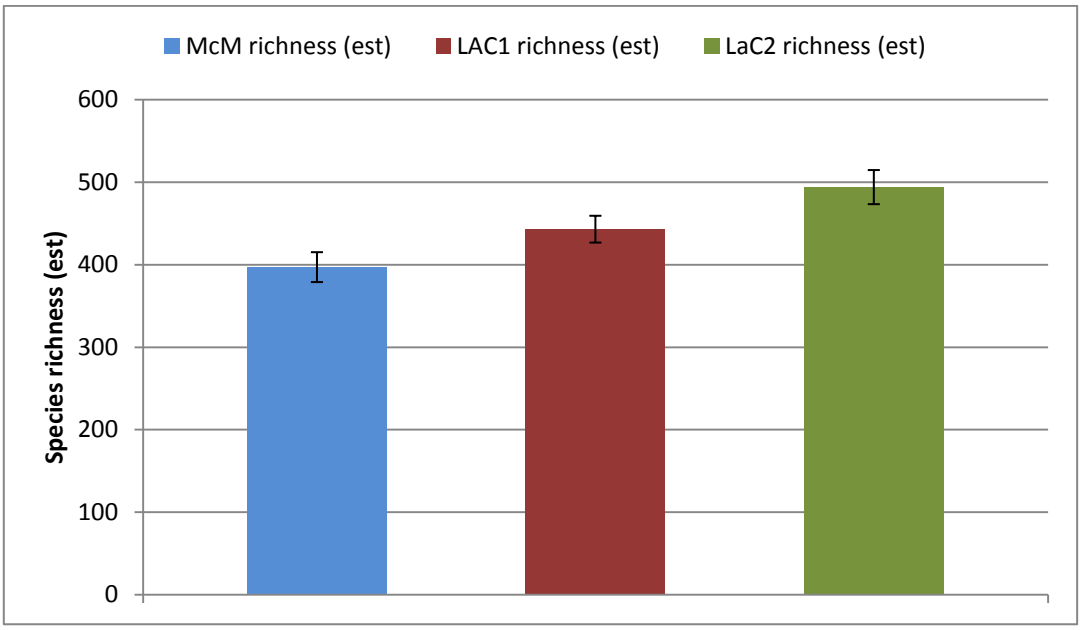

Figure 14. Richness (est.) for the mid-valley riparian woodland sites.

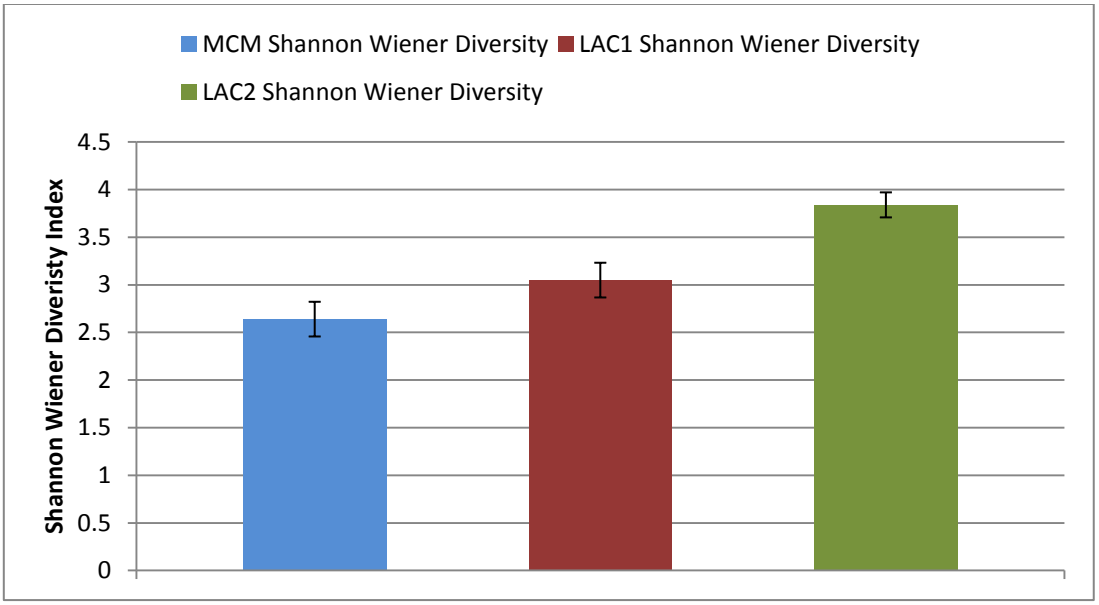

Figure 15. Shannon Diversity Index for the mid-valley riparian woodland sites.

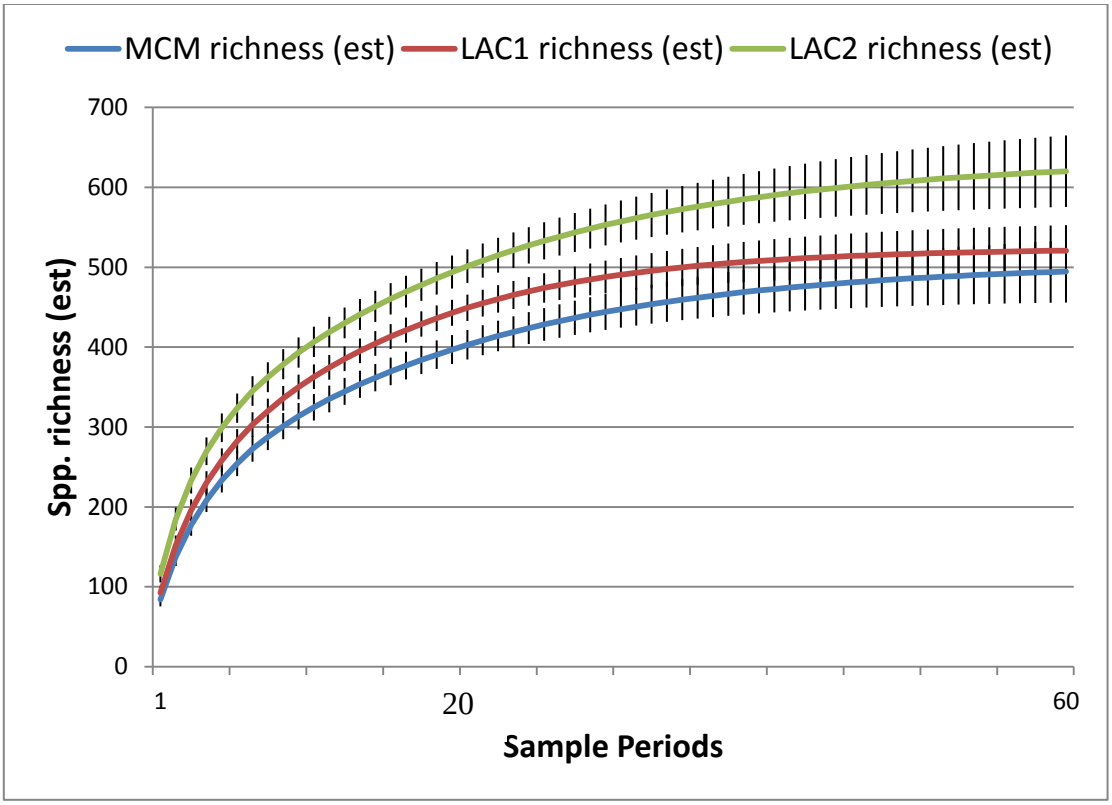

Figure 16. Rarefaction curves for the mid-valley riparian woodland sites.

4. CONCLUSION

In this study, 113,490 beetles from 69 families and 977 species and morphospecies were collected and identified over two years in three different biotic habitats and of different successional stages of restoration. Each of the three different biotic habitats were found to have a unique assemblage of beetle species. The Sabal Palm Grove (SPG) beetle community was dominated by dung beetles, the mid-valley riparian woodland (MCM) had a distinct leaf litter beetle community, and the coastal brushland pothole beetle community (LAG) was completely dominated by a variety of water beetles. In the mid-valley riparian woodland, it was found that beetle communities in restored habitats seem to be progressing towards the composition of a beetle community in an undisturbed, reference habitat. The richness and diversity of the beetle community at MCM was more similar to the older restored site (LAC1) than to the younger site (LAC2) and the other two primary habitat sites (LAG and SPG) (**Tables 2, 3, 5, 6**). These findings are consistent with other restoration assessments (Reay and Norton 1999, Golet et al. 2008, Gardner et al. 2009).

In over 100 years of insect collecting history in the Lower Rio Grande Valley (LRGV), this study is believed to be the first systematic beetle survey in the Sabal palm forest and mid-valley riparian woodland habitats as previous efforts focused on only targeted groups (Schwarz 1896, Knull 1944, Riley and Wolfe 1995). To the author's knowledge, this study collected more specimens from more species and families than any other forest survey (Holloway et al. 1992, Burger et al. 2003, Longcore 2003, Kwiatkowski 2011), and this is likely due to using a wider variety of beetle sampling

techniques to target a greater range of species than other surveys. That, combined with the ability to identify this hyper-diverse group to species, makes this study a valuable reference for other researchers, and this is shown by the number of studies already published using specimen data collected here (Gimmel 2011, Leavengood Jr et al. 2012, Cline and Skelley 2013).

In contrast with other studies, including a meta-analysis of 89 published restoration assessments (Benayas et al. 2009), this study's reference site had a *lower* beetle species richness and diversity than the restored vegetation sites. The presence of 'tourists' dominating the data likely skewed the diversity to produce this result. Tourists as used here is defined as having no intimate or lasting association with the habitat of the site (Moran and Southwood 1982). The inclusion of UV light bucket traps, combined with the beetle communities in the adjacent habitats and the vegetative structure of the sample sites, had a substantial effect on the calculated diversity. The UV light bucket traps are non-passive and collect volant beetles dispersing at night. These traps collected an extremely skewed distribution of beetles dominated by Heteroceridae, the variegated mud-loving beetles, and water beetles, and these two groups were largely absent from other trap types. The erratically super-abundant *Tro*Pic*us pusillus* (Say) (Heteroceridae) (**Figures 6-10**) was observed in the agricultural fields adjacent to the study sites dispersing in massive numbers. While driving along these fields after dark during one particular dispersal, the sound of *T. pusillus* against the van sounded like rain! The main water beetles collected were of the genus *Berosus* (Hydrophilidae) and were also almost entirely collected by UV. MCM, being surrounded on three sides by agricultural fields

(**Figure 3a**), had twice the abundance of *T. pusillus* versus the LAC1 and LAC2 sites, thus significantly decreasing its diversity measurements. The relatively open understory and canopy at the La Coma sites likely enabled long sightlines to the UV, further enabling the navigation of the beetles towards the traps. Due to the fact that these groups are not associated with the mid-valley riparian woodland habitats, nor associated with any of the woody plants found therein, the case could be made to remove the UV traps thereby eliminating the majority of the 'tourist' species from the data.

A number of variables have been identified in the literature that affect the colonization of a restored habitat by animals. Variables significant to this study ostensibly include structural features of the vegetation and the historical impact of abiotic disturbances. The development of vegetational structural features such as leaf litter and canopy cover has been identified as perhaps the most important promoter of a rapid recovery by invertebrates (Davis et al. 2002, Proctor et al. 2003, Grimbacher and Catterall 2007). At MCM, there was a substantial layer of leaf litter and hummus, minimal ground cover, and a closed canopy. The La Coma sites, however, were quite the opposite with almost no layer of leaf litter, a highly variable ground cover dependent on precipitation levels, and a more open canopy. The effect of this is evident by the fact that three of the five most dominant species at MCM are associated with decaying vegetation and leaf litter while there are no dominant species at the La Coma sites associated with leaf litter (**Figures 6-10**). The historical impact of abiotic disturbances on the mid-valley riparian woodland may be hindering its restoration (Cramer and Hobbs 2002, Poff et al. 2003, White and Jentsch 2004). Didham et al. (2005) suggested that disturbance-

structured species assemblages may be more likely to result in a system resilient to restoration management. As previously mentioned, this woodland was historically subjected to routine flooding. This flooding enriched the soil and promoted the dominance of certain hardwood species such as *Ulmus crassifolia* (Riskind et al. 1987). Due to flood control, the MCM and La Coma sites no longer experience significant flooding as frequently.

Further studies should take a functional approach and focus on the major strength of this study: the species level identification of over 100,000 beetles. These names tie these beetles to all of the past, present, and future published research; and with that knowledge one could assign each species to a functional group and/or feeding guild. Per Hooper et al. (2005), ecosystem properties are strongly influenced by the functional characteristics of resident species. For example, the population dynamics of trees can be strongly influence by the predation of seeds pre-dispersal (Louda 1982). Bruchinae such as *Mimosestes amicus* (Horn) and *Algarobius bottimeri* Kingsolver are seed predators and were represented in this study. An investigation into their host trees and whether these trees are important in the succession of this habitat would have implications for future restoration management in the area. Similarly, the relative abundance of herbivores affects plant fitness (Kruess and Tscharntke 1994). In a related manner, one could look into the population dynamics of the beetle herbivores and their plant hosts to assess the magnitude of herbivory on the restored vegetation and relate this to the abundance of their beetle predators.

A functional approach could also be used to identify beetle species indicative of a 'successfully' restored habitat with nearly equivalent ecosystem functioning and services as primary habitat. Indicator species or species assemblages are used to gauge the overall condition of the community or ecosystem (McGeoch 1998). As evident from the amount of leaf litter and humus in the reference habitat MCM, the presence of soil inhabiting detritivorous species would be expected to be prime indicators of well functioning nutrient cycling and soil formation. To explore this further, a future study could target these beetles with Berlese funnels.

The Society for Ecological Restoration recommends an adaptable approach to the management of restoration. The current strategy of the restoration managers in the LRGV is to obtain native seedlings from local nurseries and to plant them on degraded land without further intervention. The issue with this strategy is that it ignores the findings from the previous generation of LRGV NWR management for the optimum restoration of riparian habitat as described in Riskind et al. (1987). They describe the composition of introduced plants as containing 75% of the fast growing tree *Acacia farnesiana* (L.) Willd. (Fabaceae) (huisache, locally) interspersed with slower-growing species such as *Pithecellobium flexicaule* (Benth.) J.M.Coult. (Fabaceae) (Texas ebony), *Ehretia anacua* (Terán & Berl.) I.M. Johnst. (Boraginaceae), and *Sideroxylon celastrinum* (Kunth) T.D. Penn. (Sapotaceae) (coma, locally). This protocol was designed specifically to enable a rapid closure of the canopy, which again has been identified as the most important factor in rapidly recolonizing a restored site (Davis et al. 2002, Proctor et al. 2003, Grimbacher and Catterall 2007). Also at issue with the current

strategy is the reliance on *Leucaena pulverulenta* (Schltdl.) Benth. (tepehuaje, locally). This fast growing tree was abundant at the two sites, but was under pressure from limb girdling beetles. At the two restored sites, limbs of the *L. pulverulenta* littered the ground while larval *Oncideres pustulatus* LeConte could be heard gnawing within the girdled limbs. As a result, the open canopy at the restored sites could be the reason why two exotic grasses, *Urochloa maxima* (Jacq.) R. Webster (guineagrass) and *Pennisetum ciliare* (L.) Link (bufflegrass), thrived there and at times reached two meters high. These exotic grasses were likely crowding out later successional plants (Lonard and Judd 2002) and hence preventing the La Coma 1 and 2 sites from advancing quicker. At this point, further intervention to alter this course could include introducing parasitoids such as Braconidae or wood-nesting ants (Paulino Neto et al. 2006) to the habitats to control the *O. pustulatus* population.

A further recommendation is to address issues created by the history of agriculture of these reclaimed sites. Agricultural activities cause major changes on soil carbon, organic matter, and other nutrients (McLauchlan 2007). Soil nutrient concentrations are known to affect the growth of plants (Chapin III 1980), and also the dynamics of plant community assembly (Cramer et al. 2008). Essentially, the extreme modification of the soil from agricultural practices will almost certainly guarantee that a different plant community will assemble than on other types of reclaimed land. LRGV NWR managers will need to evaluate whether the plant communities that have assembled on these types of sites are conducive with their stated goal of creating a habitat corridor capable of sustaining native wildlife and migratory birds.

Many current questions in restoration science are difficult to answer without comprehensive community level data, such as has been the focus of this thesis. It is my hope that future ecologists can extend and repurpose the data collected here to inform the design of future studies, to combine them with other data for meta-analysis studies, and to further our knowledge of beetle communities and restoration ecology.

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APPENDIX 1

*The following appendices (1-11) contain nomenclature for morphospecies as follows: sp./spp. represents possible cryptic species, genera with more than one morphospecies notated sp. 1, sp. 2 etc. and may contain distinguishing marks in parenthesis. Species noted with the EGR or JEW are believed to be undescribed species.

Laguna species list, ranked by abundance with collecting method

Species	Beating	Lindgren funnel trap	Pitfall trap	UV light	Total
Tropicus pusillus (Say)				15006	15006
Stenomorphus californicus rufipes LeConte				1934	1934
Smicrips texana (Casey)		83	1820	11	1914
Berosus exiguus (Say)				1911	1911
Berosus metalliceps Sharp				1324	1324
Ataenius cognatus (LeConte)			3	1212	1215
Canthon viridis (Palisot de Beauvois)			1043	1	1044
Tachys sp. 1				1044	1044
Berosus infuscatus LeConte				855	855
Tropisternus sp. 2			1	824	825
Melanophthalma (*Melanophthalma*) sp./spp.	435	319	13	43	810
Ateuchus texanus (Robinson)		5	674	50	729
Heterocerus spp. 2		2		439	441
Naucles sp. 1	226	24	8	183	441
Tachys sp. 2		1		427	428
Copelatus sp. 1 (small)		2		347	349
Sibinia pallida (Schaeffer)	306	9	4		319
Enochrus sp. 2 (*medium*)				313	313
Allopoda sp. 1	38	86	3	104	231
Ischyropalpus occidentalis (Champion)	158	11	2	5	176
Stelidota coenosa Erichson		8	165		173
Paratenetus punctatus Spinola	78	11	1	80	170
Thermonectus basillaris (Harris)		1		169	170
Pelonomus obscurus LeConte				160	160
Hymenorus sp. 1		64		84	148
Throscinus schwarzii Schaeffer		6		133	139

Species	Beating	Lindgren funnel trap	Pitfall trap	UV light	Total
Ptinus paulonotatus Pic			123	11	134
Ahasverus rectus (LeConte)		7	107	19	133
Xylobiops texanus (Horn)	2	8		122	132
Tricorynus sp./spp.	3	93	1	22	119
Metophthalmus rileyi Andrews		3	116		119
Ataeniopsis figurator (Harold)				117	117
Diclidia sp. 1	2	98	1	6	107
Haroldiataenius convexus (Robinson)		11	91		102
Hydrocanthus sp.				99	99
Colecerus marmoratus (Horn)	49	33	16		98
Enochrus sp. 1 (small)		1		96	97
Melanophthalma (*Cortilena*) *simplex* (LeConte)	42	24	29	2	97
Selenophorus sp. 2		1		92	93
Pachybrachis pusillus Bowditch	1	3	1	87	92
Algarobius bottimeri Kingsolver	7	57	2	16	82
Eleodes goryi Solier			81		81
Lobiopa insularis (Laporte)		14	64	2	80
Enochrus sp. 3 (big)				76	76
Cryptorama sp. 1 (confusum or near)	25	45	2	2	74
Diplotaxis thoracica Fall		3	1	66	70
Micracisella opacithorax (Schedl)	3	4		62	69
Ataenius inquisitus Horn		18	48	1	67
Armalia texanus (LeConte)	2	44	3	18	67
Mimosestes amicus (Horn)	42	23		1	66
Diplotaxis curvaticeps Fall			5	60	65
Pachydrus sp.				64	64
Glyphonyx sp./spp.		1		63	64
Metaparia sp. EGR 1	64				64
Paracymus sp./spp.		1		63	64
Temnocerus macrophthalmus (Schaeffer)	60	2	1		63
Ataenius setiger Bates		13	34	15	62
Stenosides texanus (Wickham)			61		61
Lobopoda punctulata (Melsheimer)		60		1	61
Trigonodera schaefferi Rivnay	2			52	54
Helluomorphoides sp./spp.		1	17	34	52
Diplotaxis simplex Blanchard			2	49	51
Petalium debile Fall	49	1		1	51
Onthophagus gazella (Fabricius)				49	49
Phyllophaga crinita (Burmeister)				49	49
Amphicerus cornutus (Pallas)	3	20	17	7	47
Anchastus uniquus Knull		1		43	44
Tricorynus fastigiatus (Fall)	1	8		33	42

Species	Beating	Lindgren funnel trap	Pitfall trap	UV light	Total
Pseudocanthon perplexus (LeConte)		2	14	26	42
Diplotaxis truncatula LeConte				41	41
Cyclodinus californicus (LaFerté-Sénectère)		2		39	41
Ora troberti (Guérin-Méneville)				40	40
Phloeonemus integer (Reitter)		29		11	40
Hypothenemus interstitialis (Hopkins)	7	32			39
Pandeleteius longicollis Champion	22	14	1	2	39
Mulsant*eus texanus* (LeConte)		7	1	29	37
Laccophilus proximus Say				36	36
Nemotarsus rhombifer Bates	1	15		20	36
Haliplus tumidus LeConte		3		32	35
Anomala insitiva Robinson				34	34
Acylomus sp./spp.	32	1		1	34
Corticaria sp.		30	2		32
Aeolus sp. 1		1		31	32
Enoclerus quadrisignatus (Say)		27		5	32
Ptinus hystrix Fall	5	4	7	15	31
Dyschiriodes abbreviatus (Putzeys)		1		29	30
Lobopoda socia (LeConte)	1	28			29
Sternidius mimeticus (Casey)	14	10		5	29
Copelatus sp. 2 (big)				29	29
Bembidion viridicolle (LaFerté-Sénectère)				29	29
Compsus auricephalus (Say)	26	1	1		28
Metaxyphloeus texanus (Schaeffer)		19		8	27
Hymenorus occidentalis Champion		12		15	27
Ptinus sp. 1	3	8	3	12	26
Zuphium americanum Dejean				25	25
Hypothenemus erectus LeConte	10	14	1		25
Tachys pulchellus LaFerté-Sénectère				25	25
Horistonotus simplex LeConte				24	24
Listrus sp. 1	5	13	5	1	24
Novelsis aequalis (Sharp)		24			24
Niptinus unilineatus (Pic)	3	18	2		23
Tachys pallidus Chaudoir				23	23
Selenophorus sp. 1				23	23
Hypothenemus squamosus (Hopkins)	3	17	3		23
Hymenorus sp. 3		20		3	23
Coraia subcyanescens (Schaeffer)	22		1		23
Selenophorus fatuus (LeConte)		2		20	22
Hypothenemus eruditus Westwood	2	18	1	1	22
Apenes sinuatus (Say)				22	22
Throscinus politus Casey		2		19	21

Species	Beating	Lindgren funnel trap	Pitfall trap	UV light	Total
Calleida punctulata Chaudoir		16		5	21
Sibinia setosa (LeConte)	5	14		1	20
Tropisternus lateralis nimbatus (Say)				20	20
Haliplus lewisii Crotch				20	20
Parochodaeus biarmatus (LeConte)				20	20
Megapenthes nigriceps Schaeffer		8		11	19
Clivina sp. 1			19		19
Harpalus gravis LeConte				19	19
Euconnus sp./spp.			19		19
Deilelater physoderus (Germar)		6		13	19
Dyschiriodes sublaevis (Putzeys)				19	19
Hydaticus bimarginatus (Say)				19	19
Taphroscelidia linearis (LeConte)		9		9	18
Tachys sp. 3				18	18
Lathropus robustulus Casey	3	15			18
Cicindela severa severa LaFerté-Sénectère				18	18
Cryptorama sp. 2 (punctatum or near)	5	11	1	1	18
Plochionus timidus Haldeman		15	1	1	17
Hymenorus sp. 4		12		4	16
Laccophilus quadrilineatus quadrilineatus Horn				16	16
Ptinus tumidus Fall	4	4	3	5	16
Phileurus valgus (Linnaeus)		14		2	16
Hymenorus dubius Fall		15			15
Melanotus lanceatus Quate		4		11	15
Mordellina sp. 3		2	1	12	15
Tropisternus collaris (Fabricius)				15	15
Tricorynus texanus White	1	9		4	14
Dacoderus steineri Aalbu, Andrews & Pollock			12	2	14
Mordellina sp. 2				14	14
Acmaeodera tubulus-neoneglecta Complex		5	9		14
Anelaphus spurcus (LeConte)		11	3		14
Selenophorus palliatus (Fabricius)				14	14
Obrium maculatum (Olivier)	3	9		1	13
Phyllophaga vexata (Horn)			2	11	13
Hypothenemus seriatus (Eichhoff)		8	5		13
Pogonus texanus Chaudoir				13	13
Trogoderma sp.		13			13
Loxandrus sculptilis Bates				13	13
Hymenorus sp. 2		1		12	13
Molytinae, undet. genus sp. 1	12			1	13
Oxacis bernadettae Arnett		9		4	13

Species	Beating	Lindgren funnel trap	Pitfall trap	UV light	Total
Dromaeolus teres (Horn)		1		12	13
Symphora sp.	11	1			12
Blapstinus sp. (=*lobatus* Davis, ms. name)		1	11		12
Geropa concolor (LeConte)		3		9	12
Arthrolips sp. /spp.		7	4	1	12
Pachybrachis sp. 2	11		1		12
Cnopus impressus (LeConte)	3	2		7	12
Thalpius dorsalis (Brullé)				11	11
Mordellistena sp. 6				11	11
Sibinia inermis (Casey)	10	1			11
Disonycha barberi Blake	2	9			11
Neobidessus sp. 1				11	11
Merobruchus major (Fall)	10	1			11
Lystronichus piliferus Champion	2	5		4	11
Aeolus sp. 2				11	11
Xylomeira tridens (Fabricius)		2		9	11
Cymatodera sirpata Horn		5		5	10
Trogoxylon aequale ((Wollaston)		9	1		10
Cercyon praetextatus (Say)				10	10
Tropisternus sp. 3				10	10
Dipropus sp. 1		1		9	10
Gymnetis caseyi Antonie		7		3	10
Hypothenemus brunneus (Hopkins)	2	8			10
Lebia rufopleura Schaeffer		2		8	10
Tricorynus congruus (Fall)		3		7	10
Tachys misellus LaFerté-Sénectère				10	10
Tachys sp. 4		3	2	5	10
Uvarus sp.				10	10
Conotrachelus cameronensis Sleeper		1	7	2	10
Stenocrepis duodecimstriata (Chevrolat)				10	10
Pseudopentarthrum sp. 1	7	2			9
Trogoderma primum (Jayne)		9			9
Stator beali Johnson	9				9
Mordellaria serval (Say)		9			9
Pachybrachis brevicornis Fall		7		2	9
Aderidae, undet. genus 1 sp. 1				9	9
Typhaea stercorea (Linnaeus)	1		7	1	9
Apsectus sp.		9			9
Listronotus sp. 2		1		8	9
Anelaphus debilis (LeConte)		5		4	9
Spintherophyta globosa (Olivier)	6	3			9
Ora hyacintha Blatchley				8	8

Species	Beating	Lindgren funnel trap	Pitfall trap	UV light	Total
Epuraea luteolus Erichson				8	8
Eleodes spinipes ventricosus LeConte			8		8
Hypothenemus rotundicollis (Eichhoff)	4	3	1		8
Dyschiriodes edentulus (Putzeys)				8	8
Mordellina ancilla (LeConte)		6	1	1	8
Temnochila acuta LeConte		2		6	8
Carpophilus mutilatus (Erichson)		5	1	2	8
Attalus rufiventris Horn	2	6			8
Gnaphalodes trachyderoides Thomson		3		4	7
Omorgus rubricans (Robinson)				7	7
Elaphropus sp. 2			7		7
Pachybrachis uncinatus Fall				7	7
Phyllophaga rubiginosa (LeConte)				7	7
Anthonomus leucostictus Dietz	7				7
Notomicrus sp./spp.				7	7
Conoderus aversus (LeConte)		2		5	7
Selenophorus sp. 3				7	7
Ecyrus arcuatus Gahan	3	1		3	7
Methia necydalea (Fabricius)				7	7
Oxacis angustata Champion		2		5	7
Toramus sp. EGR 1		4	1	2	7
Psyllobora renifer Casey	3	2		2	7
Notiobia terminata (Say)				7	7
Cryptocephalus fulguratus J. L. LeConte	7				7
Anisoxya sp.	2	2		3	7
Psyrassa castanea Bates				7	7
Ochthebius sp./spp.		4		3	7
Migneauxia orientalis (Reitter)		1		6	7
Sibinia errans (Casey)	1	5	1		7
Elonus basalis (LeConte)				7	7
Petalium sp. 1		4		3	7
Ptinus sp. 2	1	3	1	2	7
Statira hirsuta Champion	1	2	1	2	6
Melanophthalma (*Cortilena*) *picta* (LeConte)	2	3	1		6
Mordellina sp. 1	1	1		4	6
Toxonotus cornutus (Say)	4	2			6
Omorgus fuliginosus (Robinson)			1	5	6
Pyrota insulata (LeConte)		1		5	6
Thysanoes texanus Blackman		2	1	3	6
Micratopus aenescens (LeConte)				6	6
Litochrus sp. 1	3	2		1	6

Species	Beating	Lindgren funnel trap	Pitfall trap	UV light	Total
Placosternus difficilis (Chevrolat)		5		1	6
Pseudotolida sp. / spp.		1		5	6
Tricorynus sp. 3		2	2	2	6
Babia tetraspilota J. L. LeConte	3	3			6
Chalcodermus semicostatus Schaeffer	2	4			6
Phyllobaenus varipunctatus Knull	4	2			6
Euderces reichei LeConte	6				6
Epicauta temexa Adams & Selander				6	6
Oscarinus welderi Gordon & Skelley		2		4	6
Zagloba hystrix Casey	3	1	2		6
Apenes sp. EGR 1			6		6
Calleida fimbriata Bates	6				6
Ablechrus sp. 1	4		2		6
Polypria cruxrufa Chevrolat	1			4	5
Enaphalodes taeniatus (LeConte)		4		1	5
Rypobius sp.			5		5
Hylocurus parkinsoniae Blackman		5			5
Stenolophus dissimilis Dejean				5	5
Calosoma sayi Dejean		1		4	5
Rilettius sp.		3		2	5
Canifa sp. 1		3		2	5
Bactridium sp.		2	2	1	5
Hypothenemus pubescens Hopkins	1	2	2		5
Epicauta fortis Werner		5			5
Litochrus pulchellus (LeConte)		1		4	5
Striatheca sp. 1				5	5
Paratachys sp. 1		1	1	3	5
Diplotaxis pubipes Schaeffer				5	5
Blapstinus fortis LeConte				4	4
Selenophorus sp. 4				4	4
Scirtes orbiculatus (Fabricius)	3	1			4
Cryptorama sp. 3 (vorticale or near)		4			4
Metachroma texanum Schaeffer			4		4
Nyssonotus seriatus Casey	4				4
Notiobia maculicornis (Chaudoir)				4	4
Obrium glabrum Knull		2	1	1	4
Listrus sp. 2	3		1		4
Cymindis platicollis (Say)		3		1	4
Anchastus rufus Candèze		1		3	4
Diabrotica longicornis (Say)				4	4
Suphisellus bicolor bicolor (Say)				4	4
Anelaphus niveivestitus (Schaeffer)		1		3	4
Glyptotus cribratus LeConte		4			4
Diomus terminatus (Say)				4	4

Species	Beating	Lindgren funnel trap	Pitfall trap	UV light	Total
Lignyodes adamanteus (Clark)	1		1	2	4
Pelosoma praecursor Smetana		2	2		4
Scraptia sp. 1		1		3	4
Holopsis sp.	4				4
Carpophilus freemanni Dobson		2	1	1	4
Xyletinus fasciatus White	4				4
Selenophorus sp. 5		1		3	4
Aderus sp. EGR 1				4	4
Melalgus plicatus (LeConte)	1	3			4
Catapastinus Caseyi Champion	4				4
Mordellistena trifasciata (Say)	1	1	2		4
Attalus scapularis Marshall	4				4
Ganascus ventricosus (LeConte)	2			2	4
Auperia donominata (Chevrolat)				4	4
Blapstinus fuscus Casey		1		3	4
Ptinus falli Pic		4			4
Gymnochthebius sp. 1		4			4
Axylophilus sp. EGR 1	2	2			4
Cenophengus pallidus Schaeffer				4	4
Photinus sp./spp. 1			1	3	4
Diplochaetus rutilis (Chevrolat)				4	4
Bothrideres geminatus (Say)		1		2	3
Agonum texanum (LeConte)				3	3
Psyrassa brevicornis Linsley				3	3
Maemactes cribratus (LeConte)			3		3
Anomoea rufifrons mutabilis (Lacordaire)	3				3
Colaspis crinicornis crinicornis Schaeffer				3	3
Calleida decora (Fabricius)				3	3
Mimosestes nubigens (Motschulsky)	1	2			3
Pyrota tenuicostatis (Dugès)				3	3
Cryptophilus integer (Heer)		1		2	3
Esthesopus sp. 1		1		2	3
Nephus flavifrons (Melsheimer)	3				3
Goniocloeus bimaculatus (Olivier)		3			3
Obrium mozinnae Linell	1			2	3
Trox spinulosus Robinson				3	3
*Onthophagus subtro*Picus Howden & Cartwright		3			3
Chaetocoelus sp. /spp.		3			3
Orthocis sp. 1		1	2		3
Axinopalpus sp. 1		1	2		3
Celina sp.				3	3

Species	Beating	Lindgren funnel trap	Pitfall trap	UV light	Total
Scymnus loewii Mulsant	1	2			3
Desmopachria dispersa (Crotch)				3	3
Aneflomorpha tenuis (LeConte)				3	3
Petalium sp. 2	1	1		1	3
Cicindela pamphila LeConte				3	3
Phalacridae, undet. genus sp. 1	2			1	3
Clivina bipustulata (Fabricius)			3		3
Lasioderma falli Pic				3	3
Longitarsus sp. 1	1			2	3
Discoderus impotens (LeConte)			1	2	3
Heterocerus spp. 1				3	3
Platyomus flexicaulis (Schaeffer)	2		1		3
Xyleborus ferrugineus (Fabricius)		3			3
Dyschiriodes analis (LeConte)				3	3
Pseudozonitis labialis Enns				3	3
Hydrovatus Horn*ii* Crotch				3	3
Hapalips texanus Schaeffer		1		1	2
Stilbus sp. 1				2	2
Agrilus obolinus LeConte	2				2
Mordellistena sp. 5		1		1	2
Tenebroides semicylindricus (Horn)				2	2
Mordellistena sp. 8	2				2
Longitarsus sp. 2			2		2
Carpophilus sp. 2		2			2
Smicronyx sp. 6	2				2
Mulsant*eus variatus* (Schaeffer)				2	2
Eusphyrus rectus Schaeffer	2				2
Myochrous denticollis (Say)				2	2
Thalpius pygmaeus (Dejean)				2	2
Agrilus prosopidis Fisher	1	1			2
Helluomorphoides papago (Casey)			2		2
Nausibius sp. EGR 1			1	1	2
Rhypasma sp.			2		2
Agra sp. 1		2			2
Bembidion sp. 1				2	2
Neochlamisus velutinus Karren	1	1			2
Stenocrepis mexicana (Chevrolat)				2	2
Neorthopleura texana (Bland)		1		1	2
Suphis inflatus (LeConte)				2	2
Lophalia cyanicollis (Dupont)	2				2
Gnatocerus sp. 1				2	2
Notiodes aeratus (LeConte)	1	1			2
Monoxia sordida (J. L. LeConte)	1	1			2
Hypothenemus sp. 2	2				2

Species	Beating	Lindgren funnel trap	Pitfall trap	UV light	Total
Toxonotus penicellatus (Schaeffer)	2				2
Cryptorhopalum triste LeConte		1	1		2
Tricorynus lucidus White	1	1			2
Olla v-nigrum (Mulsant)		1		1	2
Heteroderes amplicollis (Gyllenhal)				2	2
Cybocephalus sp.		2			2
Caenocara sp. 2		2			2
Oncideres cingulata texana Horn				2	2
Scarites sp. 1				2	2
Ormiscus albofasciatus (Schaeffer)		1		1	2
Bagous sp. 2				2	2
Ormiscus sp. EGR 10	2				2
Chramesus subopacus Schaeffer	2				2
Orthoperus sp. EGR 1		2			2
Bitoma sulcata (LeConte)				2	2
Cyphon sp. / spp.	1			1	2
Lithophorus ornatus Arrow		2			2
Dendrobiella sericans (LeConte)				2	2
Stilbus sp. 2				2	2
Diabrotica balteata J. L. LeConte				2	2
Suphisellus lineatus (Horn)				2	2
Aethina tumida (Murray)		1		1	2
Miraces aeneipennis Jacoby	2				2
Cercyon quisquilius (Linnaeus)				2	2
Tenebroides nanus (Melsheimer)		2			2
Lachnodactyla texana Schaeffer			1	1	2
Teretrius orbus Lewis		2			2
Phloeonemus interruptus Reitter		1		1	2
Thalpius horni (Chaudoir)				2	2
Amblygnathus subtinctus (LeConte)				2	2
Brachiacantha barberi Gordon	2				2
Phyllophaga texensis Saylor				2	2
Tricorynus bifoveatus White		1		1	2
Platydema nigratum (Motschulsky)		2			2
Brachiacantha testudo Casey	1	1			2
Platytomus longulus (Cartwright)				2	2
Tricorynus sp. 1		2			2
Pleotomus sp.				2	2
Helops perforatus Horn	1		1		2
Zuphium longicolle LeConte				2	2
Hippodamia convergens Guérin-Méneville	1	1			2
Lebia grandis Hentz				2	2
Apion subornatum Fall	2				2

Species	Beating	Lindgren funnel trap	Pitfall trap	UV light	Total
Coleomegilla maculata (Degeer)				2	2
Xerosaprinus sp. 1		1	1		2
Colliuris tetrastigma (Chaudoir)				2	2
Agrilus lecontei celticola Fisher	2				2
Petalium schwarzi Fall	1				1
Molytinae, undet. genus sp. 3			1		1
Clivina sp. 3				1	1
Cryptorhopalum obesulum Casey		1			1
Diachus auratus (Fabricius)		1			1
Phloeotribus texanus Schaeffer	1				1
Xyleborus affinis Eichhoff				1	1
Photinus sp. 2				1	1
Eutochia crenata (LeConte)			1		1
Colaspis planicostata Blake				1	1
Calosoma aurocinctum Chaudoir			1		1
Chaetocnema quadricollis Schwarz			1		1
Tricorynus similis (LeConte)				1	1
Ataxia crypta (Say)	1				1
Pheloconus hispidus (LeConte)			1		1
Catapastus seriatus Casey	1				1
Stenopelmus rufinasus Gyllenhal				1	1
Mordellistena sp. 12				1	1
Anthonomus squamans Champion		1			1
Athrostictus punctatulus Putzeys				1	1
Apenes sp. EGR 4				1	1
Physemus minutus LeConte				1	1
Agrilus viridescens Knull		1			1
Physorhinus sp. 1				1	1
Cophes Fall*ax* (LeConte)			1		1
Placonotus sp.			1		1
Ischyropalpus subtilissimus (Pic)				1	1
Metachroma sp. EGR 1				1	1
Brachinus sp. 1				1	1
Platydema micans Zimmerman				1	1
Loxandrus infimus Bates				1	1
Cryptorhopalum reversum Casey		1			1
Pherhimius fascicularis (Fabricius)				1	1
Anisostena gracilis (Horn)	1				1
Corticotomus cylindricus (LeConte)		1			1
Clivina sp. 2				1	1
Europs fervidus Blatchley			1		1
Cregya sp. EGR 1	1				1
Litochropus sp. 1		1			1
*Zenocolaspis subtro*Pica (Schaeffer)			1		1

Species	Beating	Lindgren funnel trap	Pitfall trap	UV light	Total
Myrmex texanus (Schaeffer)	1				1
Oenopion zopheroides (Horn)			1		1
Galerita lecontei lecontei Dejean		1			1
Lebia analis Dejean				1	1
Glyptina sp. EGR 1	1				1
Cryptocephalus trizonatus Suffrian	1				1
Ataenius imbricatus (Melsheimer)				1	1
Aulonothroscus sp. 2		1			1
Tetranodus niveicollis (Linell)		1			1
Pseudothysanoes acaciae (Blackman)		1			1
Griburius lecontii Crotch				1	1
Anthonomus testaceosquamosus Linell	1				1
Copturomorpha rileyi Hespenheide		1			1
Cregya quadrinotata (Chevrolat)				1	1
Trachyderes mandibularis (Audinet-Serville)		1			1
Agrypnus rectangularis (Say)				1	1
Diomus pseudotaedatus Gordon	1				1
Anthonomus unipustulatus (Champion)	1				1
Naemia seriata seriata (Melsheimer)				1	1
Dyschiriodes sp. 1				1	1
Trischidias sp. 1		1			1
Lebia sp. 1				1	1
Brachinus sp. 2				1	1
Anthonomus xanthoxyli Linell	1				1
Melanotus opacicollis LeConte				1	1
Eburia mutica LeConte		1			1
Hybosorus illigeri Reiche				1	1
Lebia viridis Say				1	1
Xanthocomus rutilans (Casey)	1				1
Elaphropus sp. 1				1	1
Longitarsus sp. 4				1	1
Anatrichis oblonga G. Horn				1	1
Hydrophilus insularis Laporte				1	1
Elaphropus sp. 5			1		1
Eudiagogus pulcher Fåhraeus				1	1
Mordellina sp. 6				1	1
Stethorus sp. 1	1				1
Mordellistena sp. 3				1	1
Myochrous denticollis-cyphus Complex				1	1
LeConte*lla* sp. 1 (*brunnea?*)		1			1
*Strongylium hemistriatum Triple*Horn *& Spilman*		1			1

Species	Beating	Lindgren funnel trap	Pitfall trap	UV light	Total
Hyperaspis globula Casey	1				1
Aeolus subornatus (Schaeffer)				1	1
Sapintus sp. 1				1	1
Ataenius gracilis (Melsheimer)			1		1
Scaptolenus sp.			1		1
Falsomordellistena pubescens (Fabricius)			1		1
Cycloneda sanguinea sanguinea (Linnaeus)				1	1
Oxacis pallida (LeConte)		1			1
Zuphium mexicanum Chaudoir				1	1
Cis huachucae Dury		1			1
Lissorhoptrus sp.				1	1
Tachys sp. 5				1	1
Scymnus caudalis LeConte		1			1
Aneflus prolixus insoletus Chemsak & Linsley				1	1
Conotrachelus floridanus Fall		1			1
Pachybrachis latithorax Clavareau	1				1
Actenodes flexicaulis Schaeffer	1				1
Colaspis brownsvillensis Blake	1				1
Oodes amaroides Dejean				1	1
Desmopachria sp.				1	1
Bembidion impotens Casey				1	1
Hyperaspidius sp. 1			1		1
Listronotus sp. 3				1	1
Bolbelasmus minor (Linell)				1	1
Ophraella communa LeSage		1			1
Hadraule sp. 1		1			1
Listronotus sp. *7*				1	1
Toxonotus bipunctatus (Schaeffer)		1			1
Listronotus sp. 8		1			1
Paranapiacaba connexa (J. L. LeConte)				1	1
Selvadius sp. 1			1		1
Trichodesma texana Schaeffer				1	1
Sericoderus sp. 1		1			1
Achryson surinamum (Linnaeus)		1			1
Bembidion sp. 3				1	1
Arthrolips splendens (Schwarz)				1	1
Anchastus bicolor LeConte				1	1
Brachinus adustipennis Erwin			1		1
Cymatodera balteata LeConte	1				1
Diplochaetus lecontei (Horn)				1	1
Hypogena tricornis (Laporte)				1	1

Species	Beating	Lindgren funnel trap	Pitfall trap	UV light	Total
Helobata striata (Brullé)				1	1
Acanthinus scitulus (LeConte)			1		1
Helops impolitus LeConte		1			1
Smicronyx sp. 1		1			1
Mordellina pustulata (Melsheimer)				1	1
Smicronyx sp. 2	1				1
Hygrotus nubilus (LeConte)				1	1
Smicronyx sp. 3				1	1
Tropisternus sp. 1		1			1
Acanthoscelides prosopoides (Schaeffer)				1	1
Brachystylus microphthalmus Champion	1				1
Episcirrus brachialis (LeConte)		1			1
Tylonotus bimaculatus Haldeman		1			1
Epitrix fasciata Blatchley	1				1
Tytthonyx ruficollis Schaeffer		1			1
Clivina dentipes Dejean				1	1
Vacusus vicinus (LaFerté-Sénectère)				1	1
Stator sordidus (Horn)	1				1
Ataenius platensis (Blanchard)				1	1
Mimosestes protractus (Horn)		1			1
Agrilus pectoralis Waterhouse				1	1
Neomastix sp.		1			1
Hydraena sp./spp.		1			1
Neomida bicornis (Fabricius)		1			1
Yuccaborus frontalis (LeConte)				1	1
Ormiscus sp. EGR 12		1			1
Canthon probus (Germar)			1		1
Blackburneus stercorosus (Melsheimer)				1	1
Aderus tantillus (Champion)				1	1
Longitarsus sp. 5		1			1
Distremocephalus sp. EGR 1				1	1
Lissonotus flavocinctus puncticollis Bates		1			1
Grand Total	2039	2182	4812	29857	38890

APPENDIX 2

Sabal Palm Grove Refuge species list, ranked by abundance with collecting method

Species	Beating	Lindgren funnel trap	Pitfall trap	UV light	Total
Canthon viridis (Palisot de Beauvois)		1	7577		7578
Ateuchus texanus (Robinson)			3593	27	3620
Berosus exiguus (Say)		1	1	1349	1351
Berosus infuscatus LeConte				492	492
Corylophidae Genus 1 sp. 1	399	12			411
Diplotaxis pubipes Schaeffer				404	404
Diplotaxis simplex Blanchard			1	364	365
Neoxenus versicolor Valentine	323	10	4		337
Stelidota coenosa Erichson	2	2	320	4	328
Tropicus pusillus (Say)		1		269	270
Pseudocanthon perplexus (LeConte)			134	35	169
Mulsanteus texanus (LeConte)	1	30	5	117	153
Smicrips texana (Casey)		11	136	2	149
Arthrolips sp. /spp.	12	123	6	3	144
Diplotaxis thoracica Fall		1		138	139
Melanophthalma (*Melanophthalma*) sp./spp.	71	40	4	6	121
Hypothenemus eruditus Westwood		91	8	4	103
Hymenorus sp. 1	2	7	3	91	103
Acanthinus spinicollis (LaFerté-Sénectère)	85	8	2	6	101
Conoderus aversus (LeConte)	17	14	25	40	96
Dacoderus steineri Aalbu, Andrews & Pollock		1	94		95
Metophthalmus rileyi Andrews		2	88		90
Allopoda sp. 1	65	13	2	7	87
Xyleborus ferrugineus (Fabricius)		37		40	77
Blapstinus sp. (=*lobatus* Davis, ms. name)			75		75
Diclidia sp. 1	4	2		68	74
Pseudopentarthrum sp. 2	70		2		72
Coptocycla texana (Schaeffer)	63	1	1	7	72
Platydema micans Zimmerman			70	1	71
Polydacrys depressifrons (Boheman)	59	6	2	1	68
Loberus ornatus Schaeffer	66			2	68
Onthophagus schaefferi Howden & Cartwright			61		61
Dasydactylus cnici Schaeffer	52	9			61
Ataenius inquisitus Horn			54	6	60

Species	Beating	Lindgren funnel trap	Pitfall trap	UV light	Total
Lystronichus piliferus Champion	8	33	5	12	58
Horistonotus simplex LeConte	4	15	3	34	56
Hypothenemus seriatus (Eichhoff)	2	46	6		54
*Strongylium hemistriatum Triple*Horn *& Spilman*	3	38	1	11	53
Xyleborus affinis Eichhoff		3		48	51
Phyllophaga trichodes (Bates)				50	50
Niptinus unilineatus (Pic)	17	26	6		49
Hymenorus dubius Fall		27		20	47
Dipropus sp. 1		1		40	41
Heterocerus spp. 2				39	39
Trox spinulosus Robinson		1	11	25	37
Sericoderus sp. 1		11	26		37
Anaedus texanus Linell			35	2	37
Haliplus tumidus LeConte				35	35
Europs fervidus Blatchley		14	16	5	35
Acylomus sp./spp.	31	1		2	34
Hypothenemus brunneus (Hopkins)		32	1		33
Micratopus aenescens (LeConte)		1		32	33
Esthesopus sp. 1		5		26	31
Copelatus sp. 2 (big)				31	31
Ganascus ventricosus (LeConte)	15	4		12	31
Lechriops oculata (Say)	26	4			30
Megapenthes nigriceps Schaeffer		1	1	28	30
Hypothenemus squamosus (Hopkins)	4	24	2		30
Hypothenemus erectus LeConte		29			29
Galerita aequinoctialis Chaudoir			26		26
Apenes sp. EGR 2			25	1	26
Trogoderma primum (Jayne)	1	25			26
Axylophilus sp. EGR 1	11	13	1		25
Gymnetis caseyi Antonie		24	1		25
Cenophengus pallidus Schaeffer				23	23
Heterocerus spp. 1		1		22	23
Aderus tantillus (Champion)	6	1		16	23
Ora troberti (Guérin-Méneville)				22	22
Hylocurus parkinsoniae Blackman		20	2		22
Laccophilus proximus Say				22	22
Epipocus cinctus LeConte		12		9	21
Notomicrus sp./spp.				20	20
Athrostictus punctatulus Putzeys			19		19
Phyllophaga submucida (LeConte)				19	19
Bembidion impotens Casey				19	19
Elonus basalis (LeConte)	8		1	9	18

Species	Beating	Lindgren funnel trap	Pitfall trap	UV light	Total
Toxonotus penicellatus (Schaeffer)	11	6		1	18
Acanthinus clavicornis (Champion)	17		1		18
Hymenorus sp. 2		1		17	18
Oxycrepis intercepta (Chaudoir)			18		18
Anthonomus unipustulatus (Champion)	18				18
Novelsis aequalis (Sharp)	1	17			18
Pentaria sp. 1	2	2		13	17
Hypebaeus sp. 1	10	7			17
Elaphropus sp. 1			1	16	17
Eleodes goryi Solier			17		17
Lobopoda punctulata (Melsheimer)	3	13		1	17
Plagiodera thymaloides Stål	12	4			16
Tropisternus sp. 2				16	16
Goniocloeus bimaculatus (Olivier)	8	7	1		16
Phoenicobiella schwarzii (Schaeffer)	1	11	3	1	16
Apenes sp. EGR 1			16		16
Brucita marmorata (Jacoby)	14	1			15
Lobopoda socia (LeConte)		14		1	15
Germarostes aphodioides (Illiger)				14	14
Tropisternus sp. 3				14	14
Zuphium mexicanum Chaudoir				14	14
Epicaerus mexicanus Boheman	12		2		14
Discotenes nigrotuberculata (Schaeffer)	14				14
Berginus nigricolor Champion	8	5			13
Pentispa distincta (Baly)	13				13
Cossoninae, undet. genus sp.	7	5	1		13
Metaxyphloeus texanus (Schaeffer)			2	11	13
Phyllophaga vexata (Horn)			1	11	12
Metaparia sp. EGR 1	12				12
Anchastus rufus Candèze				12	12
Paracymus sp./spp.				12	12
Melyrodes basalis (LeConte)		9	2		11
Ariotus subtropicus Casey	5	1	1	4	11
Compsus auricephalus (Say)	8	3			11
Hypothenemus interstitialis (Hopkins)		11			11
Selenophorus sp. 3				10	10
Bembidion viridicolle (LaFerté-Sénectère)				10	10
Litochropus sp. 1		4		6	10
Melanotus lanceatus Quate			1	9	10
Araeoderes texanus Schaeffer	9	1			10
Physemus minutus LeConte				10	10

Species	Beating	Lindgren funnel trap	Pitfall trap	UV light	Total
Toramus chamaeropis (Schaeffer)	5	3		1	9
Mordellina sp. 6	1	6		2	9
Rilettius sp.				9	9
Euspilotus auctus (Schmidt)		1	8		9
Tomolips quercicola (Boheman)		9			9
Plocetes versicolor (Champion)	9				9
Toxonotus bipunctatus (Schaeffer)	1	8			9
Bitoma vittata Schaeffer	4	1		4	9
Hymenorus occidentalis Champion		6		3	9
Calleida planulata LeConte	1	7			8
Enochrus sp. 3 (big)				8	8
Microsicus parvulus (Guérin-Méneville)				8	8
Obrium maculatum (Olivier)		6		2	8
Copelatus sp. 1 (small)				8	8
Sternidius mimeticus (Casey)	6	2			8
Photuris sp. EGR 1	2			6	8
Stichtoptychus agonus Fall	1	7			8
Obrium glabrum Knull		4		4	8
Lebia rufopleura Schaeffer				8	8
Petalium sp. 2	4	2		2	8
Cnopus impressus (LeConte)				8	8
Coelocephalapion buchanani (Kissinger)	8				8
Neobidessus sp. 1				8	8
Anomala foraminosa Bates				7	7
Petalium sp. / spp. 4		2		5	7
Litargus balteatus LeConte		4	1	2	7
Phyllobaenus varipunctatus Knull	4	2		1	7
Desmopachria sp.				7	7
Bembidion sp. 1				7	7
Tricorynus fastigiatus (Fall)	6			1	7
Apsectus sp.		7			7
Epipocus punctatus LeConte		2	1	4	7
Pyrota tenuicostatis (Dugès)			1	6	7
Aulonothroscus nodifrons Blanchard	1	6			7
Clypastraea lepida (LeConte)		1		6	7
Phloeonemus interruptus Reitter				7	7
Cregya quadrinotata (Chevrolat)	4			2	6
Trogoderma sp.		5	1		6
Calleida punctulata Chaudoir		5		1	6
Cryptorama sp. 1 (confusum or near)	3	2		1	6
Myrmex dichrous (LeConte)	2	3	1		6

Species	Beating	Lindgren funnel trap	Pitfall trap	UV light	Total
Notolomus sp. 1		1		5	6
Omorgus fuliginosus (Robinson)			5	1	6
Selenophorus sp. 2				6	6
Tricorynus congruus (Fall)				6	6
Sennius guttifer (Sharp)	6				6
Dromaeolus teres (Horn)				6	6
Litochrus sp. 1	4	2			6
Amphicrossus ciliatus (Olivier)		1		5	6
Neorthopleura texana (Bland)				5	5
Statira hirsuta Champion		4		1	5
Ptinus tumidus Fall	3		1	1	5
Lachnodactyla texana Schaeffer		3		2	5
Tropisternus collaris (Fabricius)				5	5
Mordellistena trifasciata (Say)	4	1			5
Uvarus sp.				5	5
Temnochila acuta LeConte				5	5
Pachybrachis sp. 1	5				5
Mordellaria serval (Say)		4	1		5
Leptostylus cretatellus Bates	1	3	1		5
Cophes Fall*ax* (LeConte)			5		5
Photinus sp./spp. 1				5	5
Brachycorynus hirsutus Valentine			5		5
Helops perforatus Horn	2		3		5
Ptinus sp. 4	3		1	1	5
Enochrus sp. 2 (*medium*)				5	5
Ataenius cognatus (LeConte)			1	4	5
Nemotarsus rhombifer Bates	2	3			5
Melalgus plicatus (LeConte)		3		2	5
Laccophilus quadrilineatus quadrilineatus Horn				5	5
Thysanoes texanus Blackman		1		3	4
Blapstinus fuscus Casey			3	1	4
Haliplus lewisii Crotch				4	4
Apenes sp. EGR 4			1	3	4
Tenebroides semicylindricus (Horn)				4	4
Calosoma sayi Dejean			4		4
Geropa concolor (LeConte)		1		3	4
Horistonotus uhleri Horn	1	1		2	4
Zonantes nubifer (LeConte)	1	2		1	4
Chalcodermus semicostatus Schaeffer	2	2			4
Taphroscelidia linearis (LeConte)				4	4
Ataenius setiger Bates				4	4
Thermonectus basillaris (Harris)				4	4

Species	Beating	Lindgren funnel trap	Pitfall trap	UV light	Total
Anchastus bicolor LeConte				4	4
Trichodesma texana Schaeffer	4				4
Mulsanteus variatus (Schaeffer)				4	4
Glyphonyx sp./spp.				4	4
Neocompsa mexicana (Thomson)	2			2	4
*Zenocolaspis subtro*Pic*a* (Schaeffer)	1		2	1	4
Parochodaeus biarmatus (LeConte)				4	4
Dyschiriodes analis (LeConte)				4	4
Paratachys sp. 2				4	4
Pseudopentarthrum sp. 1	3				3
Tropisternus lateralis nimbatus (Say)				3	3
Suphisellus lineatus (Horn)				3	3
Carpophilus mutilatus (Erichson)		3			3
Philothermus sp. 1		1		2	3
Clivina bipustulata (Fabricius)			3		3
Selenophorus sp. 1				3	3
Arrhipis sp. 1		1		2	3
Toramus sp. EGR 1			1	2	3
Corticotomus cylindricus (LeConte)		3			3
Hadraule sp. 1		1	2		3
Cryptolestes unicornis (Reitter)				3	3
Pinaxister sp. EGR 1			3		3
Neoclypeodytes sp.		1		2	3
Pseudotolida sp. / spp.		3			3
Obrium mozinnae Linell	1	1		1	3
Striatheca sp. 1		1		2	3
Desmopachria dispersa (Crotch)				3	3
Throscinus schwarzii Schaeffer				3	3
Paratachys sp. 1				3	3
Hydrocanthus sp.				3	3
Paratenetus punctatus Spinola		1		2	3
Parmenonta wickhami Schaeffer			3		3
Carpophilus freemanni Dobson			3		3
Enochrus sp. 1 (small)				2	2
Tenebroides nanus (Melsheimer)				2	2
Euproctinus abjetus (Bates)	1			1	2
Cymatodera balteata LeConte	2				2
Camptodes texanus Schaeffer		2			2
Cyphon sp. / spp.				2	2
Epierus antillarum Marseul		1		1	2
Axinopalpus sp. 1			2		2
Cryptocarenus seriatus Eggers		2			2
Derallus altus (LeConte)				2	2

Species	Beating	Lindgren funnel trap	Pitfall trap	UV light	Total
Trichodesma pulchella Schaeffer				2	2
Lebia sp. 1	1			1	2
Anomala insitiva Robinson				2	2
Ora hyacintha Blatchley		1		1	2
Scymnus louisianae J. Chapin	2				2
Cis sp. 2	1	1			2
Sibinia inermis (Casey)	2				2
Pachydrus sp.				2	2
Mordellina ancilla (LeConte)		2			2
Dicaelus purpuratus purpuratus Bonelli			2		2
Synchita fuliginosa Melsheimer		1		1	2
Paramordellaria carinata (Smith)	2				2
Laemophloeus terminalis Casey		1		1	2
Agrypnus rectangularis (Say)			1	1	2
Agra sp. 1			1	1	2
Lobiopa insularis (Laporte)		1	1		2
Trox sonorae LeConte			1	1	2
Ischnocerus infuscatus Fåhraeus				2	2
Rhabdophloeus horni (Casey)				2	2
Hololepta minuta (Erichson)		1	1		2
Sapintus sp. 1				2	2
Pelosoma praecursor Smetana			2		2
Adelina bidens (Schaeffer)				2	2
Urgleptes celtis (Schaeffer)	2				2
Anthonomus schwarzi Clark & Burke	2				2
Madarellus sp. / spp.		2			2
Stelidota geminata (Say)			2		2
Amphicerus cornutus (Pallas)				2	2
Holopsis sp.	1			1	2
Diplotaxis truncatula LeConte				2	2
Eusphyrus eusphyroides (Schaeffer)	2				2
Anelaphus spurcus (LeConte)				2	2
Symphora sp.	2				2
Phyllophaga crinita (Burmeister)				2	2
Tachys pulchellus LaFerté-Sénectère				2	2
Chaetocoelus sp. /spp.	2				2
Thalpius dorsalis (Brullé)				2	2
Eburia mutica LeConte	1			1	2
Aulonothroscus sp. 1		2			2
Pogonodaptus mexicanus (Bates)				2	2
Hydnocerinae Genus undet., sp. EGR 1		2			2

Species	Beating	Lindgren funnel trap	Pitfall trap	UV light	Total
Anomala flavipennis luteipennis LeConte				2	2
Myrmex texanus (Schaeffer)	2				2
Acamptus texanus (Sleeper)	2				2
Lebia grandis Hentz				2	2
Micracisella opacithorax (Schedl)		2			2
Nephus flavifrons (Melsheimer)	2				2
Psyllobora renifer Casey			1	1	2
Zagloba hystrix Casey	2				2
Phileurus valgus (Linnaeus)		1	1		2
Phengodes sp. 1		2			2
Brachinus sp. 2				1	1
Mordellistena sp. 6				1	1
Selenophorus fatuus (LeConte)				1	1
Lissorhoptrus sp.				1	1
Tenebroides corticalis (Melsheimer)		1			1
Hypothenemus pubescens Hopkins			1		1
Lichenophanes bicornis (Weber)				1	1
Ochthebius sp./spp.		1			1
Blackburneus stercorosus (Melsheimer)				1	1
Derospidea ornata (Schaeffer)	1				1
Helobata striata (Brullé)				1	1
Desmiphora hirticollis (Olivier)	1				1
Hydaticus bimarginatus (Say)				1	1
Hypothenemus rotundicollis (Eichhoff)		1			1
Chramesus mimosae Blackman	1				1
Ora sp. EGR 1				1	1
Carcinops sp.		1			1
Ahasverus rectus (LeConte)			1		1
Selenophorus sp. 4				1	1
Ormiscus irroratus (Schaeffer)		1			1
Euderces reichei LeConte	1				1
Ormiscus sp. EGR 10	1				1
Strategus aloeus (Linnaeus)				1	1
Ormiscus sp. EGR 12	1				1
Tachys sp. 2				1	1
Orthocis sp. 1		1			1
Cryptorama sp. 2 (punctatum or near)				1	1
Orthoperus sp. EGR 1			1		1
Falsomordellistena pubescens (Fabricius)			1		1
Oxacis trirossi Arnett				1	1

Species	Beating	Lindgren funnel trap	Pitfall trap	UV light	Total
Tricorynus sp. 3		1			1
Aderidae, undet. genus 1 sp. 1				1	1
Agrilus lecontei celticola Fisher	1				1
Diabrotica undecimpunctata howardi Barber				1	1
Xylobiops texanus (Horn)	1				1
Pachybrachis sp. 2				1	1
Scymnus loewii Mulsant				1	1
Algarobius bottimeri Kingsolver	1				1
Berosus pugnax LeConte				1	1
Cephaloscymnus sp. 1	1				1
Lebia esurialis Casey				1	1
Armalia texanus (LeConte)			1		1
Sphindus sp./spp.				1	1
Ceracis sp. 3				1	1
Stenocrepis mexicana (Chevrolat)				1	1
Helluomorphoides sp./spp.				1	1
Mordellistena sp. 8		1			1
Lochmaeocles cornuticeps cornuticeps (Schaeffer)				1	1
Celina sp.				1	1
Lophalia cyanicollis (Dupont)		1			1
Hyperaspis globula Casey			1		1
Loxandrus sp. 1				1	1
Calymmaderus nitidus (LeConte)				1	1
Pelonium maculicolle Schaeffer	1				1
Hemisphaerota cyanea (Say)		1			1
Pelonomus obscurus LeConte				1	1
Hyboptera auxiliadora Erwin		1			1
Acmaeodera tubulus-neoneglecta Complex		1			1
Fallapion sp. 2	1				1
Bactridium sp.				1	1
Neocompsa exclamationis (Thomson)		1			1
Diomus debilis (LeConte)			1		1
Tricorynus lucidus White		1			1
Diplotaxis curvaticeps Fall			1		1
Cycloneda sanguinea sanguinea (Linnaeus)	1				1
Badister elegans LeConte				1	1
Nephus intrusus (Horn)				1	1
Catapastinus Caseyi Champion	1				1
Cacostola salicicola (Linsley)	1				1
Pherhimius fascicularis (Fabricius)				1	1

Species	Beating	Lindgren funnel trap	Pitfall trap	UV light	Total
Caenocara sp. 1	1				1
Conotrachelus cameronensis Sleeper	1				1
Aulonothroscus sp. 2		1			1
Megascelis texana Linell	1				1
Liocyrtusa sp.			1		1
Baliosus sp. 1	1				1
Cregya sp. EGR 1				1	1
Belotus bicolor Brancucci	1				1
Lathropus robustulus Casey				1	1
Photinus sp. 3				1	1
Mordellina sp. 1				1	1
Alphitobius laevigatus (Fabricius)		1			1
Bidessonotus sp. 1				1	1
Anelaphus debilis (LeConte)		1			1
Mordellistena sp. 3	1				1
Melanophthalma (*Cortilena*) *picta* (LeConte)	1				1
Smodicum texanum Knull				1	1
Melanophthalma (*Cortilena*) *simplex* (LeConte)		1			1
Euconnus sp./spp.			1		1
Drapetes niger Bonvouloir		1			1
Mordellistena sp. 4	1				1
Phyllophaga texensis Saylor				1	1
Stenocrepis tibialis (Chevrolat)				1	1
Bembidion sp. 2				1	1
Stethorus sp. 1	1				1
Dyschiriodes abbreviatus (Putzeys)				1	1
Stilbus sp. 1		1			1
Holoparamecus sp.		1			1
Cryptocephalus fulguratus J. L. LeConte	1				1
Hypothenemus californicus Hopkins			1		1
Suphisellus bicolor bicolor (Say)				1	1
Hetaeriine, genus 5 sp. 1				1	1
Chilocorus cacti (Linnaeus)	1				1
Eburia stigmatica (Chevrolat)				1	1
Naucles sp. 1			1		1
Platydema nigratum (Motschoulsky)		1			1
Tachys sp. 3				1	1
Ecyrus penicillatus (Bates)	1				1
Adetus sp. JEW 1				1	1
Plochionus timidus Haldeman				1	1
Nematodes atropos (Say)				1	1

Species	Beating	Lindgren funnel trap	Pitfall trap	UV light	Total
Poecilocrypticus formicophilus Gebien		1			1
Teretriosoma conigerum Lewis	1				1
Cophes texanus Sleeper				1	1
Thalpius horni (Chaudoir)				1	1
Merobruchus major (Fall)		1			1
Cryptorama sp. 3 (*vorticale* or near)				1	1
Elaphropus sp. 3				1	1
Eustrophinus sp. EGR 1			1		1
Ataxia crypta (Say)		1			1
Chlaenius texanus G. Horn				1	1
Acanthoscelides macrophthalmus (Schaeffer)	1				1
Bogcia obliquefasciata (Schaeffer)				1	1
Pseudothysanoes acaciae (Blackman)		1			1
Hexacylloepus sp.				1	1
Ababa tantilla (LeConte)		1			1
Cyclodinus californicus (LaFerté-Sénectère)	1				1
Hesperobaenus constricticollis Bousquet		1			1
Tricorynus punctatus (LeConte)				1	1
Ptinus hystrix Fall				1	1
Trigonorhinus alternatus (Say)	1				1
Ptinus sp. 2	1				1
Glyphonyx bimarginatus Schaeffer				1	1
Berosus aculeatus / peregrinus				1	1
Gnaphalodes trachyderoides Thomson				1	1
Catapastus squamirostris Casey	1				1
Gnatocerus sp. 1				1	1
Pygmaeopsis viticola Schaeffer	1				1
Lepturges angulatus (LeConte)				1	1
Anthonomus leucostictus Dietz				1	1
Cymatothes tristis (Laporte)		1			1
Micrapate dinoderoides (Horn)		1			1
Canthon cyanellus LeConte			1		1
Rhabdopterus sp. EGR 1				1	1
Xyleborus spinulosus Blandford		1			1
Lasioderma falli Pic	1				1
Xylomeira tridens (Fabricius)				1	1
Apinocis deplanata (Casey)		1			1
Apion xanthoxyli Fall	1				1
Scirtes orbiculatus (Fabricius)				1	1
Haroldiellus sallei (Harold)				1	1

Species	Beating	Lindgren funnel trap	Pitfall trap	UV light	Total
Scraptia sp. 1		1			1
Scymnus (*Scymnus*) sp. 4	1				1
Grand Total	1787	1163	12613	4751	20314

APPENDIX 3

McManus species list, ranked by abundance with collecting method

Species	Beating	Lindgren funnel trap	Pitfall trap	UV light	Total
Tropicus pusillus (Say)				13794	13794
Smicrips texana (Casey)	28	90	1510	8	1636
Stelidota coenosa Erichson	127	20	1320	7	1474
Ateuchus texanus (Robinson)	38	2	1081	52	1173
Blapstinus sp. (=*lobatus* Davis, ms. name)			1008		1008
Ahasverus rectus (LeConte)	18	9	360	1	388
Horistonotus simplex LeConte	5	134	32	134	305
Ataenius inquisitus Horn	5		229	9	243
Litargus balteatus LeConte	2	173	18	29	222
Onthophagus schaefferi Howden & Cartwright			159		159
Pseudocanthon perplexus (LeConte)		1	129	9	139
Allopoda sp. 1	16	44	3	50	113
Carpophilus freemanni Dobson		11	83	15	109
Tricorynus fastigiatus (Fall)	2	3		101	106
Rilettius sp.	5	46		55	106
Mulsanteus texanus (LeConte)		5	3	90	98
Cryptorama sp. 1 (confusum or near)	40	45	1	10	96
Conoderus aversus (LeConte)		19	19	55	93
Metophthalmus rileyi Andrews		2	89	1	92
Anomala foraminosa Bates		5	5	80	90
Tricorynus congruus (Fall)	5	14		68	87
Platydema micans Zimmerman	1	1	69	8	79
Lobiopa insularis (Laporte)		6	67	2	75
Lepidocnemeplatia sericea Horn			65	7	72
Niptinus unilineatus (Pic)	8	55	6		69
Diplotaxis thoracica Fall		1	4	64	69
Heterocerus spp. 2				64	64
Cryptorama sp. 2 (punctatum or near)	21	31	1	5	58
Berosus exiguus (Say)				56	56
Cryptorama sp. 3 (vorticale or near)	18	9	1	28	56
Apenes sp. EGR 2			56		56
Canthon cyanellus LeConte			52		52
Geropa concolor (LeConte)	2	11		35	48
Lebia grandis Hentz		38		9	47
Berosus infuscatus LeConte				46	46
Agrypnus rectangularis (Say)			46		46
Diplotaxis truncatula LeConte				44	44

Species	Beating	Lindgren funnel trap	Pitfall trap	UV light	Total
Mordellistena sp. 6	4	11		29	44
Blapstinus fuscus Casey		8	30	6	44
Anomala flavipennis luteipennis LeConte			1	41	42
Clivina bipustulata (Fabricius)	2		38	1	41
Carpophilus mutilatus (Erichson)		10	18	12	40
Trox spinulosus Robinson			31	9	40
Novelsis aequalis (Sharp)		40			40
Toramus sp. EGR 1	12	6	3	17	38
Typhaea stercorea (Linnaeus)	3	3	14	18	38
Apenes sp. EGR 1			36	1	37
Obrium mozinnae Linell	3	6		28	37
Selenophorus sp. 1		7	4	25	36
Metaxyphloeus texanus (Schaeffer)	4	1		31	36
Enochrus sp. 2 (*medium*)				35	35
Esthesopus sp. 1		15	2	18	35
Urgleptes celtis (Schaeffer)	32				32
Megapenthes nigriceps Schaeffer		3		24	27
Hymenorus sp. 1	1	4	1	21	27
Conotrachelus floridanus Fall	13	12	1		26
Elaphropus sp. 1				26	26
Amphicerus cornutus (Pallas)	6	12	2	5	25
Migneauxia orientalis (Reitter)				25	25
Selenophorus fatuus (LeConte)			3	22	25
Canthon viridis (Palisot de Beauvois)			25		25
Trichodesma texana Schaeffer	18	7			25
Hymenorus sp. 2		1	1	23	25
Phyllophaga submucida (LeConte)			1	23	24
Eusphyrus rectus Schaeffer	5	17	1		23
Tricorynus bifoveatus White	1	4		18	23
Episcirrus brachialis (LeConte)	6	16		1	23
Euspilotus auctus (Schmidt)			23		23
Cossoninae, undet. genus sp.	21				21
Selenophorus sp. 3			4	16	20
Glyphonyx sp./spp.		1		19	20
Hymenorus dubius Fall		7		12	19
Thysanoes texanus Blackman		12		7	19
Sternidius mimeticus (Casey)	18	1			19
Polypria cruxrufa Chevrolat	1			17	18
Tachys sp. 5				18	18
Pseudotolida sp. / spp.	1	10		7	18
Anchastus rufus Candèze		2		16	18
Striatheca sp. 1		11	3	3	17

Species	Beating	Lindgren funnel trap	Pitfall trap	UV light	Total
Aphrastus unicolor Horn	14		3		17
Belotus bicolor Brancucci	3	11		3	17
Copturomorpha rileyi Hespenheide		17			17
Omorgus fuliginosus (Robinson)	1		14	1	16
Xylomeira tridens (Fabricius)		3	1	12	16
Hypothenemus seriatus (Eichhoff)		12	4		16
Pelonomus obscurus LeConte				15	15
Ptinus tumidus Fall	8	1	3	3	15
Pseudothysanoes acaciae (Blackman)		10		5	15
Xyleborus affinis Eichhoff		1		14	15
Cymatodera balteata LeConte	11	1	3		15
Uvarus sp.				15	15
Lobopoda socia (LeConte)		12	2		14
Paratachys sp. 1				14	14
Ataenius cognatus (LeConte)				14	14
Mordellistena trifasciata (Say)	1	11	1		13
Cymatoderella collaris (Spinola)		13			13
Brachycorynus hirsutus Valentine			13		13
Phileurus valgus (Linnaeus)		9		3	12
Anomala flavipennis flavipennis Burmeister				12	12
Hylocurus parkinsoniae Blackman		12			12
Cryptorama sp. 4		11			11
Ataenius platensis (Blanchard)				11	11
Anomala insitiva Robinson				11	11
Canifa sp. 1		8		3	11
Haliplus tumidus LeConte				11	11
Dendrobiella sericans (LeConte)				11	11
Trichodesma sordida Horn	3	6		2	11
Tricorynus sp./spp.		3		8	11
Airora cylindrica (Audinet-Serville)		10		1	11
Urophorus humeralis (Fabricius)	1	1	9		11
Copelatus sp. 1 (small)		1		10	11
Griburius lecontii Crotch		9		2	11
Melanophthalma (*Melanophthalma*) sp./spp.	2	4	2	2	10
Melanophthalma (*Cortilena*) *simplex* (LeConte)	1	4	1	4	10
Monotoma americana Aubé			10		10
Stator beali Johnson	1	4	3	2	10
Disonycha glabrata (Fabricius)	8	2			10
Bogcia obliquefasciata (Schaeffer)				10	10
Sibinia inermis (Casey)	8	2			10
Laccophilus proximus Say				10	10

Species	Beating	Lindgren funnel trap	Pitfall trap	UV light	Total
Phyllobaenus varipunctatus Knull	2	7		1	10
Ptinus sp. 2	7	2			9
Micratopus aenescens (LeConte)				9	9
Bembidion impotens Casey				9	9
Lobopoda punctulata (Melsheimer)		8		1	9
*Onthophagus subtro*Pic*us* Howden & Cartwright		2	7		9
Stenosphenus lugens LeConte	4	3	2		9
Algarobius bottimeri Kingsolver	1	4		4	9
Conotrachelus belfragei LeConte	1	8			9
Anelaphus debilis (LeConte)		6		3	9
Mordellina ancilla (LeConte)		6		3	9
Neobidessus sp. 1				9	9
Cymindis platicollis (Say)		6	3		9
Armalia texanus (LeConte)		2		7	9
Paratachys sp. 2				8	8
Dacoderus steineri Aalbu, Andrews & Pollock			8		8
Ptinus sp. 3			8		8
Notomicrus sp./spp.				8	8
Trogoderma primum (Jayne)		8			8
Enochrus sp. 1 (small)				8	8
Epipocus cinctus LeConte		2	1	5	8
Helluomorphoides papago (Casey)			7	1	8
Tachys pulchellus LaFerté-Sénectère				8	8
Copelatus sp. 2 (big)				8	8
Toxonotus bipunctatus (Schaeffer)	3	5			8
Paracymus sp./spp.				8	8
Anelaphus spurcus (LeConte)		3		5	8
Heterocerus spp. 1				8	8
Pelonium maculicolle Schaeffer	2	6			8
Stenelmis occidentalis Schmude & Brown				7	7
Dipropus sp. 1				7	7
Tricorynus similis (LeConte)				7	7
Gymnetis caseyi Antonie		7			7
Selenophorus sp. 2		1		6	7
Lystronichus piliferus Champion		4		3	7
Deilelater physoderus (Germar)	1	2	1	3	7
Ormiscus sp. EGR 12	6	1			7
Acmaeodera tubulus-neoneglecta Complex		7			7
Melalgus plicatus (LeConte)		4		3	7
Amphicrossus ciliatus (Olivier)		1	1	5	7

Species	Beating	Lindgren funnel trap	Pitfall trap	UV light	Total
Athrostictus punctatulus Putzeys			1	6	7
Cophes fallax (LeConte)	2		5		7
Neocompsa exclamationis (Thomson)		4		2	6
Microweisea sp.	6				6
Axinopalpus sp. 1			6		6
Oncideres cingulata texana Horn		1		5	6
Niptinus ovipennis Fall			6		6
Nemotarsus rhombifer Bates	4	1		1	6
Sitophilus zeamais Motschulsky			6		6
Berosus aculeatus / peregrinus				6	6
Hypothenemus eruditus Westwood		5	1		6
Hister servus Erichson			6		6
Lebia analis Dejean	4			2	6
Cryptophilus integer (Heer)		1		5	6
Apenes sp. EGR 4			2	4	6
Obrium maculatum (Olivier)		5		1	6
Hypothenemus brunneus (Hopkins)		6			6
Paratenetus punctatus Spinola		1		4	5
Euconnus sp./spp.			5		5
Merobruchus major (Fall)	2	1		2	5
Apsida belti Bates	3	2			5
Berosus metalliceps Sharp				5	5
Calleida punctulata Chaudoir	1	4			5
Loxandrus sculptilis Bates				5	5
Celina sp.				5	5
Stichtoptychus agonus Fall		4		1	5
Madarellus sp. / spp.	1	4			5
Cyphon sp. / spp.		2		3	5
Neocompsa intricata Martins	2	2		1	5
Neorthopleura texana (Bland)	1			4	5
Hypothenemus californicus Hopkins			5		5
Compsus auricephalus (Say)	3	2			5
Pachybrachis spumarius Suffrian	1	4			5
Pandeleteius cinereus (Horn)	4		1		5
Cryptorhopalum reversum Casey		5			5
Blapstinus fortis LeConte			4		4
Vacusus vicinus (LaFerté-Sénectère)				4	4
Tricorynus sp. 1		2		2	4
Omorgus rubricans (Robinson)	1		3		4
Cis sp. 2	2	1	1		4
Gnaphalodes trachyderoides Thomson		2		2	4
Europs fervidus Blatchley		3	1		4
Epitrix hirtipennis (F. E. Melsheimer)	1	1	1	1	4

Species	Beating	Lindgren funnel trap	Pitfall trap	UV light	Total
Enochrus sp. 3 (big)			1	3	4
Hypothenemus interstitialis (Hopkins)		2	2		4
Helluomorphoides sp./spp.			4		4
Chilocorus cacti (Linnaeus)	4				4
Toxonotus penicellatus (Schaeffer)		4			4
Petalium sp. 1				4	4
Phloeotribus texanus Schaeffer			1	3	4
Tachys pallidus Chaudoir				4	4
Dromaeolus teres (Horn)				4	4
Micracisella opacithorax (Schedl)	1			3	4
Mimosestes amicus (Horn)	4				4
Lachnodactyla texana Schaeffer		1		3	4
Pentaria sp. 1				4	4
Temnochila acuta LeConte				4	4
Acylomus sp./spp.		1		3	4
Colaspis planicostata Blake		1		3	4
Neocompsa mexicana (Thomson)	2	1		1	4
Xylobiops texanus (Horn)				4	4
Mordellina sp. 5		1		2	3
Xylobiops basilaris (Say)				3	3
Lepturges angulatus (LeConte)	1		1	1	3
Elonus basalis (LeConte)	1		1	1	3
Hymenorus occidentalis Champion		2		1	3
Tetracha carolina carolina (Linnaeus)			3		3
Diplotaxis curvaticeps Fall			1	2	3
Mordellaria serval (Say)		3			3
Strongylium hemistriatum TripleHorn & Spilman		1		2	3
Hypothenemus erectus LeConte		3			3
Xyleborus ferrugineus (Fabricius)		2	1		3
Coprophanaeus pluto (Harold)			3		3
Byrrhodes tristriatus (LeConte)		3			3
Eutochia crenata (LeConte)			3		3
Bembidion sp. 1				3	3
Trichodesma pulchella Schaeffer	1			2	3
Phloeonemus integer (Reitter)				3	3
Smicronyx albonotatus Anderson	3				3
Chrysobothris acutipennis Chevrolat		3			3
Paratachys austinicus Casey				3	3
Scymnus loewii Mulsant		2	1		3
Aderus tantillus (Champion)				3	3
Euparius marmoreus (Olivier)		3			3
Diabrotica balteata J. L. LeConte				3	3

Species	Beating	Lindgren funnel trap	Pitfall trap	UV light	Total
Oxycrepis intercepta (Chaudoir)			3		3
Diomus terminatus (Say)		1		2	3
Bothrideres sp. 1	1			2	3
Phyllophaga crinita (Burmeister)			2	1	3
Hypothenemus squamosus (Hopkins)		3			3
Psyllobora renifer Casey				2	2
Bidessonotus sp. 1				2	2
Stenopelmus rufinasus Gyllenhal				2	2
Desmopachria sp.				2	2
Bothrideres geminatus (Say)				2	2
Microsicus parvulus (Guérin-Méneville)		1		1	2
Sibinia pallida (Schaeffer)	2				2
Caenocara sp. 2		2			2
Laccophilus quadrilineatus quadrilineatus Horn				2	2
Calleida decora (Fabricius)	2				2
Anchastus bicolor LeConte				2	2
Mordellina sp. 3		1		1	2
Protheca hispida LeConte		1	1		2
Aspidoglossa subangulata (Chaudoir)				2	2
Clypastraea lepida (LeConte)				2	2
Mordellistena sp. 1				2	2
Statira hirsuta Champion		1	1		2
Calosoma sayi Dejean			2		2
Apenes sinuatus (Say)			1	1	2
Eburia ovicollis LeConte				2	2
Toxonotus cornutus (Say)		2			2
Elaphropus sp. 5			2		2
Aethina tumida (Murray)		2			2
Nephus flavifrons (Melsheimer)	1	1			2
Vitellius texanus Knull		2			2
Nephus intrusus (Horn)		1	1		2
Zuphium americanum Dejean			1	1	2
Calymmaderus similis (Fall)		1		1	2
Pseudomorpha sp.				2	2
Obrium glabrum Knull		2			2
Ptinus paulonotatus Pic			2		2
Ochthebius sp./spp.		1		1	2
Hydraena sp./spp.		1		1	2
*E*Pic*aerus lepidotis* Pierce	2				2
Bagous dietzi Tanner				2	2
Epitrix fasciata Blatchley		2			2

Species	Beating	Lindgren funnel trap	Pitfall trap	UV light	Total
Stenolophus dissimilis Dejean				2	2
Ataenius setiger Bates			1	1	2
Stethorus sp. 1		2			2
Ora sp. EGR 1		1		1	2
Thermonectus nigrofasciatus ornaticollis Aubé				2	2
Pachybrachis sp. 2		2			2
Corticotomus cylindricus (LeConte)		2			2
Euderces reichei LeConte	1	1			2
Lebia calliope Bates				2	2
Euplatypus parallelus (Fabricius)				2	2
Bitoma sulcata (LeConte)				2	2
Acanthoscelides macrophthalmus (Schaeffer)	2				2
Lobopoda opacicollis Champion	1	1			2
Petalium schwarzi Fall		2			2
Agrilus prosopidis Fisher	1	1			2
Glyptina sp. EGR 19		1	1		2
Xerosaprinus sp. 1			2		2
Photuris sp. EGR 1	1		1		2
Placosternus difficilis (Chevrolat)		2			2
Zagloba hystrix Casey	2				2
Oodinus alutaceus (Bates)				1	1
Zuphium mexicanum Chaudoir				1	1
Stenocrepis tibialis (Chevrolat)				1	1
Ataxia crypta (Say)	1				1
LeConte*lla* sp. 1 (*brunnea?*)				1	1
Oxacis bernadettae Arnett				1	1
Altica texana Schaeffer			1		1
Oxacis sp. 1				1	1
Anthonomus schwarzi Clark & Burke		1			1
Centrinopus helvinus Casey			1		1
Acanthinus scitulus (LeConte)				1	1
Pachybrachis pusillus Bowditch				1	1
Anodocheilus sp.		1			1
Melyrodes basalis (LeConte)		1			1
Apinocis deplanata (Casey)			1		1
Micrapate dinoderoides (Horn)	1				1
Stegobium paniceum (Linnaeus)				1	1
Pachydrus sp.				1	1
Sternidius alpha (*texana* Casey form) (Say)	1				1
Chaetocnema ectypa Horn			1		1
Hypothenemus rotundicollis	1				1

Species	Beating	Lindgren funnel trap	Pitfall trap	UV light	Total
(Eichhoff)					
Pandeleteius longicollis Champion			1		1
Thalpius dorsalis (Brullé)				1	1
Mordellistena sp. 13		1			1
Lathropus robustulus Casey		1			1
Paramordellaria carinata (Smith)		1			1
Blackburneus stercorosus (Melsheimer)				1	1
Chaetocnema sp. 1			1		1
Tropisternus sp. 3				1	1
Euschaefferia hicoriae (Schaeffer)		1			1
Ophryastes sp. 1			1		1
Eusphyrus eusphyroides (Schaeffer)		1			1
Spintherophyta globosa (Olivier)		1			1
Paratachys sp. 3				1	1
Stator pruininus (Horn)				1	1
Chaetocoelus sp. /spp.		1			1
Hyperaspis globula Casey			1		1
Pelonides granulatipennis (Schaeffer)			1		1
Notiobia terminata (Say)				1	1
Chauliognathus marginatus (Fabricius)	1				1
Molytinae, undet. genus sp. 1	1				1
Eustrophinus bicolor (Fabricius)		1			1
Suphisellus lineatus (Horn)				1	1
Mordellistena sp. 5				1	1
Anelaphus niveivestitus (Schaeffer)		1			1
Discoderus sp. 1				1	1
Acalymma trivittatum (Mannerheim)		1			1
Petalium sp. / spp. 4				1	1
Throscinus schwarzii Schaeffer				1	1
Chlaenius texanus G. Horn				1	1
Monoxia sordida (J. L. LeConte)			1		1
Pharaxonotha kirschii (Reitter)			1		1
Olla v-nigrum (Mulsant)		1			1
Phengodes sp. 1		1			1
Ataenius picinus Harold				1	1
Adelina bidens (Schaeffer)				1	1
Tricorynus texanus White				1	1
Calosoma marginale Casey			1		1
Calleida fimbriata Bates				1	1
Glyptina sp. EGR 20		1			1
Cyclocephala lurida Bland				1	1

Species	Beating	Lindgren funnel trap	Pitfall trap	UV light	Total
Disonycha leptolineata Blatchley		1			1
Cymatodera sirpata Horn				1	1
Cis huachucae Dury		1			1
Megacerus cubiculus (Casey)				1	1
Aulonothroscus sp. 1		1			1
Ormiscus sp. EGR 10	1				1
Phyllophaga reinhardi Saylor				1	1
Eleodes spinipes ventricosus LeConte			1		1
Phyllophaga rubiginosa (LeConte)			1		1
Stator limbatus (Horn)		1			1
Cis sp. 5			1		1
Stator subaeneus (Schaeffer)		1			1
Phyllotreta sp.				1	1
Anomoea rufifrons mutabilis (Lacordaire)	1				1
Naucles sp. 1				1	1
Stenelytrana gigas (LeConte)		1			1
Hadraule sp. 1		1			1
Calymmaderus nitidus (LeConte)				1	1
Plionoma suturalis (LeConte)			1		1
Anthicus sp. 1				1	1
Apsectus sp.		1			1
Bembidion sp. 3				1	1
Neltumius texanus (Schaeffer)	1				1
Anthonomus albopilosus Dietz			1		1
Polyderis laevis (Say)		1			1
Coptotomus sp.				1	1
Haliplus lewisii Crotch				1	1
Hypothenemus pubescens Hopkins		1			1
Bradycellus sp. 1				1	1
Tachys sp. 2				1	1
Aulonothroscus sp. 3		1			1
Taphroscelidia linearis (LeConte)				1	1
Dyschiriodes analis (LeConte)				1	1
Teretriosoma chalybaeum Horn	1				1
Hapalips texanus Schaeffer		1			1
Tetraclipeoides dentiger (LeConte)				1	1
Clivina dentipes Dejean				1	1
Achryson surinamum (Linnaeus)				1	1
Brachinus geniculatus Dejean			1		1
Corticarina cavicollis (Mannerheim)	1				1
Ecyrus arcuatus Gahan				1	1
Enoclerus quadrisignatus (Say)		1			1

Species	Beating	Lindgren funnel trap	Pitfall trap	UV light	Total
Clivina sp. 2				1	1
Laemophloeus terminalis Casey				1	1
Heterachthes nobilis LeConte		1			1
Acanthoscelides prosopoides (Schaeffer)		1			1
Calybe sallei (Chevrolat)				1	1
Berosus miles LeConte				1	1
Cnopus impressus (LeConte)				1	1
Methia necydalea (Fabricius)				1	1
Scirtes sp. EGR 1		1			1
Listronotus sp. 6				1	1
Hexacylloepus sp.				1	1
Tricorynus sp. 3				1	1
Hister lagoi Caterino			1		1
Trigonorhinus alternatus (Say)			1		1
Aderidae, undet. genus 1 sp. 1				1	1
Trogoderma sp.		1			1
Colecerus marmoratus (Horn)			1		1
Tropisternus collaris (Fabricius)				1	1
Horistonotus uhleri Horn				1	1
Mordellina pustulata (Melsheimer)				1	1
Sericoderus sp. 1		1			1
Cycloneda sanguinea sanguinea (Linnaeus)				1	1
Sibinia errans (Casey)		1			1
Macrelmis texanus (Schaeffer)				1	1
Diabrotica tibialis Jacoby	1				1
Opatrinus aciculatus LeConte			1		1
Diclidia sp. 1				1	1
Martineziella dutertrei (Chalumeau)				1	1
Babia tetraspilota J. L. LeConte			1		1
Xyleborus horridus Eichhoff				1	1
Anelaphus moestus moestus (LeConte)				1	1
Desmopachria dispersa (Crotch)				1	1
Conoderus vespertinus (Fabricius)	1				1
Smicronyx sp. 1	1				1
Poecilocrypticus formicophilus Gebien			1		1
Bothrotes canaliculatus acutus (LeConte)	1				1
Poecilus sp.				1	1
Iccius cylindricus Champion		1			1
Grand Total	667	1457	6886	16132	25142

APPENDIX 4

La Coma 1 species list, ranked by abundance with collecting method

Species	Beating	Lindgren funnel trap	Pitfall trap	UV light	Total
Tropicus pusillus (Say)				7638	7638
Micrapate dinoderoides (Horn)	261	257	20		538
Heterocerus spp. 1		1		191	192
Heterocerus spp. 2				135	135
Melanophthalma (*Melanophthalma*) sp./spp.	77	39	4	3	123
Berosus infuscatus LeConte				112	112
Sternidius alpha (*texana* Casey form) (Say)	29	62		17	108
Diplotaxis thoracica Fall		18	4	78	100
Ataenius cognatus (LeConte)			15	84	99
Colecerus marmoratus (Horn)	83	11	3		97
Glyphonyx sp./spp.		57		38	95
Selenophorus sp. 3		7	62	17	86
Smicrips texana (Casey)		44	28	4	76
Coptocycla texana (Schaeffer)	71			1	72
Enochrus sp. 2 (*medium*)				72	72
Elaphropus sp. 5	1	2	66		69
Hypothenemus seriatus (Eichhoff)	1	61	6		68
Carpophilus mutilatus (Erichson)		56	10	1	67
Acylomus sp./spp.	53	9	2	3	67
Amphicerus cornutus (Pallas)	1	48		13	62
Anomala flavipennis luteipennis LeConte				56	56
Berosus exiguus (Say)			1	52	53
Blapstinus sp. (=*lobatus* Davis, ms. name)			53		53
Paratenetus punctatus Spinola	31	8	1	12	52
Neobidessus sp. 1				50	50
Toramus sp. EGR 1	6	11	10	23	50
Amphicrossus ciliatus (Olivier)		37	1	11	49
Stelidota coenosa Erichson		18	28	2	48
Metophthalmus rileyi Andrews		9	38		47
Mulsanteus texanus (LeConte)		12	3	31	46
Pelonomus obscurus LeConte				45	45
Paratachys sp. 2				44	44
Ataenius inquisitus Horn		2	41		43
Esthesopus sp. 1		26	1	10	37
Lebia grandis Hentz		30	1	2	33

Species	Beating	Lindgren funnel trap	Pitfall trap	UV light	Total
Taphroscelidia linearis (LeConte)	2	4		27	33
Tachys sp. 5				32	32
Axinopalpus sp. 1		4	28		32
Dipropus sp. 1		1		29	30
Carpophilus freemanni Dobson	1	9	20		30
Epipocus cinctus LeConte		9		21	30
Elaphropus sp. 1		1		29	30
Ateuchus texanus (Robinson)		1	9	20	30
Athrostictus punctatulus Putzeys			26	2	28
Xylomeira tridens (Fabricius)		19	5	4	28
Thysanoes texanus Blackman		17		11	28
Rypobius sp.		1	26		27
Obrium maculatum (Olivier)	1	19	1	6	27
Ischyropalpus occidentalis (Champion)	17	4		6	27
Melanophthalma (*Cortilena*) sp. 1		2	24		26
Geropa concolor (LeConte)	1	6		19	26
Cryptorama sp. 1 (confusum or near)	6	18			24
Hypothenemus eruditus Westwood		24			24
Enochrus sp. 3 (big)				24	24
Hymenorus dubius Fall		16	1	7	24
Opatrinus aciculatus LeConte			23		23
Teretriosoma conigerum Lewis	18	5			23
Blapstinus fuscus Casey	1	5	8	8	22
Temnochila acuta LeConte	1	11		10	22
Monotoma americana Aubé			22		22
Clivina bipustulata (Fabricius)			22		22
Smodicum texanum Knull		4		18	22
Xyleborus similis Ferrari		16		6	22
Copelatus sp. 1 (small)				22	22
Horistonotus simplex LeConte		10		12	22
Litargus balteatus LeConte		18	2	2	22
Paracymus sp./spp.				21	21
Bembidion impotens Casey				21	21
Anelaphus debilis (LeConte)		18	1	1	20
Nephus intrusus (Horn)		1	19		20
Microsicus parvulus (Guérin-Méneville)		12		8	20
Blapstinus fortis LeConte		1	17	1	19
Notomicrus sp./spp.				19	19
Tricorynus congruus (Fall)	1	2		15	18
Bothrideres sp. 1	4	8		6	18
Stenomorphus californicus rufipes LeConte		1	11	6	18

Species	Beating	Lindgren funnel trap	Pitfall trap	UV light	Total
Disonycha barberi Blake		18			18
Diclidia sp. 1		12		6	18
Hypothenemus squamosus (Hopkins)	3	15			18
Psyllobora renifer Casey	14	1	2	1	18
Paratachys sp. 1				18	18
Melanophthalma (*Cortilena*) *simplex* (LeConte)	5	4	2	5	16
Hypothenemus brunneus (Hopkins)		15		1	16
Nemotarsus rhombifer Bates	2	14			16
Enochrus sp. 1 (small)				16	16
Lobopoda punctulata (Melsheimer)		16			16
Pyractomena sp.	3	4		9	16
Trox spinulosus Robinson			5	11	16
Allopoda sp. 1		4	3	9	16
Typhaea stercorea (Linnaeus)		2	12	2	16
Oncideres pustulatus LeConte	3	3		10	16
Lobopoda socia (LeConte)		16			16
Enoclerus quadrisignatus (Say)	1	9	1	4	15
Anomala foraminosa Bates		5		9	14
Arthrolips sp. /spp.	1	9	4		14
Selenophorus fatuus (LeConte)				13	13
Pseudotolida sp. / spp.		6		7	13
Apenes sp. EGR 4			12	1	13
Cymatodera balteata LeConte	7	3	3		13
Ptinus tumidus Fall	9		4		13
Selenophorus sp. 2				13	13
Cryptocephalus guttulatellus Schaeffer	7	6			13
Neorthopleura texana (Bland)		5		8	13
Stilbus sp. 1	4	1	6	2	13
Thalpius dorsalis (Brullé)			1	12	13
Uvarus sp.				12	12
Paratachys austinicus Casey				12	12
Gnaphalodes trachyderoides Thomson		8	1	3	12
Discotenes nigrotuberculata (Schaeffer)	8	3	1		12
Haliplus tumidus LeConte				12	12
Copelatus sp. 2 (big)		1		11	12
Lobiopa insularis (Laporte)		6	4	2	12
Tropisternus collaris (Fabricius)				12	12
Derallus altus (LeConte)				11	11
Brachinus geniculatus Dejean			9	2	11
Calybe sallei (Chevrolat)				11	11
Bembidion sp. 1				11	11

Species	Beating	Lindgren funnel trap	Pitfall trap	UV light	Total
Ptinus sp. 3			11		11
Mordellina ancilla (LeConte)	1	7		3	11
Phyllobaenus varipunctatus Knull	3	7			10
Photuris sp. EGR 1	1	3		6	10
Gymnetis caseyi Antonie		9		1	10
Agrypnus rectangularis (Say)			9	1	10
Paramordellaria carinata (Smith)	4	1	3	2	10
Chilocorus cacti (Linnaeus)	10				10
Eusphyrus eusphyroides (Schaeffer)	2	8			10
Xylobiops texanus (Horn)				10	10
Laccophilus proximus Say				9	9
Tricorynus bifoveatus White	2	2		5	9
Ataenius platensis (Blanchard)				9	9
Merobruchus major (Fall)	5	3		1	9
Deilelater physoderus (Germar)		2		7	9
Micratopus aenescens (LeConte)		1	2	6	9
Phyllophaga crinita (Burmeister)				9	9
Apenes sp. EGR 2			9		9
Triachus sp. 1	2	6		1	9
Sibinia inermis (Casey)	8			1	9
Litochropus sp. 1		4	1	4	9
Hypothenemus interstitialis (Hopkins)		9			9
Conoderus aversus (LeConte)				9	9
Neocompsa mexicana (Thomson)	5	4			9
Bothrideres geminatus (Say)		4		5	9
Urophorus humeralis (Fabricius)		3	4	1	8
Anelaphus spurcus (LeConte)		2		6	8
Polypria cruxrufa Chevrolat				8	8
Lachnodactyla texana Schaeffer		5		3	8
Clypastraea lepida (LeConte)		1		7	8
Migneauxia orientalis (Reitter)			1	7	8
Ahasverus rectus (LeConte)		1	6	1	8
Elaphidion Linsley*i* Knull		6		2	8
Scraptia sp. 1		8			8
Olla v-nigrum (Mulsant)	1	2		5	8
Apion xanthoxyli Fall	8				8
Berosus aculeatus / peregrinus				8	8
Sternidius mimeticus (Casey)	8				8
Onthophagus gazella (Fabricius)		1		7	8
Omorgus fuliginosus (Robinson)			5	3	8
Pentaria sp. 1	2	2		3	7
Cryptorhopalum reversum Casey		7			7
Anthonomus xanthoxyli Linell	7				7

Species	Beating	Lindgren funnel trap	Pitfall trap	UV light	Total
Apenes sinuatus (Say)			6	1	7
Anomoea rufifrons mutabilis (Lacordaire)	7				7
Lichenophanes bicornis (Weber)				7	7
Striatheca sp. 1		7			7
Dendrobiella sericans (LeConte)		1	1	5	7
Melalgus plicatus (LeConte)		2		5	7
Hypothenemus pubescens Hopkins		4	2	1	7
Omorgus rubricans (Robinson)				7	7
Pherhimius fascicularis (Fabricius)		5		2	7
Metaxyphloeus texanus (Schaeffer)	1			5	6
Ataxia crypta (Say)	4	2			6
Euproctinus abjetus (Bates)	6				6
Eusphyrus rectus Schaeffer		6			6
Cymindis platicollis (Say)		5	1		6
Bembidion sp. 3				6	6
Trachyderes mandibularis (Audinet-Serville)		6			6
Rhabdophloeus horni (Casey)				6	6
Cophes Fall*ax* (LeConte)	1		4	1	6
Diplotaxis curvaticeps Fall				6	6
Acmaeodera tubulus-neoneglecta Complex		4	2		6
Lebia rufopleura Schaeffer	1	5			6
Acanthoscelides macrophthalmus (Schaeffer)	6				6
Selenophorus sp. 1		3		3	6
Adelina bidens (Schaeffer)				6	6
Sibinia pallida (Schaeffer)	6				6
Hypothenemus californicus Hopkins			6		6
Conoderus browni Knull				6	6
Methia necydalea (Fabricius)				6	6
Stenelmis occidentalis Schmude & Brown				6	6
Oxycrepis intercepta (Chaudoir)			6		6
Xyleborus affinis Eichhoff		1		5	6
Conoderus similis (Schaeffer)				6	6
Ptinus sp. 2	2	1		2	5
Physemus minutus LeConte				5	5
Compsus auricephalus (Say)	4	1			5
Corticotomus cylindricus (LeConte)		5			5
Agrilus prosopidis Fisher	3	1		1	5
Gnatocerus sp. 1	1			4	5
Discoderus impotens (LeConte)				5	5

Species	Beating	Lindgren funnel trap	Pitfall trap	UV light	Total
Byrrhodes tristriatus (LeConte)		5			5
Achryson surinamum (Linnaeus)		1	3	1	5
Vacusus vicinus (LaFerté-Sénectère)				5	5
Teretrius orbus Lewis	1	4			5
Calosoma sayi Dejean			5		5
Lystronichus piliferus Champion		3	1	1	5
Anthonomus schwarzi Clark & Burke	5				5
Mimosestes amicus (Horn)	5				5
Chaetocnema quadricollis Schwarz	5				5
Ataenius setiger Bates				5	5
Ditemnus freemani (Brown)	1	2	1	1	5
Mordellistena trifasciata (Say)		5			5
Niptinus unilineatus (Pic)		5			5
Belotus bicolor Brancucci	4			1	5
Phyllophaga vexata (Horn)				5	5
Clivina sp. 2				5	5
Tricorynus sp./spp.		3		1	4
Anchastus rufus Candèze		1		3	4
Urgleptes celtis (Schaeffer)	4				4
Lathropus robustulus Casey		3		1	4
Micracisella opacithorax (Schedl)		4			4
Cryptophilus integer (Heer)		1	1	2	4
Xyleborus ferrugineus (Fabricius)		3		1	4
Dyschiriodes analis (LeConte)				4	4
Pseudocanthon perplexus (LeConte)		1		3	4
Lepturges infilatus Bates	1	1		2	4
Hymenorus sp. 1		2		2	4
Pachybrachis sp. 2	2	1		1	4
Sericoderus sp. 1		2	2		4
Sapintus sp. 1				4	4
Placosternus difficilis (Chevrolat)		4			4
Ischnocerus infuscatus Fåhraeus	1	2		1	4
Tropisternus sp. 1		4			4
Scymnus loewii Mulsant	1	2	1		4
Sitophilus zeamais Motschulsky			4		4
Pachybrachis sp. 5	3	1			4
Pseudothysanoes acaciae (Blackman)		3		1	4
Horistonotus uhleri Horn	1	1		2	4
Laccophilus quadrilineatus quadrilineatus Horn			2	2	4
Euderces reichei LeConte	4				4
Zagloba hystrix Casey	4				4
Novelsis aequalis (Sharp)		3			3

Species	Beating	Lindgren funnel trap	Pitfall trap	UV light	Total
Stator limbatus (Horn)	1	2			3
Apion subornatum Fall	2	1			3
Pachybrachis latithorax Clavareau	1	2			3
Tachys pulchellus LaFerté-Sénectère				3	3
Cycloneda sanguinea sanguinea (Linnaeus)	2			1	3
Elonus basalis (LeConte)				3	3
Pachybrachis texanus Bowditch		2		1	3
Celina sp.				3	3
Cyphon sp. / spp.	1			2	3
Mordellistena sp. 5				3	3
Epuraea luteolus Erichson		1	2		3
Toxonotus penicellatus (Schaeffer)	3				3
Euphoria sepulcralis nitens Casey		3			3
Ochthebius sp./spp.				3	3
Photinus sp./spp. 1	2			1	3
Catogenus rufus (Fabricius)		2		1	3
Euplatypus parallelus (Fabricius)				3	3
Selvadius sp. 1	2		1		3
Airora cylindrica (Audinet-Serville)		2		1	3
Smicronyx sp. 1	3				3
Ceracis sp. 1		3			3
Stenocrepis mexicana (Chevrolat)			2	1	3
Physonota alutacea Boheman	3				3
Suphisellus lineatus (Horn)				3	3
Desmopachria sp.				3	3
Bothrotes canaliculatus acutus (LeConte)	3				3
Calleida punctulata Chaudoir	2	1			3
Hymenorus sp. 2				3	3
Megapenthes nigriceps Schaeffer		1		2	3
Apenes sp. EGR 1			2	1	3
Glyphonyx bimarginatus Schaeffer		3			3
Chrysobothris acutipennis Chevrolat		1	2		3
Glyphonyx mimeticus Horn				3	3
Ormiscus sp. EGR 10	3				3
Scarites sp. 1			3		3
Corylophidae Genus 1 sp. 1	3				3
Smicronyx albonotatus Anderson	3				3
Diomus terminatus (Say)				2	2
Phileurus valgus (Linnaeus)		2			2
Longitarsus sp. 3			1	1	2
Lepidocnemeplatia sericea Horn			2		2

Species	Beating	Lindgren funnel trap	Pitfall trap	UV light	Total
Rilettius sp.				2	2
Algarobius bottimeri Kingsolver	1	1			2
Thalpius horni (Chaudoir)				2	2
Diplotaxis truncatula LeConte				2	2
Triachus sp. EGR 1	2				2
Hadraule sp. 1		2			2
Hypothenemus erectus LeConte		2			2
Ababa tantilla (LeConte)		2			2
Ormiscus irroratus (Schaeffer)		2			2
Berosus pugnax LeConte				2	2
Tetracha carolina carolina (Linnaeus)			2		2
Cryptocephalus fulguratus J. L. LeConte	2				2
Nephus flavifrons (Melsheimer)	2				2
Helluomorphoides papago (Casey)			1	1	2
Perilypus ornaticollis (LeConte)		1	1		2
Helluomorphoides sp./spp.				2	2
Charidotella sexpunctata sexpunctata (Fabricius)	2				2
Bidessonotus sp. 1				2	2
Trogoxylon aequale ((Wollaston)		2			2
Monophylla pallipes (Schaeffer)		1		1	2
Catapastus squamirostris Casey	2				2
Ormiscus sp. EGR 8	2				2
Brachycorynus hirsutus Valentine			2		2
Lebia analis Dejean	1			1	2
Cophes texanus Sleeper	2				2
Anisostena gracilis (Horn)			2		2
Hymenorus occidentalis Champion		1		1	2
Stator beali Johnson		2			2
Colaspis planicostata Blake				2	2
Pelonium maculicolle Schaeffer	2				2
Thermonectus basillaris (Harris)				2	2
Armalia texanus (LeConte)		1		1	2
Tomolips quercicola (Boheman)		2			2
Clypastraea sp. 1		1		1	2
Bactridium sp.		2			2
Placonotus sp.		1		1	2
Notiobia maculicornis (Chaudoir)				2	2
Disonycha glabrata (Fabricius)		1	1		2
Eburia mutica LeConte				2	2
Sternidius alpha (Say)	2				2
Tricorynus punctatus (LeConte)				2	2

Species	Beating	Lindgren funnel trap	Pitfall trap	UV light	Total
Coprophanaeus pluto (Harold)		1	1		2
Trigonodera schaefferi Rivnay			2		2
Cryptolestes sp.				2	2
Aethina tumida (Murray)		2			2
Hylocurus parkinsoniae Blackman		1		1	2
Cryptorama sp. 2 (punctatum or near)		1	1		2
Attalus sp. 3		1	1		2
Anthonomus leucostictus Dietz	2				2
Strongylium hemistriatum TripleHorn & Spilman				2	2
Onthophagus subtropicus Howden & Cartwright		2			2
Bitoma sulcata (LeConte)				2	2
Xanthocomus rutilans (Casey)			1	1	2
Eusphyrus sp. 2	1	1			2
Phloeonemus integer (Reitter)				2	2
Tachys sp. 6				2	2
Xylobiops parilis Lesne		2			2
Agrilus acaciae Fisher				2	2
Tenebroides nanus (Melsheimer)				2	2
Mordellina sp. 5	1	1			2
Mimosestes nubigens (Motschulsky)	1	1			2
Ataenius wenzelii Horn				1	1
Anelaphus niveivestitus (Schaeffer)				1	1
Camptodes texanus Schaeffer		1			1
Phalacrus sp.				1	1
Tropisternus sp. 3				1	1
Litargus sexpunctatus (Say)				1	1
Ecyrus arcuatus Gahan	1				1
Euspilotus auctus (Schmidt)			1		1
Thermonectus nigrofasciatus ornaticollis Aubé				1	1
Litochrus sp. 1		1			1
Tricorynus sp. 3		1			1
Phloeonemus interruptus Reitter				1	1
Xanthocomus concinnus (Casey)				1	1
Phloeotribus texanus Schaeffer		1			1
Cis sp. 2		1			1
Eustrophinus bicolor (Fabricius)		1			1
Agrilus macer LeConte	1				1
Lobopoda opacicollis Champion		1			1
Aulonothroscus sp. 1		1			1
Geomysaprinus sp.			1		1
Toxonotus bipunctatus (Schaeffer)	1				1

Species	Beating	Lindgren funnel trap	Pitfall trap	UV light	Total
Zuphium mexicanum Chaudoir				1	1
Tricorynus fastigiatus (Fall)				1	1
Phyllophaga submucida (LeConte)				1	1
Cercyon praetextatus (Say)				1	1
Phyllophaga trichodes (Bates)				1	1
Paradonus sp. EGR 1				1	1
Diachus auratus (Fabricius)		1			1
Xyleborus horridus Eichhoff		1			1
Glenidion flexicaulis (Schaeffer)				1	1
Dyschiriodes abbreviatus (Putzeys)				1	1
Loxandrus infimus Bates				1	1
Dyschiriodes sublaevis (Putzeys)				1	1
Corticarina sp.			1		1
Suphisellus bicolor bicolor (Say)				1	1
Madarellus sp. / spp.		1			1
Notiobia terminata (Say)				1	1
Platydema excavatum (Say)		1			1
Agrilus viridescens Knull	1				1
Pogonodaptus mexicanus (Bates)				1	1
Conotelus sp. 1			1		1
Coelocephalapion buchanani (Kissinger)	1				1
Cylas formicarius (Fabricius)				1	1
Chaetocnema confinis Crotch	1				1
Laccophilus fasciatus terminalis Sharp				1	1
Cossoninae, undet. genus sp.		1			1
Ormiscus sp. EGR 12	1				1
Attalus rufiventris Horn		1			1
Tricorynus similis (LeConte)				1	1
Cregya quadrinotata (Chevrolat)				1	1
Clivina sp. 5				1	1
Gonwanocrypticus platensis			1		1
Tropisternus lateralis nimbatus (Say)				1	1
Badister flavipes laticeps Blatchley				1	1
Cathartus quadricollis (Guérin-Méneville)		1			1
Dipropus sp. 2				1	1
Lepturges angulatus (LeConte)				1	1
Calosoma marginale Casey			1		1
Lissonotus flavocinctus puncticollis Bates		1			1
Haliplus lewisii Crotch				1	1
Apinocis deplanata (Casey)	1				1
Rhabdopterus weisei (Schaeffer)	1				1

Species	Beating	Lindgren funnel trap	Pitfall trap	UV light	Total
Petalium sp. / spp. 4				1	1
Cryptocephalus brunneovittatus Schaeffer	1				1
Stenosphenus lugens LeConte		1			1
Apion fumitarse Fall	1				1
Neocompsa exclamationis (Thomson)	1				1
Anthonomus unipustulatus (Champion)	1				1
Cryptolestes unicornis (Reitter)				1	1
Hapalips texanus Schaeffer			1		1
Conoderus bellus (Say)				1	1
Scirtes sp. EGR 1		1			1
Hyporhagus sp. 1				1	1
Harmonia axyridis (Pallas)	1				1
Aspidoglossa subangulata (Chaudoir)				1	1
Chaetocnema ectypa Horn				1	1
Acanthoscelides prosopoides (Schaeffer)		1			1
Bagous dietzi Tanner				1	1
Babia tetraspilota J. L. LeConte			1		1
Selenophorus palliatus (Fabricius)				1	1
Berosus miles LeConte				1	1
Zonantes sp. EGR 1		1			1
Clivina dentipes Dejean				1	1
Chrysobothris sp. 1			1		1
Aeolus trilineatus Candèze			1		1
Cryptocephalus trizonatus Suffrian				1	1
Brachycoryna pumila Guérin-Méneville			1		1
Heteroderes amplicollis (Gyllenhal)				1	1
Onthophagus schaefferi Howden & Cartwright		1			1
Monotoma arida Casey				1	1
Conotrachelus seniculus LeConte			1		1
Sibinia errans (Casey)	1				1
Cephaloscymnus sp. 1	1				1
Monoxia sordida (J. L. LeConte)	1				1
Tribolium castaneum (Herbst)		1			1
Mordella sp. 2		1			1
Ormiscus sp. EGR 20		1			1
Sibinia triseriata Clark	1				1
Agra sp. 1		1			1
Mordellaria serval (Say)		1			1
Eulimnichus ater (LeConte)				1	1

Species	Beating	Lindgren funnel trap	Pitfall trap	UV light	Total
Hexacylloepus sp.				1	1
Tricorynus texanus White	1				1
Mordellina sp. 3				1	1
Chaetocoelus sp. /spp.			1		1
Hister servus Erichson			1		1
Lechriops oculata (Say)	1				1
Smicronyx sp. 6				1	1
Pachydrus sp.				1	1
Mordellina sp. 6				1	1
Brachypnoea rotundicollis (Schaeffer)	1				1
Spintherophyta globosa (Olivier)	1				1
Tytthonyx ruficollis Schaeffer		1			1
Statira hirsuta Champion		1			1
Desmopachria dispersa (Crotch)				1	1
Mordellistena sp. 2		1			1
Cnopus impressus (LeConte)		1			1
Histerini, genus 1 sp.		1			1
Diabrotica balteata J. L. LeConte				1	1
Stator pruininus (Horn)	1				1
Parmenonta wickhami Schaeffer	1				1
Stator sordidus (Horn)		1			1
Lissorhoptrus sp.				1	1
Holopsis sp.	1				1
Listronotus sp. 3				1	1
Dromaeolus teres (Horn)				1	1
Euspilotus (*Neosaprinus*) sp.		1			1
Naucles sp. 1				1	1
Stenocrepis tibialis (Chevrolat)				1	1
Miraces aeneipennis Jacoby	1				1
Longitarsus sp. 1				1	1
Grand Total	972	1608	876	9872	13328

APPENDIX 5

La Coma 2 species list, ranked by abundance with collecting method

Species	Beating	Lindgren funnel trap	Pitfall trap	UV light	Total
Tropicus pusillus (Say)				5311	5311
Tenebroides nanus (Melsheimer)		8		1084	1092
Colecerus marmoratus (Horn)	277	470	15	1	763
Ataenius cognatus (LeConte)			22	705	727
Micrapate dinoderoides (Horn)	130	358	2		490
Glyphonyx sp./spp.	2	19		198	219
Sternidius alpha (*texana* Casey form) (Say)	62	121		21	204
Hypothenemus seriatus (Eichhoff)	1	178	4		183
Heterocerus spp. 1				169	169
Onthophagus gazella (Fabricius)		5		155	160
Amphicerus cornutus (Pallas)		141	2	10	153
Amphicrossus ciliatus (Olivier)		128		24	152
Xyleborus similis Ferrari		138		2	140
Bothrideres sp. 1	33	59	2	37	131
Acylomus sp./spp.	92	10	1	19	122
Ischyropalpus occidentalis (Champion)	77	29	3	9	118
Melanophthalma (*Melanophthalma*) sp./spp.	44	55	2	15	116
Anomala flavipennis luteipennis LeConte				100	100
Berosus exiguus (Say)				98	98
Heterocerus spp. 2				91	91
Toramus sp. EGR 1	6	24	10	46	86
Belotus bicolor Brancucci	71	10	1	4	86
Elaphropus sp. 1			2	83	85
Smicrips texana (Casey)		38	44	2	84
Dipropus sp. 1				76	76
Hypothenemus eruditus Westwood	1	74	1		76
Monotoma americana Aubé			69	4	73
Chlaenius orbus Horn			73		73
Temnochila acuta LeConte		58		7	65
Thysanoes texanus Blackman		25		37	62
Neobidessus sp. 1				59	59
Ataenius platensis (Blanchard)				57	57
Berosus infuscatus LeConte				57	57
Sericoderus sp. 1	2	44	9		55
Epipocus cinctus LeConte		37	2	15	54

Species	Beating	Lindgren funnel trap	Pitfall trap	UV light	Total
Trachyderes mandibularis (Audinet-Serville)		53			53
Melanophthalma (*Cortilena*) *simplex* (LeConte)	10	31	5	7	53
Enoclerus quadrisignatus (Say)		49		3	52
Pentaria sp. 1	16	27	3	5	51
Oncideres pustulatus LeConte	17	22		12	51
Xylomeira tridens (Fabricius)		41		6	47
Compsus auricephalus (Say)	26	19			45
Clivina bipustulata (Fabricius)			44		44
Stenelmis occidentalis Schmude & Brown				43	43
Conoderus browni Knull		1	2	39	42
Conoderus aversus (LeConte)		2		39	41
Nemotarsus rhombifer Bates	11	16		13	40
Teretriosoma conigerum Lewis	29	10			39
Obrium maculatum (Olivier)	4	22	1	12	39
Cryptorama sp. 1 (confusum or near)	5	32		2	39
Tachys sp. 5				38	38
Neorthopleura texana (Bland)		8		30	38
Dendrobiella sericans (LeConte)		15	1	21	37
Anelaphus debilis (LeConte)	3	29	1	3	36
Paratenetus punctatus Spinola	13	9	1	13	36
Lobopoda punctulata (Melsheimer)		36			36
Opatrinus aciculatus LeConte			35		35
Microsicus parvulus (Guérin-Méneville)		20	1	14	35
Typhaea stercorea (Linnaeus)	1	4	25	4	34
Blapstinus fortis LeConte			32	1	33
Taphroscelidia linearis (LeConte)	4	14		15	33
Lepturges infilatus Bates	5	17		11	33
Ateuchus texanus (Robinson)		2	4	27	33
Gnaphalodes trachyderoides Thomson		28	1	3	32
Bothrideres geminatus (Say)	2	14		15	31
Physonota alutacea Boheman	31				31
Rhabdophloeus horni (Casey)	3	12		15	30
Agrilus prosopidis Fisher	8	21	1		30
Stilbus sp. 1	3		24	2	29
Mordellina ancilla (LeConte)		27	1	1	29
Pseudocanthon perplexus (LeConte)		1	5	23	29
Micratopus aenescens (LeConte)				28	28
Agrypnus rectangularis (Say)		6	21	1	28
Sternidius alpha (Say)	28				28
Lathropus robustulus Casey	3	19	1	5	28

Species	Beating	Lindgren funnel trap	Pitfall trap	UV light	Total
Hypothenemus interstitialis (Hopkins)	5	23			28
Apion subornatum Fall	27				27
Thalpius dorsalis (Brullé)			1	26	27
Cryptolestes unicornis (Reitter)		3	1	23	27
Stelidota coenosa Erichson		8	18		26
Coptocycla texana (Schaeffer)	26				26
Scirtes sp. EGR 1	2	23		1	26
Melalgus plicatus (LeConte)		20		5	25
Cymatodera balteata LeConte	5	20			25
Anomala foraminosa Bates		1		24	25
Euplatypus parallelus (Fabricius)				25	25
Hypothenemus brunneus (Hopkins)	1	23			24
Acanthoscelides macrophthalmus (Schaeffer)	18	6			24
Adelina bidens (Schaeffer)	2	1		21	24
Cregya quadrinotata (Chevrolat)	15	7		1	23
Chilocorus cacti (Linnaeus)	18	1	1	3	23
Photuris sp. EGR 1	3	11	1	8	23
Xyleborus affinis Eichhoff		6		17	23
Xyleborus ferrugineus (Fabricius)		13	8	2	23
Selenophorus sp. 3			8	15	23
Carpophilus freemanni Dobson	1	13	7	1	22
Achryson surinamum (Linnaeus)		18	2	2	22
Athrostictus punctatulus Putzeys			20	1	21
Notomicrus sp./spp.				21	21
Diplotaxis thoracica Fall		3	1	17	21
Metophthalmus rileyi Andrews		5	16		21
Paratachys sp. 2				21	21
Placonotus sp.		1	17	3	21
Smicronyx albonotatus Anderson	16	2		2	20
Xylobiops texanus (Horn)		2		18	20
Lebia grandis Hentz		16		4	20
Elaphropus sp. 5			20		20
Uvarus sp.				20	20
Blapstinus fuscus Casey			5	15	20
Eusphyrus eusphyroides (Schaeffer)	6	14			20
Lobopoda socia (LeConte)	1	17		1	19
Metaxyphloeus texanus (Schaeffer)	2	11	1	4	18
Bembidion impotens Casey				18	18
Paratachys austinicus Casey				18	18
Paratachys sp. 1				18	18
Litargus balteatus LeConte		11	7		18
Selenophorus sp. 2		1		17	18

Species	Beating	Lindgren funnel trap	Pitfall trap	UV light	Total
Ataxia crypta (Say)	12	5		1	18
Orthoperus sp. EGR 1	2	14	2		18
Corticotomus cylindricus (LeConte)	2	14		2	18
Stenomorphus californicus rufipes LeConte			13	5	18
Esthesopus sp. 1		8		9	17
Tricorynus bifoveatus White		6		11	17
Pseudothysanoes acaciae (Blackman)		16			16
Ahasverus rectus (LeConte)		2	8	6	16
Ptinus sp. 2	12	2		2	16
Cophes fallax (LeConte)		5	11		16
Heteroderes amplicollis (Gyllenhal)			12	4	16
Stenocrepis mexicana (Chevrolat)			15	1	16
Carpophilus mutilatus (Erichson)		12	3	1	16
Clypastraea sp. 1	1	9		6	16
Photinus sp./spp. 1	6	2	1	7	16
Neocompsa mexicana (Thomson)	11	4			15
Trogoxylon aequale ((Wollaston)	1	12	1	1	15
Lichenophanes bicornis (Weber)				15	15
Diachus auratus (Fabricius)	9	4	2		15
Cyphon sp. / spp.		3		12	15
Bitoma sulcata (LeConte)		4		11	15
Tetracha carolina carolina (Linnaeus)			15		15
Phyllophaga crinita (Burmeister)		2	1	11	14
Novelsis aequalis (Sharp)		8	6		14
Euproctinus abjetus (Bates)	12	2			14
Armalia texanus (LeConte)		13		1	14
Sapintus sp. 1				14	14
Pelonomus obscurus LeConte				14	14
Psyllobora renifer Casey	9	4		1	14
Arthrolips sp. /spp.	1	11	1		13
Discotenes nigrotuberculata (Schaeffer)	12	1			13
Clivina sp. 2				13	13
Xylobiops parilis Lesne	1	10	2		13
Elaphidion Linsley*i* Knull		12		1	13
Diplotaxis truncatula LeConte				12	12
Gymnetis caseyi Antonie		12			12
Anelaphus spurcus (LeConte)		4	2	6	12
Panagaeus sallei Chaudoir			12		12
Ditemnus freemani (Brown)	3	3		6	12
Anisostena gracilis (Horn)	1	2	9		12
Pherhimius fascicularis (Fabricius)		9		2	11

Species	Beating	Lindgren funnel trap	Pitfall trap	UV light	Total
Aspidoglossa subangulata (Chaudoir)			1	10	11
Enochrus sp. 2 (*medium*)				11	11
Migneauxia orientalis (Reitter)		1		10	11
Acanthinus dromedarius (LaFerté-Sénectère)	1			10	11
Mulsanteus texanus (LeConte)		2		9	11
Lachnodactyla texana Schaeffer		6		5	11
Berosus aculeatus / peregrinus				10	10
Rhypasma sp.			10		10
Monophylla pallipes (Schaeffer)	2	8			10
Conoderus similis (Schaeffer)				10	10
Calybe sallei (Chevrolat)				10	10
Labarrus pseudolividus (Balthasar)				10	10
Omorgus rubricans (Robinson)			6	3	9
Cryptophilus integer (Heer)		5		4	9
Copelatus sp. 2 (big)				9	9
Enochrus sp. 1 (small)				9	9
Ochthebius sp./spp.		2		7	9
Bembidion sp. 1		1		8	9
Phileurus valgus (Linnaeus)		9			9
Horistonotus simplex LeConte		2		7	9
Sitophilus zeamais Motschulsky		2	7		9
Hypothenemus squamosus (Hopkins)	1	8			9
Litochropus sp. 1		7		2	9
Madarellus sp. / spp.	6	3			9
Apenes sinuatus (Say)			4	4	8
Coprophanaeus pluto (Harold)			8		8
Sibinia inermis (Casey)	7	1			8
Cymindis platicollis (Say)		8			8
Triachus sp. 1		8			8
Diabrotica balteata J. L. LeConte	4	1		3	8
Bothrotes canaliculatus acutus (LeConte)	8				8
Glenidion flexicaulis (Schaeffer)	7	1			8
Lissonotus flavocinctus puncticollis Bates		8			8
Ormiscus sp. EGR 12	4	4			8
Glyphonyx bimarginatus Schaeffer		1		7	8
Ischnocerus infuscatus Fåhraeus	2	4		2	8
Cycloneda sanguinea sanguinea (Linnaeus)	6			2	8
Phyllobaenus varipunctatus Knull	5	3			8
Xyleborus horridus Eichhoff		6		2	8
Mordellistena sp. 5		3		5	8

Species	Beating	Lindgren funnel trap	Pitfall trap	UV light	Total
Omorgus fuliginosus (Robinson)			7	1	8
Tricorynus sp./spp.		7			7
Urophorus humeralis (Fabricius)		3	3	1	7
Mimosestes nubigens (Motschulsky)	3	4			7
Laemophloeus terminalis Casey		2		5	7
Tomolips quercicola (Boheman)		7			7
Melanophthalma (*Cortilena*) sp. 1			7		7
Trogoderma sp.	1	6			7
Calleida punctulata Chaudoir		7			7
Oxacis trirossi Arnett				7	7
Smodicum texanum Knull		2		4	6
Placosternus difficilis (Chevrolat)		6			6
Laccophilus proximus Say				6	6
Ataenius setiger Bates		2		4	6
Pseudotolida sp. / spp.		3		3	6
Lobiopa insularis (Laporte)		2	4		6
Horistonotus uhleri Horn		1		5	6
Algarobius bottimeri Kingsolver	4	1		1	6
Clypastraea lepida (LeConte)		2		4	6
Metachroma ustum J. L. LeConte		1		5	6
Platydema excavatum (Say)		5		1	6
Centrinopus helvinus Casey	4	2			6
Selenophorus fatuus (LeConte)			2	4	6
Xanthocomus rutilans (Casey)	4	1	1		6
Stenocrepis tibialis (Chevrolat)				6	6
Chaetocnema quadricollis Schwarz	2		4		6
Toxonotus penicellatus (Schaeffer)	4	1		1	6
Pachybrachis sp. 5	3	3			6
Parmenonta wickhami Schaeffer	2		4		6
Pelosoma praecursor Smetana			6		6
Tetracha impressa (Chevrolat)			5		5
Tropisternus sp. 3				5	5
Chrysobothris acutipennis Chevrolat		5			5
Desmopachria sp.				5	5
Cophes texanus Sleeper	4	1			5
Mordella sp. 2		5			5
Diplotaxis curvaticeps Fall				5	5
Phyllophaga vexata (Horn)				5	5
Cryptorhopalum triste LeConte	3	1		1	5
Dromaeolus teres (Horn)		2		3	5
Eulimnichus ater (LeConte)				5	5
Mordellina sp. 3		2		3	5
Bembidion sp. 3				5	5

Species	Beating	Lindgren funnel trap	Pitfall trap	UV light	Total
Calleida decora (Fabricius)				5	5
Glyphonyx mimeticus Horn				5	5
Cephaloscymnus sp. 1		5			5
Tricorynus congruus (Fall)				5	5
Scarites sp. 1			5		5
Blapstinus sp. (=*lobatus* Davis, ms. name)			5		5
Scymnus caudalis LeConte	4		1		5
Tropisternus collaris (Fabricius)				5	5
Nephus intrusus (Horn)	1		4		5
Geropa concolor (LeConte)		3		2	5
Dyschiriodes analis (LeConte)				5	5
Cercyon praetextatus (Say)				5	5
Chrysobothris basalis LeConte		4			4
Chaetocnema ectypa Horn		1		3	4
Lystronichus piliferus Champion		4			4
Mimosestes amicus (Horn)	4				4
Tricorynus texanus White	1	3			4
Hexacylloepus sp.				4	4
Cis creberrimus Mellié		4			4
Phyllophaga trichodes (Bates)		1		3	4
Teretrius orbus Lewis	1	3			4
Agra sp. 1	3	1			4
Enoclerus vetus Wolcott	4				4
Eustrophinus bicolor (Fabricius)		3		1	4
Paramordellaria carinata (Smith)		2	2		4
Hymenorus dubius Fall		2		2	4
Urgleptes celtis (Schaeffer)	1	3			4
Mordellina sp. 5	1	2		1	4
Apsida belti Bates	2	2			4
Polypria cruxrufa Chevrolat		2		2	4
*Strongylium hemistriatum Triple*Horn *& Spilman*		3		1	4
Mordellina sp. 6		3		1	4
Hymenorus sp. 1		2		2	4
Mordellistena sp. 3				4	4
Ischyropalpus subtilissimus (Pic)		1		3	4
Allopoda sp. 1				4	4
Oxycrepis intercepta (Chaudoir)			4		4
Carpophilus pallidipennis (Say)		4			4
Eusphyrus rectus Schaeffer	3	1			4
Naucles sp. 1			2	2	4
Helluomorphoides sp./spp.		1		3	4

Species	Beating	Lindgren funnel trap	Pitfall trap	UV light	Total
Smicronyx sp. 1	4				4
Trox spinulosus Robinson				4	4
Longitarsus sp. 3	1		1	2	4
Calosoma sayi Dejean			4		4
Spintherophyta globosa (Olivier)	4				4
Loxandrus infimus Bates				4	4
Axinopalpus sp. 1		1	3		4
Anthonomus xanthoxyli Linell	3				3
Thalpius horni (Chaudoir)				3	3
Statira hirsuta Champion		2		1	3
Epitrix fasciata Blatchley	1	2			3
Elonus basalis (LeConte)				3	3
Merobruchus major (Fall)	3				3
Selenophorus sp. 1		2		1	3
Micracisella opacithorax (Schedl)		1		2	3
Tachys pulchellus LaFerté-Sénectère				3	3
Gnatocerus sp. 1				3	3
Cryptorama sp. 2 (punctatum or near)	1	2			3
Carcinops sp. 3		3			3
Bactridium sp.		3			3
Mordellina sp. 4		3			3
Pyropyga sp.	2	1			3
Mordellistena sp. 6	1			2	3
Copelatus sp. 1 (small)				3	3
Celina sp.				3	3
Sternidius mimeticus (Casey)	2	1			3
Olla v-nigrum (Mulsant)	2			1	3
Cryptolestes sp.	1	2			3
Ora troberti (Guérin-Méneville)				3	3
Aeolus sp. 3			3		3
Pachybrachis latithorax Clavareau	1	2			3
Airora cylindrica (Audinet-Serville)		3			3
Anthicus sp. 1				3	3
Enochrus sp. 3 (big)				3	3
Paradonus sp. EGR 1				3	3
Cnopus impressus (LeConte)		2		1	3
Tricorynus sp. 3		2			2
Diabrotica tibialis Jacoby	2				2
Conotrachelus seniculus LeConte				2	2
Griburius lecontii Crotch		2			2
Teretriosoma chalybaeum Horn		2			2
Hadraule sp. 1		2			2
Litargus sexpunctatus (Say)				2	2

Species	Beating	Lindgren funnel trap	Pitfall trap	UV light	Total
Haliplus lewisii Crotch		1		1	2
Anelaphus niveivestitus (Schaeffer)		1		1	2
Hapalips texanus Schaeffer				2	2
Epierus antillarum Marseul		2			2
Epuraea luteolus Erichson		2			2
Ataeniopsis figurator (Harold)				2	2
Ceracis sp. 1		2			2
Trox sonorae LeConte			1	1	2
Nephus flavifrons (Melsheimer)	2				2
Selenophorus palliatus (Fabricius)				2	2
Ceracis sp. 4		2			2
Eburia stigmatica (Chevrolat)		1		1	2
Dipropus sp. 2				2	2
Sphindus sp./spp.				2	2
Onthophagus schaefferi Howden & Cartwright		2			2
Corticarina cavicollis (Mannerheim)	1	1			2
Chaetocoelus sp. /spp.		2			2
Taphrocerus chevrolati Obenberger			2		2
Ophraella communa LeSage		2			2
Aeolus trilineatus Candèze			2		2
Zuphium mexicanum Chaudoir				2	2
Camptodes texanus Schaeffer		2			2
Diclidia sp. 1	1	1			2
Trogoderma primum (Jayne)		2			2
Paracymus sp./spp.				2	2
Tylosis oculatus LeConte	2				2
Hymenorus occidentalis Champion		2			2
Capraita sexmaculata (Illiger)	2				2
Perilypus ornaticollis (LeConte)		2			2
Conotrachelus cameronensis Sleeper	2				2
Disonycha glabrata (Fabricius)	2				2
Diomus terminatus (Say)				2	2
Phloeonemus integer (Reitter)		1		1	2
Acanthinus scitulus (LeConte)				2	2
Phloeotribus texanus Schaeffer		1		1	2
Acamptus texanus (Sleeper)		2			2
Hymenorus sp. 2				2	2
Statira pulchella Maklin	2				2
Phyllophaga submucida (LeConte)				2	2
Coptotomus sp.				2	2
Hypogena tricornis (Laporte)		2			2
Agrilus viridescens Knull	2				2

Species	Beating	Lindgren funnel trap	Pitfall trap	UV light	Total
Physemus minutus LeConte				2	2
Acmaeodera tubulus-neoneglecta Complex		2			2
Bidessonotus sp. 1				2	2
Cryptocephalus fulguratus J. L. LeConte	2				2
Hypothenemus erectus LeConte		2			2
Cryptocephalus trizonatus Suffrian	2				2
Polyderis laevis (Say)		2			2
Throscinus schwarzii Schaeffer				2	2
Coccotrypes distinctus (Motschulsky)		1	1		2
Toxonotus cornutus (Say)	2				2
Colaspis planicostata Blake		1		1	2
Tricorynus fastigiatus (Fall)		2			2
Blackburneus stercorosus (Melsheimer)				2	2
Trigonodera schaefferi Rivnay				2	2
Apenes sp. EGR 4			2		2
Brachinus geniculatus Dejean			1	1	2
Ptinus tumidus Fall	1			1	2
Eusphyrus sp. 1	2				2
Rhabdopterus weisei (Schaeffer)	1	1			2
Brachycoryna pumila Guérin-Méneville			1	1	2
Rhyssomatus pruinosus (Boheman)	2				2
Xerosaprinus sp. 2		1	1		2
Apinocis deplanata (Casey)	1		1		2
Ataenius inquisitus Horn			1	1	2
Scymnus loewii Mulsant	2				2
Byrrhodes tristriatus (LeConte)		2			2
Parchicola tibialis (Olivier)				1	1
Pachybrachis texanus Bowditch			1		1
Corylophidae Genus 1 sp. 1	1				1
Pharaxonotha kirschii (Reitter)			1		1
Lebia rufopleura Schaeffer				1	1
Phelister panamensis J. E. LeConte			1		1
Zagloba hystrix Casey			1		1
Phengodes sp. 1		1			1
Tanymecus sp. EGR 1			1		1
Cis tristis Mellié		1			1
Attalus sp. 1				1	1
Helluomorphoides papago (Casey)			1		1
Trischidias sp. 1		1			1
Philothermus sp. 1		1			1

Species	Beating	Lindgren funnel trap	Pitfall trap	UV light	Total
Euphoria sepulcralis nitens Casey		1			1
Nematodes atropos (Say)		1			1
Stenosphenus lugens LeConte	1				1
Phloeonemus interruptus Reitter				1	1
Tachys misellus LaFerté-Sénectère				1	1
Fidia clematis Schaeffer	1				1
Holopsis sp.	1				1
Anthonomus leucostictus Dietz	1				1
Brachypnoea rotundicollis (Schaeffer)	1				1
Alaus lusciosus (Hope)		1			1
Calymmaderus nitidus (LeConte)		1			1
*Atta*genus sp.		1			1
Euderces reichei LeConte	1				1
Mordella mexicana (Champion)			1		1
Cryptorhynchine, undet. genus sp. 1			1		1
Neoclytus acuminatus (Fabricius)		1			1
Pelonium maculicolle Schaeffer	1				1
Phyllophaga torta (LeConte)				1	1
Ataenius gracilis (Melsheimer)				1	1
Hyperaspis octonotata Casey	1				1
Stenolophus dissimilis Dejean				1	1
Neoclytus augusti (Chevrolat)		1			1
Haliplus tumidus LeConte				1	1
Neoclytus mucronatus vogti Linsley		1			1
Ormiscus sp. EGR 8		1			1
Anchastus rufus Candèze				1	1
Methia necydalea (Fabricius)				1	1
Eusphyrus sp. 2		1			1
Cregya sp. EGR 1				1	1
Hypothenemus distinctus Wood		1			1
Monotoma arida Casey				1	1
Anchastus bicolor LeConte				1	1
Tetraclipeoides dentiger (LeConte)				1	1
Poecilocrypticus formicophilus Gebien			1		1
Thermonectus nigrofasciatus ornaticollis Aubé				1	1
Anomoea rufifrons mutabilis (Lacordaire)	1				1
Bystus sp.		1			1
Anchastus uniquus Knull				1	1
Aulonothroscus sp. 2				1	1
Berosus miles LeConte				1	1
Tricorynus punctatus (LeConte)				1	1

Species	Beating	Lindgren funnel trap	Pitfall trap	UV light	Total
Niptinus unilineatus (Pic)		1			1
Anthonomus aeneolus Dietz	1				1
Notiobia terminata (Say)				1	1
Lepturges angulatus (LeConte)		1			1
Apenes sp. EGR 1				1	1
Lignyodes adamanteus (Clark)				1	1
Ptinus hystrix Fall				1	1
Cyclodinus californicus (LaFerté-Sénectère)				1	1
Gymnochthebius sp. 2		1			1
Xanthocomus concinnus (Casey)			1		1
Berosus pugnax LeConte				1	1
Carcinops sp.		1			1
Pyractomena sp.				1	1
Mycocerinus depressus (LeConte)		1			1
Zuphium americanum Dejean				1	1
Laemophloeus sp.		1			1
Aphanisticus cochinchinae seminulum Obenberger			1		1
Ormiscus sp. EGR 10	1				1
Acanthoscelides desmanthi Johnson				1	1
Disonycha barberi Blake		1			1
Rhipidandrus peninsularis Horn				1	1
Bembidion viridicolle (LaFerté-Sénectère)				1	1
Apinocis blandita (Casey)			1		1
Striatheca sp. 1		1			1
Lophalia cyanicollis (Dupont)	1				1
Suphisellus lineatus (Horn)				1	1
Rhyssomatus texanus Sleeper		1			1
Tachys pallidus Chaudoir				1	1
Rhyzopertha dominica (Fabricius)		1			1
Charidotella sexpunctata sexpunctata (Fabricius)	1				1
Ganascus ventricosus (LeConte)	1				1
Histerini, genus 1 sp.		1			1
Hypothenemus pubescens Hopkins		1			1
Cryptocephalus brunneovittatus Schaeffer	1				1
Scirtes orbiculatus (Fabricius)				1	1
Megapenthes nigriceps Schaeffer				1	1
Conoderus vespertinus (Fabricius)				1	1
Aeolus scutellatus (Schaeffer)		1			1
Aderus sp. EGR 1				1	1

Species	Beating	Lindgren funnel trap	Pitfall trap	UV light	Total
Lebia analis Dejean				1	1
Desmopachria dispersa (Crotch)				1	1
Actenodes calcarata (Chevrolat)	1				1
Scymnus louisianae J. Chapin	1				1
Thermonectus basillaris (Harris)				1	1
Diomus pseudotaedatus Gordon	1				1
Pachydrus sp.				1	1
Altica litigata Fall				1	1
Lebia bitaeniata Chevrolat				1	1
Menoeceus texanus (Champion)				1	1
Pandeleteius longicollis Champion	1				1
Oncideres cingulata texana Horn		1			1
Eutochia crenata (LeConte)			1		1
Hister servus Erichson			1		1
Cryptorhopalum reversum Casey	1				1
Selvadius sp. 1		1			1
Litochrus pulchellus (LeConte)				1	1
Dyschiriodes abbreviatus (Putzeys)				1	1
Lebia viridis Say				1	1
Sibinia errans (Casey)	1				1
Lepidocnemeplatia sericea Horn				1	1
Chaetocnema sp. 1		1			1
Trigonorhinus alternatus (Say)		1			1
Baridinae undet. genus 2 sp. 1	1				1
Hydrochus sp.				1	1
Euspilotus auctus (Schmidt)			1		1
Diomus xanthaspis (Mulsant)	1				1
Onthophagus subtropicus Howden & Cartwright		1			1
Chrysobothris analis LeConte	1				1
Miraces aeneipennis Jacoby	1				1
Hylocurus parkinsoniae Blackman				1	1
Mordellistena sp. 13			1		1
Diabrotica undecimpunctata howardi Barber	1				1
Sphaenothecus bivittata Dupont	1				1
Lissorhoptrus sp.				1	1
Ora hyacintha Blatchley		1			1
Aulonothroscus sp. 3				1	1
Ababa tantilla (LeConte)		1			1
Harmonia axyridis (Pallas)		1			1
Epitrix hirtipennis (F. E. Melsheimer)		1			1
Cis sp. 1		1			1

Species	Beating	Lindgren funnel trap	Pitfall trap	UV light	Total
Mallodon dasytomus (Say)		1			1
Anamorphus sp.	1				1
Stator limbatus (Horn)	1				1
Deilelater physoderus (Germar)				1	1
Ormiscus irroratus (Schaeffer)	1				1
Derallus altus (LeConte)				1	1
Ecyrus arcuatus Gahan				1	1
Petalium sp. / spp. 4		1			1
Epicauta obesa (Chevrolat)	1				1
Melanotus lanceatus Quate				1	1
Ormiscus sp. EGR 20		1			1
Grand Total	1466	3506	865	9979	15816

APPENDIX 6

Complete species list by family, ranked alphabetically with sites found

Family Species	LAG	SPG	MCM	LAC1	LAC2	Total
Aderidae	41	121	8	5	8	183
Aderidae, undet. genus 1 sp. 1	9	1	1			11
Aderus sp. EGR 1	4				1	5
Aderus tantillus (Champion)	1	23	3			27
Ariotus subtropicus Casey		11				11
Axylophilus sp. EGR 1	4	25				29
Cnopus impressus (LeConte)	12	8	1	1	3	25
Elonus basalis (LeConte)	7	18	3	3	3	34
Ganascus ventricosus (LeConte)	4	31			1	36
Zonantes nubifer (LeConte)		4				4
Zonantes sp. EGR 1				1		1
Anobiidae	612	120	649	110	105	1596
Byrrhodes tristriatus (LeConte)			3	5	2	10
Caenocara sp. 1		1				1
Caenocara sp. 2	2		2			4
Calymmaderus nitidus (LeConte)		1	1		1	3
Calymmaderus similis (Fall)			2			2
Cryptorama sp. 1 (*confusum* or near)	74	6	96	24	39	239
Cryptorama sp. 2 (*punctatum* or near)	18	1	58	2	3	82
Cryptorama sp. 4			11			11
Cryptorama sp. 3 (*vorticale* or near)	4	1	56			61
Lasioderma falli Pic	3	1				4
Niptinus ovipennis Fall			6			6
Niptinus unilineatus (Pic)	23	49	69	5	1	147
Petalium debile Fall	51					51
Petalium schwarzi Fall	1		2			3
Petalium sp. / spp. 4		7	1	1	1	10
Petalium sp. 1	7		4			11
Petalium sp. 2	3	8				11
Protheca hispida LeConte			2			2
Ptinus falli Pic	4					4
Ptinus hystrix Fall	31	1			1	33
Ptinus paulonotatus Pic	134		2			136
Ptinus sp. 1	26					26
Ptinus sp. 2	7	1	9	5	16	38
Ptinus sp. 3			8	11		19

Family Species	LAG	SPG	MCM	LAC1	LAC2	Total
Ptinus sp. 4		5				5
Ptinus tumidus Fall	16	5	15	13	2	51
Stegobium paniceum (Linnaeus)			1			1
Stichtoptychus agonus Fall		8	5			13
Striatheca sp. 1	5	3	17	7	1	33
Trichodesma pulchella Schaeffer		2	3			5
Trichodesma sordida Horn			11			11
Trichodesma texana Schaeffer	1	4	25			30
Tricorynus bifoveatus White	2		23	9	17	51
Tricorynus congruus (Fall)	10	6	87	18	5	126
Tricorynus fastigiatus (Fall)	42	7	106	1	2	158
Tricorynus lucidus White	2	1				3
Tricorynus punctatus (LeConte)		1		2	1	4
Tricorynus similis (LeConte)	1		7	1		9
Tricorynus sp./spp.	119		11	4	7	141
Tricorynus sp. 1	2		4			6
Tricorynus sp. 3	6	1	1	1	2	11
Tricorynus texanus White	14		1	1	4	20
Xyletinus fasciatus White	4					4
Anthicidae	226	131	112	38	153	660
Acanthinus clavicornis (Champion)		18				18
Acanthinus dromedarius (LaFerté-Sénectère)					11	11
Acanthinus scitulus (LeConte)	1		1		2	4
Acanthinus spinicollis (LaFerté-Sénectère)		101				101
Anthicus sp. 1			1		3	4
Cyclodinus californicus (LaFerté-Sénectère)	41	1			1	43
Ischyropalpus occidentalis (Champion)	176			27	118	321
Ischyropalpus subtilissimus (Pic)	1				4	5
Rilettius sp.	5	9	106	2		122
Sapintus sp. 1	1	2		4	14	21
Vacusus vicinus (LaFerté-Sénectère)	1		4	5		10
Anthribidae	19	433	63	49	69	633
Araeoderes texanus Schaeffer		10				10
Brachycorynus hirsutus Valentine		5	13	2		20
Discotenes nigrotuberculata (Schaeffer)		14		12	13	39
Euparius marmoreus (Olivier)			3			3
Eusphyrus eusphyroides (Schaeffer)		2	1	10	20	33

Family Species	LAG	SPG	MCM	LAC1	LAC2	Total
Eusphyrus rectus Schaeffer	2		23	6	4	35
Eusphyrus sp. 1					2	2
Eusphyrus sp. 2				2	1	3
Goniocloeus bimaculatus (Olivier)	3	16				19
Ischnocerus infuscatus Fåhraeus		2		4	8	14
Neoxenus versicolor Valentine		337				337
Ormiscus albofasciatus (Schaeffer)	2					2
Ormiscus irroratus (Schaeffer)		1		2	1	4
Ormiscus sp. EGR 10	2	1	1	3	1	8
Ormiscus sp. EGR 12	1	1	7	1	8	18
Ormiscus sp. EGR 20				1	1	2
Ormiscus sp. EGR 8				2	1	3
Phoenicobiella schwarzii (Schaeffer)		16				16
Toxonotus bipunctatus (Schaeffer)	1	9	8	1		19
Toxonotus cornutus (Say)	6		2		2	10
Toxonotus penicellatus (Schaeffer)	2	18	4	3	6	33
Trigonorhinus alternatus (Say)		1	1		1	3
Attelabidae	63					63
Temnocerus macrophthalmus (Schaeffer)	63					63
Bostrichidae	206	11	67	663	816	1763
Amphicerus cornutus (Pallas)	47	2	25	62	153	289
Dendrobiella sericans (LeConte)	2		11	7	37	57
Lichenophanes bicornis (Weber)		1		7	15	23
Melalgus plicatus (LeConte)	4	5	7	7	25	48
Micrapate dinoderoides (Horn)		1	1	538	490	1030
Rhyzopertha dominica (Fabricius)					1	1
Trogoxylon aequale ((Wollaston)	10			2	15	27
Xylobiops basilaris (Say)			3			3
Xylobiops parilis Lesne				2	13	15
Xylobiops texanus (Horn)	132	1	4	10	20	167
Xylomeira tridens (Fabricius)	11	1	16	28	47	103
Bothrideridae	5		5	27	162	199
Bothrideres geminatus (Say)	3		2	9	31	45
Bothrideres sp. 1			3	18	131	152
Lithophorus ornatus Arrow	2					2
Brentidae	2	10		14	27	53
Apion fumitarse Fall				1		1
Apion subornatum Fall	2			3	27	32

Family Species	LAG	SPG	MCM	LAC1	LAC2	Total
Apion xanthoxyli Fall		1		8		9
Coelocephalapion buchanani (Kissinger)		8		1		9
Cylas formicarius (Fabricius)				1		1
Fallapion sp. 2		1				1
Buprestidae	23	2	12	19	48	104
Acmaeodera tubulus-neoneglecta Complex	14	1	7	6	2	30
Actenodes calcarata (Chevrolat)					1	1
Actenodes flexicaulis Schaeffer	1					1
Agrilus acaciae Fisher				2		2
Agrilus lecontei celticola Fisher	2	1				3
Agrilus macer LeConte				1		1
Agrilus obolinus LeConte	2					2
Agrilus pectoralis Waterhouse	1					1
Agrilus prosopidis Fisher	2		2	5	30	39
Agrilus viridescens Knull	1			1	2	4
Aphanisticus cochinchinae seminulum Obenberger					1	1
Chrysobothris acutipennis Chevrolat			3	3	5	11
Chrysobothris analis LeConte					1	1
Chrysobothris basalis LeConte					4	4
Chrysobothris sp. 1				1		1
Taphrocerus chevrolati Obenberger					2	2
Cantharidae	1	1	18	11	98	129
Belotus bicolor Brancucci		1	17	5	86	109
Chauliognathus marginatus (Fabricius)			1			1
Ditemnus freemani (Brown)				5	12	17
Tytthonyx ruficollis Schaeffer	1			1		2
Carabidae	4157	309	477	669	746	6358
Agonum texanum (LeConte)	3					3
Agra sp. 1	2	2		1	4	9
Amblygnathus subtinctus (LeConte)	2					2
Anatrichis oblonga G. Horn	1					1
Apenes sinuatus (Say)	22		2	7	8	39
Apenes sp. EGR 1	6	16	37	3	1	63
Apenes sp. EGR 2		26	56	9		91
Apenes sp. EGR 4	1	4	6	13	2	26
Aspidoglossa subangulata (Chaudoir)			2	1	11	14
Athrostictus punctatulus Putzeys	1	19	7	28	21	76

Family Species	LAG	SPG	MCM	LAC1	LAC2	Total
Axinopalpus sp. 1	3	2	6	32	4	47
Badister elegans LeConte		1				1
Badister flavipes laticeps Blatchley				1		1
Bembidion impotens Casey	1	19	9	21	18	68
Bembidion sp. 1	2	7	3	11	9	32
Bembidion sp. 2		1				1
Bembidion sp. 3	1		1	6	5	13
Bembidion viridicolle (LaFerté-Sénectère)	29	10			1	40
Brachinus adustipennis Erwin	1					1
Brachinus geniculatus Dejean			1	11	2	14
Brachinus sp. 1	1					1
Brachinus sp. 2	1	1				2
Bradycellus sp. 1			1			1
Calleida decora (Fabricius)	3		2		5	10
Calleida fimbriata Bates	6		1			7
Calleida planulata LeConte		8				8
Calleida punctulata Chaudoir	21	6	5	3	7	42
Calosoma aurocinctum Chaudoir	1					1
Calosoma marginale Casey			1	1		2
Calosoma sayi Dejean	5	4	2	5	4	20
Calybe sallei (Chevrolat)			1	11	10	22
Chlaenius orbus Horn					73	73
Chlaenius texanus G. Horn		1	1			2
Cicindela pamphila LeConte	3					3
Cicindela severa severa LaFerté-Sénectère	18					18
Clivina bipustulata (Fabricius)	3	3	41	22	44	113
Clivina dentipes Dejean	1		1	1		3
Clivina sp. 1	19					19
Clivina sp. 2	1		1	5	13	20
Clivina sp. 3	1					1
Clivina sp. 5				1		1
Colliuris tetrastigma (Chaudoir)	2					2
Cymindis platicollis (Say)	4		9	6	8	27
Dicaelus purpuratus purpuratus Bonelli		2				2
Diplochaetus lecontei (Horn)	1					1
Diplochaetus rutilis (Chevrolat)	4					4
Discoderus impotens (LeConte)	3			5		8
Discoderus sp. 1			1			1
Dyschiriodes abbreviatus (Putzeys)	30	1		1	1	33

Family Species	LAG	SPG	MCM	LAC1	LAC2	Total
Dyschiriodes analis (LeConte)	3	4	1	4	5	17
Dyschiriodes edentulus (Putzeys)	8					8
Dyschiriodes sp. 1	1					1
Dyschiriodes sublaevis (Putzeys)	19			1		20
Elaphropus sp. 1	1	17	26	30	85	159
Elaphropus sp. 2	7					7
Elaphropus sp. 3		1				1
Elaphropus sp. 5	1		2	69	20	92
Euproctinus abjetus (Bates)		2		6	14	22
Galerita aequinoctialis Chaudoir		26				26
Galerita lecontei lecontei Dejean	1					1
Harpalus gravis LeConte	19					19
Helluomorphoides papago (Casey)	2		8	2	1	13
Helluomorphoides sp./spp.	52	1	4	2	4	63
Hyboptera auxiliadora Erwin		1				1
Lebia analis Dejean	1		6	2	1	10
Lebia bitaeniata Chevrolat					1	1
Lebia calliope Bates			2			2
Lebia esurialis Casey		1				1
Lebia grandis Hentz	2	2	47	33	20	104
Lebia rufopleura Schaeffer	10	8		6	1	25
Lebia sp. 1	1	2				3
Lebia viridis Say	1				1	2
Loxandrus infimus Bates	1			1	4	6
Loxandrus sculptilis Bates	13		5			18
Loxandrus sp. 1		1				1
Micratopus aenescens (LeConte)	6	33	9	9	28	85
Nemotarsus rhombifer Bates	36	5	6	16	40	103
Notiobia maculicornis (Chaudoir)	4			2		6
Notiobia terminata (Say)	7		1	1	1	10
Oodes amaroides Dejean	1					1
Oodinus alutaceus (Bates)			1			1
Oxycrepis intercepta (Chaudoir)		18	3	6	4	31
Panagaeus sallei Chaudoir					12	12
Paratachys austinicus Casey			3	12	18	33
Paratachys sp. 1	5	3	14	18	18	58
Paratachys sp. 2		4	8	44	21	77
Paratachys sp. 3			1			1
Plochionus timidus Haldeman	17	1				18
Poecilus sp.			1			1
Pogonodaptus mexicanus (Bates)		2		1		3
Pogonus texanus Chaudoir	13					13

Family Species	LAG	SPG	MCM	LAC1	LAC2	Total
Polyderis laevis (Say)			1		2	3
Pseudomorpha sp.			2			2
Scarites sp. 1	2			3	5	10
Selenophorus fatuus (LeConte)	22	1	25	13	6	67
Selenophorus palliatus (Fabricius)	14			1	2	17
Selenophorus sp. 1	23	3	36	6	3	71
Selenophorus sp. 2	93	6	7	13	18	137
Selenophorus sp. 3	7	10	20	86	23	146
Selenophorus sp. 4	4	1				5
Selenophorus sp. 5	4					4
Stenocrepis duodecimstriata (Chevrolat)	10					10
Stenocrepis mexicana (Chevrolat)	2	1		3	16	22
Stenocrepis tibialis (Chevrolat)		1	1	1	6	9
Stenolophus dissimilis Dejean	5		2		1	8
Stenomorphus californicus rufipes LeConte	1934			18	18	1970
Tachys misellus LaFerté-Sénectère	10				1	11
Tachys pallidus Chaudoir	23		4		1	28
Tachys pulchellus LaFerté-Sénectère	25	2	8	3	3	41
Tachys sp. 1	1044					1044
Tachys sp. 2	428	1	1			430
Tachys sp. 3	18	1				19
Tachys sp. 4	10					10
Tachys sp. 5	1		18	32	38	89
Tachys sp. 6				2		2
Tetracha carolina carolina (Linnaeus)			3	2	15	20
Tetracha impressa (Chevrolat)					5	5
Thalpius dorsalis (Brullé)	11	2	1	13	27	54
Thalpius horni (Chaudoir)	2	1		2	3	8
Thalpius pygmaeus (Dejean)	2					2
Zuphium americanum Dejean	25		2		1	28
Zuphium longicolle LeConte	2					2
Zuphium mexicanum Chaudoir	1	14	1	1	2	19
Cerambycidae	151	64	214	314	612	1355
Achryson surinamum (Linnaeus)	1		1	5	22	29
Adetus sp. JEW 1		1				1
Aneflomorpha tenuis (LeConte)	3					3
Aneflus prolixus insoletus Chemsak & Linsley	1					1

Family Species	LAG	SPG	MCM	LAC1	LAC2	Total
Anelaphus debilis (LeConte)	9	1	9	20	36	75
Anelaphus moestus moestus (LeConte)			1			1
Anelaphus niveivestitus (Schaeffer)	4		1	1	2	8
Anelaphus spurcus (LeConte)	14	2	8	8	12	44
Ataxia crypta (Say)	1	1	1	6	18	27
Cacostola salicicola (Linsley)		1				1
Desmiphora hirticollis (Olivier)		1				1
Eburia mutica LeConte	1	2		2		5
Eburia ovicollis LeConte			2			2
Eburia stigmatica (Chevrolat)		1			2	3
Ecyrus arcuatus Gahan	7		1	1	1	10
Ecyrus penicillatus (Bates)		1				1
Elaphidion linsleyi Knull				8	13	21
Enaphalodes taeniatus (LeConte)	5					5
Euderces reichei LeConte	6	1	2	4	1	14
Geropa concolor (LeConte)	12	4	48	26	5	95
Gnaphalodes trachyderoides Thomson	7	1	4	12	32	56
Heterachthes nobilis LeConte			1			1
Leptostylus cretatellus Bates		5				5
Lepturges angulatus (LeConte)		1	3	1	1	6
Lepturges infilatus Bates				4	33	37
Lissonotus flavocinctus puncticollis Bates	1			1	8	10
Lochmaeocles cornuticeps cornuticeps (Schaeffer)		1				1
Lophalia cyanicollis (Dupont)	2	1			1	4
Mallodon dasytomus (Say)					1	1
Methia necydalea (Fabricius)	7		1	6	1	15
Neoclytus acuminatus (Fabricius)					1	1
Neoclytus augusti (Chevrolat)					1	1
Neoclytus mucronatus vogti Linsley					1	1
Neocompsa exclamationis (Thomson)		1	6	1		8
Neocompsa intricata Martins			5			5
Neocompsa mexicana (Thomson)		4	4	9	15	32
Obrium glabrum Knull	4	8	2			14
Obrium maculatum (Olivier)	13	8	6	27	39	93
Obrium mozinnae Linell	3	3	37			43
Oncideres cingulata texana Horn	2		6		1	9
Oncideres pustulatus LeConte				16	51	67

Family Species	LAG	SPG	MCM	LAC1	LAC2	Total
Parmenonta wickhami Schaeffer		3		1	6	10
Placosternus difficilis (Chevrolat)	6		2	4	6	18
Plionoma suturalis (LeConte)			1			1
Psyrassa brevicornis Linsley	3					3
Psyrassa castanea Bates	7					7
Pygmaeopsis viticola Schaeffer		1				1
Smodicum texanum Knull		1		22	6	29
Sphaenothecus bivittata Dupont					1	1
Stenelytrana gigas (LeConte)			1			1
Stenosphenus lugens LeConte			9	1	1	11
Sternidius alpha (Say)				2	28	30
Sternidius alpha (*texana* Casey form) (Say)			1	108	204	313
Sternidius mimeticus (Casey)	29	8	19	8	3	67
Tetranodus niveicollis (Linell)	1					1
Trachyderes mandibularis (Audinet-Serville)	1			6	53	60
Tylonotus bimaculatus Haldeman	1					1
Tylosis oculatus LeConte					2	2
Urgleptes celtis (Schaeffer)		2	32	4	4	42
Cerylonidae		3			2	5
Mycocerinus depressus (LeConte)					1	1
Philothermus sp. 1		3			1	4
Chrysomelidae	460	154	92	202	223	1131
Acalymma trivittatum (Mannerheim)			1			1
Acanthoscelides desmanthi Johnson					1	1
Acanthoscelides macrophthalmus (Schaeffer)		1	2	6	24	33
Acanthoscelides prosopoides (Schaeffer)	1		1	1		3
Algarobius bottimeri Kingsolver	82	1	9	2	6	100
Altica litigata Fall					1	1
Altica texana Schaeffer			1			1
Anisostena gracilis (Horn)	1			2	12	15
Anomoea rufifrons mutabilis (Lacordaire)	3		1	7	1	12
Babia tetraspilota J. L. LeConte	6		1	1		8
Baliosus sp. 1		1				1
Brachycoryna pumila Guérin-Méneville				1	2	3
Brachypnoea rotundicollis (Schaeffer)				1	1	2
Brucita marmorata (Jacoby)		15				15

Family Species	LAG	SPG	MCM	LAC1	LAC2	Total
Capraita sexmaculata (Illiger)					2	2
Chaetocnema confinis Crotch				1		1
Chaetocnema ectypa Horn			1	1	4	6
Chaetocnema quadricollis Schwarz	1			5	6	12
Chaetocnema sp. 1			1		1	2
Charidotella sexpunctata sexpunctata (Fabricius)				2	1	3
Colaspis brownsvillensis Blake	1					1
Colaspis crinicornis crinicornis Schaeffer	3					3
Colaspis planicostata Blake	1		4	2	2	9
Coptocycla texana (Schaeffer)		72		72	26	170
Coraia subcyanescens (Schaeffer)	23					23
Cryptocephalus brunneovittatus Schaeffer				1	1	2
Cryptocephalus fulguratus J. L. LeConte	7	1		2	2	12
Cryptocephalus guttulatellus Schaeffer				13		13
Cryptocephalus trizonatus Suffrian	1			1	2	4
Derospidea ornata (Schaeffer)		1				1
Diabrotica balteata J. L. LeConte	2		3	1	8	14
Diabrotica longicornis (Say)	4					4
Diabrotica tibialis Jacoby			1		2	3
Diabrotica undecimpunctata howardi Barber		1			1	2
Diachus auratus (Fabricius)	1			1	15	17
Disonycha barberi Blake	11			18	1	30
Disonycha glabrata (Fabricius)			10	2	2	14
Disonycha leptolineata Blatchley			1			1
Epitrix fasciata Blatchley	1		2		3	6
Epitrix hirtipennis (F. E. Melsheimer)			4		1	5
Fidia clematis Schaeffer					1	1
Glenidion flexicaulis (Schaeffer)				1	8	9
Glyptina sp. EGR 1	1					1
Glyptina sp. EGR 19			2			2
Glyptina sp. EGR 20			1			1
Griburius lecontii Crotch	1		11		2	14
Hemisphaerota cyanea (Say)		1				1
Longitarsus sp. 1	3			1		4
Longitarsus sp. 2	2					2
Longitarsus sp. 3				2	4	6

Family Species	LAG	SPG	MCM	LAC1	LAC2	Total
Longitarsus sp. 4	1					1
Longitarsus sp. 5	1					1
Megacerus cubiculus (Casey)			1			1
Megascelis texana Linell		1				1
Merobruchus major (Fall)	11	1	5	9	3	29
Metachroma sp. EGR 1	1					1
Metachroma texanum Schaeffer	4					4
Metachroma ustum J. L. LeConte					6	6
Metaparia sp. EGR 1	64	12				76
Mimosestes amicus (Horn)	66		4	5	4	79
Mimosestes nubigens (Motschulsky)	3			2	7	12
Mimosestes protractus (Horn)	1					1
Miraces aeneipennis Jacoby	2			1	1	4
Monoxia sordida (J. L. LeConte)	2		1	1		4
Myochrous denticollis (Say)	2					2
Myochrous denticollis-cyphus Complex	1					1
Neltumius texanus (Schaeffer)			1			1
Neochlamisus velutinus Karren	2					2
Ophraella communa LeSage	1				2	3
Pachybrachis brevicornis Fall	9					9
Pachybrachis latithorax Clavareau	1			3	3	7
Pachybrachis pusillus Bowditch	92		1			93
Pachybrachis sp. 1		5				5
Pachybrachis sp. 2	12	1	2	4		19
Pachybrachis sp. 5				4	6	10
Pachybrachis spumarius Suffrian			5			5
Pachybrachis texanus Bowditch				3	1	4
Pachybrachis uncinatus Fall	7					7
Paranapiacaba connexa (J. L. LeConte)	1					1
Parchicola tibialis (Olivier)					1	1
Pentispa distincta (Baly)		13				13
Phyllotreta sp.			1			1
Physonota alutacea Boheman				3	31	34
Plagiodera thymaloides Stål		16				16
Rhabdopterus sp. EGR 1		1				1
Rhabdopterus weisei (Schaeffer)				1	2	3
Sennius guttifer (Sharp)		6				6
Spintherophyta globosa (Olivier)	9		1	1	4	15
Stator beali Johnson	9		10	2		21
Stator limbatus (Horn)			1	3	1	5

Family Species	LAG	SPG	MCM	LAC1	LAC2	Total
Stator pruininus (Horn)			1	1		2
Stator sordidus (Horn)	1			1		2
Stator subaeneus (Schaeffer)			1			1
Triachus sp. 1				9	8	17
Triachus sp. EGR 1				2		2
Zenocolaspis subtropica (Schaeffer)	1	4				5
Ciidae	5	7	7	6	12	37
Ceracis sp. 1				3	2	5
Ceracis sp. 3		1				1
Ceracis sp. 4					2	2
Cis creberrimus Mellié					4	4
Cis huachucae Dury	1		1			2
Cis sp. 1					1	1
Cis sp. 2		2	4	1		7
Cis sp. 5			1			1
Cis tristis Mellié					1	1
Hadraule sp. 1	1	3	1	2	2	9
Orthocis sp. 1	3	1				4
Cleridae	54	26	65	60	165	370
Ababa tantilla (LeConte)		1		2	1	4
Bogcia obliquefasciata (Schaeffer)		1	10			11
Cregya quadrinotata (Chevrolat)	1	6		1	23	31
Cregya sp. EGR 1	1	1			1	3
Cymatodera balteata LeConte	1	2	15	13	25	56
Cymatodera sirpata Horn	10		1			11
Cymatoderella collaris (Spinola)			13			13
Enoclerus quadrisignatus (Say)	32		1	15	52	100
Enoclerus vetus Wolcott					4	4
Hydnocerinae Genus undet., sp. EGR 1		2				2
Lecontella sp. 1 (*brunnea?*)	1		1			2
Monophylla pallipes (Schaeffer)				2	10	12
Neorthopleura texana (Bland)	2	5	5	13	38	63
Pelonides granulatipennis (Schaeffer)			1			1
Pelonium maculicolle Schaeffer		1	8	2	1	12
Perilypus ornaticollis (LeConte)				2	2	4
Phyllobaenus varipunctatus Knull	6	7	10	10	8	41
Coccinellidae	41	17	29	76	76	239
Brachiacantha barberi Gordon	2					2
Brachiacantha testudo Casey	2					2
Cephaloscymnus sp. 1		1		1	5	7

Family Species	LAG	SPG	MCM	LAC1	LAC2	Total
Chilocorus cacti (Linnaeus)		1	4	10	23	38
Coleomegilla maculata (Degeer)	2					2
Cycloneda sanguinea sanguinea (Linnaeus)	1	1	1	3	8	14
Diomus debilis (LeConte)		1				1
Diomus pseudotaedatus Gordon	1				1	2
Diomus terminatus (Say)	4		3	2	2	11
Diomus xanthaspis (Mulsant)					1	1
Harmonia axyridis (Pallas)				1	1	2
Hippodamia convergens Guérin-Méneville	2					2
Hyperaspidius sp. 1	1					1
Hyperaspis globula Casey	1	1	1			3
Hyperaspis octonotata Casey					1	1
Microweisea sp.			6			6
Naemia seriata seriata (Melsheimer)	1					1
Nephus flavifrons (Melsheimer)	3	2	2	2	2	11
Nephus intrusus (Horn)		1	2	20	5	28
Olla v-nigrum (Mulsant)	2		1	8	3	14
Psyllobora renifer Casey	7	2	2	18	14	43
Scymnus (*Scymnus*) sp. 4		1				1
Scymnus caudalis LeConte	1				5	6
Scymnus loewii Mulsant	3	1	3	4	2	13
Scymnus louisianae J. Chapin		2			1	3
Selvadius sp. 1	1			3	1	5
Stethorus sp. 1	1	1	2			4
Zagloba hystrix Casey	6	2	2	4	1	15
Colydiidae	44	26	7	25	53	155
Bitoma sulcata (LeConte)	2		2	2	15	21
Bitoma vittata Schaeffer		9				9
Microsicus parvulus (Guérin-Méneville)		8	2	20	35	65
Phloeonemus integer (Reitter)	40		3	2	2	47
Phloeonemus interruptus Reitter	2	7		1	1	11
Synchita fuliginosa Melsheimer		2				2
Corylophidae	25	602	3	59	110	799
Arthrolips sp. /spp.	12	144		14	13	183
Arthrolips splendens (Schwarz)	1					1
Clypastraea lepida (LeConte)		7	2	8	6	23
Clypastraea sp. 1				2	16	18
Corylophidae Genus 1 sp. 1		411		3	1	415
Holopsis sp.	4	2		1	1	8
Orthoperus sp. EGR 1	2	1			18	21

Family Species	LAG	SPG	MCM	LAC1	LAC2	Total
Rypobius sp.	5			27		32
Sericoderus sp. 1	1	37	1	4	55	98
Curculionidae	860	709	293	390	1546	3798
Acamptus texanus (Sleeper)		2			2	4
Anthonomus aeneolus Dietz					1	1
Anthonomus albopilosus Dietz			1			1
Anthonomus leucostictus Dietz	7	1		2	1	11
Anthonomus schwarzi Clark & Burke		2	1	5		8
Anthonomus squamans Champion	1					1
Anthonomus testaceosquamosus Linell	1					1
Anthonomus unipustulatus (Champion)	1	18		1		20
Anthonomus xanthoxyli Linell	1			7	3	11
Aphrastus unicolor Horn			17			17
Apinocis blandita (Casey)					1	1
Apinocis deplanata (Casey)		1	1	1	2	5
Bagous dietzi Tanner			2	1		3
Bagous sp. 2	2					2
Baridinae undet. genus 2 sp. 1					1	1
Brachystylus microphthalmus Champion	1					1
Catapastinus Casey*i* Champion	4	1				5
Catapastus seriatus Casey	1					1
Catapastus squamirostris Casey		1		2		3
Centrinopus helvinus Casey			1		6	7
Chalcodermus semicostatus Schaeffer	6	4				10
Chramesus mimosae Blackman		1				1
Chramesus subopacus Schaeffer	2					2
Coccotrypes distinctus (Motschulsky)					2	2
Colecerus marmoratus (Horn)	98		1	97	763	959
Compsus auricephalus (Say)	28	11	5	5	45	94
Conotrachelus belfragei LeConte			9			9
Conotrachelus cameronensis Sleeper	10	1			2	13
Conotrachelus floridanus Fall	1		26			27
Conotrachelus seniculus LeConte				1	2	3
Cophes Fall*ax* (LeConte)	1	5	7	6	16	35
Cophes texanus Sleeper		1		2	5	8
Copturomorpha rileyi Hespenheide	1		17			18
Cossoninae, undet. genus sp.		13	21	1		35

Family Species	LAG	SPG	MCM	LAC1	LAC2	Total
Cryptocarenus seriatus Eggers		2				2
Cryptorhynchine, undet. genus sp. 1					1	1
*E*Pic*aerus lepidotis* Pierce			2			2
*E*Pic*aerus mexicanus* Boheman		14				14
Episcirrus brachialis (LeConte)	1		23			24
Eudiagogus pulcher Fåhraeus	1					1
Euplatypus parallelus (Fabricius)			2	3	25	30
Hylocurus parkinsoniae Blackman	5	22	12	2	1	42
Hypothenemus brunneus (Hopkins)	10	33	6	16	24	89
Hypothenemus californicus Hopkins		1	5	6		12
Hypothenemus distinctus Wood					1	1
Hypothenemus erectus LeConte	25	29	3	2	2	61
Hypothenemus eruditus Westwood	22	103	6	24	76	231
Hypothenemus interstitialis (Hopkins)	39	11	4	9	28	91
Hypothenemus pubescens Hopkins	5	1	1	7	1	15
Hypothenemus rotundicollis (Eichhoff)	8	1	1			10
Hypothenemus seriatus (Eichhoff)	13	54	16	68	183	334
Hypothenemus sp. 2	2					2
Hypothenemus squamosus (Hopkins)	23	30	3	18	9	83
Lechriops oculata (Say)		30		1		31
Lignyodes adamanteus (Clark)	4				1	5
Lissorhoptrus sp.	1	1		1	1	4
Listronotus sp. 2	9					9
Listronotus sp. 3	1			1		2
Listronotus sp. 6			1			1
Listronotus sp. *7*	1					1
Listronotus sp. 8	1					1
Madarellus sp. / spp.		2	5	1	9	17
Maemactes cribratus (LeConte)	3					3
Micracisella opacithorax (Schedl)	69	2	4	4	3	82
Molytinae, undet. genus sp. 1	13		1			14
Molytinae, undet. genus sp. 3	1					1
Myrmex dichrous (LeConte)		6				6
Myrmex texanus (Schaeffer)	1	2				3

Family Species	LAG	SPG	MCM	LAC1	LAC2	Total
Neomastix sp.	1					1
Notiodes aeratus (LeConte)	2					2
Notolomus sp. 1		6				6
Nyssonotus seriatus Casey	4					4
Ophryastes sp. 1			1			1
Pandeleteius cinereus (Horn)			5			5
Pandeleteius longicollis Champion	39		1		1	41
Pheloconus hispidus (LeConte)	1					1
Phloeotribus texanus Schaeffer	1		4	1	2	8
Platyomus flexicaulis (Schaeffer)	3					3
Plocetes versicolor (Champion)		9				9
Polydacrys depressifrons (Boheman)		68				68
Pseudopentarthrum sp. 1	9	3				12
Pseudopentarthrum sp. 2		72				72
Pseudothysanoes acaciae (Blackman)	1	1	15	4	16	37
Rhyssomatus pruinosus (Boheman)					2	2
Rhyssomatus texanus Sleeper					1	1
Sibinia errans (Casey)	7		1	1	1	10
Sibinia inermis (Casey)	11	2	10	9	8	40
Sibinia pallida (Schaeffer)	319		2	6		327
Sibinia setosa (LeConte)	20					20
Sibinia triseriata Clark				1		1
Sitophilus zeamais Motschulsky			6	4	9	19
Smicronyx albonotatus Anderson			3	3	20	26
Smicronyx sp. 1	1		1	3	4	9
Smicronyx sp. 2	1					1
Smicronyx sp. 3	1					1
Smicronyx sp. 6	2			1		3
Stenopelmus rufinasus Gyllenhal	1		2			3
Tanymecus sp. EGR 1					1	1
Thysanoes texanus Blackman	6	4	19	28	62	119
Tomolips quercicola (Boheman)		9		2	7	18
Trischidias sp. 1	1				1	2
Xyleborus affinis Eichhoff	1	51	15	6	23	96
Xyleborus ferrugineus (Fabricius)	3	77	3	4	23	110
Xyleborus horridus Eichhoff			1	1	8	10
Xyleborus similis Ferrari				22	140	162
Xyleborus spinulosus Blandford		1				1
Yuccaborus frontalis (LeConte)	1					1
Dermestidae	59	57	55	10	30	211

Family Species	LAG	SPG	MCM	LAC1	LAC2	Total
Apsectus sp.	9	7	1			17
Attagenus sp.					1	1
Cryptorhopalum obesulum Casey	1					1
Cryptorhopalum reversum Casey	1		5	7	1	14
Cryptorhopalum triste LeConte	2				5	7
Novelsis aequalis (Sharp)	24	18	40	3	14	99
Trogoderma primum (Jayne)	9	26	8		2	45
Trogoderma sp.	13	6	1		7	27
Dryopidae	160	1	15	45	14	235
Pelonomus obscurus LeConte	160	1	15	45	14	235
Dytiscidae	715	101	70	123	113	1122
Anodocheilus sp.			1			1
Bidessonotus sp. 1		1	2	2	2	7
Celina sp.	3	1	5	3	3	15
Copelatus sp. 2 (big)	29	31	8	12	9	89
Copelatus sp. 1 (small)	349	8	11	22	3	393
Coptotomus sp.			1		2	3
Desmopachria dispersa (Crotch)	3	3	1	1	1	9
Desmopachria sp.	1	7	2	3	5	18
Hydaticus bimarginatus (Say)	19	1				20
Hydrovatus Horn*ii* Crotch	3					3
Hygrotus nubilus (LeConte)	1					1
Laccophilus fasciatus terminalis Sharp				1		1
Laccophilus proximus Say	36	22	10	9	6	83
Laccophilus quadrilineatus quadrilineatus Horn	16	5	2	4		27
Neobidessus sp. 1	11	8	9	50	59	137
Neoclypeodytes sp.		3				3
Pachydrus sp.	64	2	1	1	1	69
Thermonectus basillaris (Harris)	170	4		2	1	177
Thermonectus nigrofasciatus ornaticollis Aubé			2	1	1	4
Uvarus sp.	10	5	15	12	20	62
Elateridae	300	450	660	299	518	2227
Aeolus scutellatus (Schaeffer)					1	1
Aeolus sp. 1	32					32
Aeolus sp. 2	11					11
Aeolus sp. 3					3	3
Aeolus subornatus (Schaeffer)	1					1
Aeolus trilineatus Candèze				1	2	3
Agrypnus rectangularis (Say)	1	2	46	10	28	87
Alaus lusciosus (Hope)					1	1
Anchastus bicolor LeConte	1	4	2		1	8

Family Species	LAG	SPG	MCM	LAC1	LAC2	Total
Anchastus rufus Candèze	4	12	18	4	1	39
Anchastus uniquus Knull	44				1	45
Conoderus aversus (LeConte)	7	96	93	9	41	246
Conoderus bellus (Say)				1		1
Conoderus browni Knull				6	42	48
Conoderus similis (Schaeffer)				6	10	16
Conoderus vespertinus (Fabricius)			1		1	2
Deilelater physoderus (Germar)	19		7	9	1	36
Dipropus sp. 1	10	41	7	30	76	164
Dipropus sp. 2				1	2	3
Drapetes niger Bonvouloir		1				1
Esthesopus sp. 1	3	31	35	37	17	123
Glyphonyx bimarginatus Schaeffer		1		3	8	12
Glyphonyx mimeticus Horn				3	5	8
Glyphonyx sp./spp.	64	4	20	95	219	402
Heteroderes amplicollis (Gyllenhal)	2			1	16	19
Horistonotus simplex LeConte	24	56	305	22	9	416
Horistonotus uhleri Horn		4	1	4	6	15
Megapenthes nigriceps Schaeffer	19	30	27	3	1	80
Melanotus lanceatus Quate	15	10			1	26
Melanotus opacicollis LeConte	1					1
Mulsant*eus texanus* (LeConte)	37	153	98	46	11	345
Mulsant*eus variatus* (Schaeffer)	2	4				6
Paradonus sp. EGR 1				1	3	4
Pherhimius fascicularis (Fabricius)	1	1		7	11	20
Physorhinus sp. 1	1					1
Scaptolenus sp.	1					1
Elmidae		1	9	7	47	64
Hexacylloepus sp.		1	1	1	4	7
Macrelmis texanus (Schaeffer)			1			1
Stenelmis occidentalis Schmude & Brown			7	6	43	56
Endomychidae		29	8	30	56	123
Anamorphus sp.					1	1
Bystus sp.					1	1
Epipocus cinctus LeConte		21	8	30	54	113
Epipocus punctatus LeConte		7				7
Holoparamecus sp.		1				1
Eucnemidae	13	10	6	1	6	36
Arrhipis sp. 1		3				3

Family Species	LAG	SPG	MCM	LAC1	LAC2	Total
Dromaeolus teres (Horn)	13	6	4	1	5	29
Nematodes atropos (Say)		1			1	2
Vitellius texanus Knull			2			2
Geotrupidae	1					1
Bolbelasmus minor (Linell)	1					1
Haliplidae	55	39	12	13	3	122
Haliplus lewisii Crotch	20	4	1	1	2	28
Haliplus tumidus LeConte	35	35	11	12	1	94
Heteroceridae	15450	332	13866	7965	5571	43184
Heterocerus spp. -group 1 (small)	3	23	8	192	169	395
Heterocerus spp. -group 2 (big)	441	39	64	135	91	770
Tropicus pusillus (Say)	15006	270	13794	7638	5311	42019
Histeridae	4	19	33	33	57	146
Carcinops sp. 1		1			1	2
Carcinops sp. 3					3	3
Epierus antillarum Marseul		2			2	4
Euspilotus (*Neosaprinus*) sp.				1		1
Euspilotus auctus (Schmidt)		9	23	1	1	34
Geomysaprinus sp.				1		1
Hetaeriine, genus 5 sp. 1		1				1
Hister lagoi Caterino			1			1
Hister servus Erichson			6	1	1	8
Histerini, genus 1 sp.				1	1	2
Hololepta minuta (Erichson)		2				2
Phelister panamensis J. E. LeConte					1	1
Pinaxister sp. EGR 1		3				3
Teretriosoma chalybaeum Horn			1		2	3
Teretriosoma conigerum Lewis		1		23	39	63
Teretrius orbus Lewis	2			5	4	11
Xerosaprinus sp. 1	2		2			4
Xerosaprinus sp. 2					2	2
Hybosoridae	1	14				15
Germarostes aphodioides (Illiger)		14				14
Hybosorus illigeri Reiche	1					1
Hydraenidae	12	1	4	3	10	30
Gymnochthebius sp. 1	4					4
Gymnochthebius sp. 2					1	1
Hydraena sp./spp.	1		2			3
Ochthebius sp./spp.	7	1	2	3	9	22
Hydrophilidae	5529	1915	171	339	215	8169
Berosus aculeatus / peregrinus		1	6	8	10	25
Berosus exiguus (Say)	1911	1351	56	53	98	3469

Family Species	LAG	SPG	MCM	LAC1	LAC2	Total
Berosus infuscatus LeConte	855	492	46	112	57	1562
Berosus metalliceps Sharp	1324		5			1329
Berosus miles LeConte			1	1	1	3
Berosus pugnax LeConte		1		2	1	4
Cercyon praetextatus (Say)	10			1	5	16
Cercyon quisquilius (Linnaeus)	2					2
Derallus altus (LeConte)		2		11	1	14
Enochrus sp. 3 (big)	76	8	4	24	3	115
Enochrus sp. 2 (*medium*)	313	5	35	72	11	436
Enochrus sp. 1 (small)	97	2	8	16	9	132
Helobata striata (Brullé)	1	1				2
Hydrochus sp.					1	1
Hydrophilus insularis Laporte	1					1
Paracymus sp./spp.	64	12	8	21	2	107
Pelosoma praecursor Smetana	4	2			6	12
Tropisternus collaris (Fabricius)	15	5	1	12	5	38
Tropisternus lateralis nimbatus (Say)	20	3		1		24
Tropisternus sp. 1	1			4		5
Tropisternus sp. 2	825	16				841
Tropisternus sp. 3	10	14	1	1	5	31
Laemophloeidae	46	21	38	21	135	261
Cryptolestes sp.				2	3	5
Cryptolestes unicornis (Reitter)		3		1	27	31
Laemophloeus sp.					1	1
Laemophloeus terminalis Casey		2	1		7	10
Lathropus robustulus Casey	18	1	1	4	28	52
Metaxyphloeus texanus (Schaeffer)	27	13	36	6	18	100
Placonotus sp.	1			2	21	24
Rhabdophloeus horni (Casey)		2		6	30	38
Lampyridae	7	14	2	29	43	95
Photinus sp. 2	1					1
Photinus sp. 3		1				1
Photinus sp./spp. 1	4	5		3	16	28
Photuris sp. EGR 1		8	2	10	23	43
Pleotomus sp.	2					2
Pyractomena sp.				16	1	17
Pyropyga sp.					3	3
Languriidae	12	141	46	55	98	352
Cryptophilus integer (Heer)	3		6	4	9	22
Dasydactylus cnici Schaeffer		61				61
Hapalips texanus Schaeffer	2		1	1	2	6

Family Species	LAG	SPG	MCM	LAC1	LAC2	Total
Loberus ornatus Schaeffer		68				68
Pharaxonotha kirschii (Reitter)			1		1	2
Toramus chamaeropis (Schaeffer)		9				9
Toramus sp. EGR 1	7	3	38	50	86	184
Latridiidae	1071	213	138	221	210	1853
Corticaria sp.	32					32
Corticarina cavicollis (Mannerheim)			1		2	3
Corticarina sp.				1		1
Melanophthalma (*Cortilena*) *picta* (LeConte)	6	1				7
Melanophthalma (*Cortilena*) *simplex* (LeConte)	97	1	10	16	53	177
Melanophthalma (*Cortilena*) sp. 1				26	7	33
Melanophthalma (*Melanophthalma*) sp./spp.	810	121	10	123	116	1180
Metophthalmus rileyi Andrews	119	90	92	47	21	369
Migneauxia orientalis (Reitter)	7		25	8	11	51
Leiodidae		1				1
Liocyrtusa sp.		1				1
Limnichidae	161	13	1	6	9	190
Eulimnichus ater (LeConte)				1	5	6
Physemus minutus LeConte	1	10		5	2	18
Throscinus politus Casey	21					21
Throscinus schwarzii Schaeffer	139	3	1		2	145
Melandryidae	19	2				21
Anisoxya sp.	7					7
Symphora sp.	12	2				14
Meloidae	23	7			1	31
Epicauta fortis Werner	5					5
Epicauta obesa (Chevrolat)					1	1
Epicauta temexa Adams & Selander	6					6
Pseudozonitis labialis Enns	3					3
Pyrota insulata (LeConte)	6					6
Pyrota tenuicostatis (Dugès)	3	7				10
Melyridae	49	30	2	4	3	88
Ablechrus sp. 1	6					6
Attalus rufiventris Horn	8			1		9
Attalus scapularis Marshall	4					4
Attalus sp. 1					1	1
Attalus sp. 3				2		2
Chaetocoelus sp. /spp.	3	2	1	1	2	9
Hypebaeus sp. 1		17				17

Family Species	LAG	SPG	MCM	LAC1	LAC2	Total
Listrus sp. 1	24					24
Listrus sp. 2	4					4
Melyrodes basalis (LeConte)		11	1			12
Monommatidae				1		1
Hyporhagus sp. 1				1		1
Monotomidae	6	37	14	25	77	159
Bactridium sp.	5	1		2	3	11
Europs fervidus Blatchley	1	35	4			40
Hesperobaenus constricticollis Bousquet		1				1
Monotoma americana Aubé			10	22	73	105
Monotoma arida Casey				1	1	2
Mordellidae	82	32	98	49	77	338
Falsomordellistena pubescens (Fabricius)	1	1				2
Mordella mexicana (Champion)					1	1
Mordella sp. 2				1	5	6
Mordellaria serval (Say)	9	5	3	1		18
Mordellina ancilla (LeConte)	8	2	9	11	29	59
Mordellina pustulata (Melsheimer)	1		1			2
Mordellina sp. 1	6	1				7
Mordellina sp. 2	14					14
Mordellina sp. 3	15		2	1	5	23
Mordellina sp. 4					3	3
Mordellina sp. 5			3	2	4	9
Mordellina sp. 6	1	9		1	4	15
Mordellistena sp. 1			2			2
Mordellistena sp. 12	1					1
Mordellistena sp. 13			1		1	2
Mordellistena sp. 2				1		1
Mordellistena sp. 3	1	1			4	6
Mordellistena sp. 4		1				1
Mordellistena sp. 5	2		1	3	8	14
Mordellistena sp. 6	11	1	44		3	59
Mordellistena sp. 8	2	1				3
Mordellistena trifasciata (Say)	4	5	13	5		27
Paramordellaria carinata (Smith)		2	1	10	4	17
Pseudotolida sp. / spp.	6	3	18	13	6	46
Mycetophagidae	9	20	260	39	54	382
Berginus nigricolor Champion		13				13
Litargus balteatus LeConte		7	222	22	18	269
Litargus sexpunctatus (Say)				1	2	3
Typhaea stercorea (Linnaeus)	9		38	16	34	97

Family Species	LAG	SPG	MCM	LAC1	LAC2	Total
Nitidulidae	279	346	1718	221	237	2801
Aethina tumida (Murray)	2		2	2		6
Amphicrossus ciliatus (Olivier)		6	7	49	152	214
Camptodes texanus Schaeffer		2		1	2	5
Carpophilus freemanni Dobson	4	3	109	30	22	168
Carpophilus mutilatus (Erichson)	8	3	40	67	16	134
Carpophilus pallidipennis (Say)					4	4
Carpophilus sp. 2	2					2
Conotelus sp. 1				1		1
Cybocephalus sp.	2					2
Epuraea luteolus Erichson	8			3	2	13
Lobiopa insularis (Laporte)	80	2	75	12	6	175
Stelidota coenosa Erichson	173	328	1474	48	26	2049
Stelidota geminata (Say)		2				2
Urophorus humeralis (Fabricius)			11	8	7	26
Noteridae	114	27	9	23	22	195
Hydrocanthus sp.	99	3				102
Notomicrus sp./spp.	7	20	8	19	21	75
Suphis inflatus (LeConte)	2					2
Suphisellus bicolor bicolor (Say)	4	1		1		6
Suphisellus lineatus (Horn)	2	3	1	3	1	10
Ochodaeidae	20	4				24
Parochodaeus biarmatus (LeConte)	20	4				24
Oedemeridae	26	1	20	8	11	66
Oxacis angustata Champion	7					7
Oxacis bernadettae Arnett	13		1			14
Oxacis pallida (LeConte)	1					1
Oxacis sp. 1			1			1
Oxacis trirossi Arnett		1			7	8
Polypria cruxrufa Chevrolat	5		18	8	4	35
Passandridae	18	4	1	36	33	92
Catogenus rufus (Fabricius)				3		3
Taphroscelidia linearis (LeConte)	18	4	1	33	33	89
Phalacridae	54	51	4	94	168	371
Acylomus sp./spp.	34	34	4	67	122	261
Litochropus sp. 1	1	10		9	9	29
Litochrus pulchellus (LeConte)	5				1	6
Litochrus sp. 1	6	6		1		13
Phalacridae, undet. genus sp. 1	3					3
Phalacrus sp.				1		1
Stilbus sp. 1	2	1		13	29	45
Stilbus sp. 2	2					2

Family Species	LAG	SPG	MCM	LAC1	LAC2	Total
Xanthocomus concinnus (Casey)				1	1	2
Xanthocomus rutilans (Casey)	1			2	6	9
Phengodidae	5	25	1		1	32
Cenophengus pallidus Schaeffer	4	23				27
Distremocephalus sp. EGR 1	1					1
Phengodes sp. 1		2	1		1	4
Ptilodactylidae	2	5	4	8	11	30
Lachnodactyla texana Schaeffer	2	5	4	8	11	30
Rhipiphoridae	54			2	2	58
Trigonodera schaefferi Rivnay	54			2	2	58
Salpingidae	14	95	8			117
Dacoderus steineri Aalbu, Andrews & Pollock	14	95	8			117
Scarabaeidae	3810	12534	2154	413	1252	20163
Anomala flavipennis flavipennis Burmeister			12			12
Anomala flavipennis luteipennis LeConte		2	42	56	100	200
Anomala foraminosa Bates		7	90	14	25	136
Anomala insitiva Robinson	34	2	11			47
Ataeniopsis figurator (Harold)	117				2	119
Ataenius cognatus (LeConte)	1215	5	14	99	727	2060
Ataenius gracilis (Melsheimer)	1				1	2
Ataenius imbricatus (Melsheimer)	1					1
Ataenius inquisitus Horn	67	60	243	43	2	415
Ataenius picinus Harold			1			1
Ataenius platensis (Blanchard)	1		11	9	57	78
Ataenius setiger Bates	62	4	2	5	6	79
Ataenius wenzelii Horn				1		1
Ateuchus texanus (Robinson)	729	3620	1173	30	33	5585
Auperia donominata (Chevrolat)	4					4
Blackburneus stercorosus (Melsheimer)	1	1	1		2	5
Canthon cyanellus LeConte		1	52			53
Canthon probus (Germar)	1					1
Canthon viridis (Palisot de Beauvois)	1044	7578	25			8647
Coprophanaeus pluto (Harold)			3	2	8	13
Cyclocephala lurida Bland			1			1
Diplotaxis curvaticeps Fall	65	1	3	6	5	80
Diplotaxis pubipes Schaeffer	5	404				409
Diplotaxis simplex Blanchard	51	365				416
Diplotaxis thoracica Fall	70	139	69	100	21	399
Diplotaxis truncatula LeConte	41	2	44	2	12	101

Family Species	LAG	SPG	MCM	LAC1	LAC2	Total
Euphoria sepulcralis nitens Casey				3	1	4
Gymnetis caseyi Antonie	10	25	7	10	12	64
Haroldiataenius convexus (Robinson)	102					102
Haroldiellus sallei (Harold)		1				1
Labarrus pseudolividus (Balthasar)					10	10
Martineziella dutertrei (Chalumeau)			1			1
Onthophagus gazella (Fabricius)	49			8	160	217
Onthophagus schaefferi Howden & Cartwright		61	159	1	2	223
*Onthophagus subtro*Pic*us* Howden & Cartwright	3		9	2	1	15
Oscarinus welderi Gordon & Skelley	6					6
Phileurus valgus (Linnaeus)	16	2	12	2	9	41
Phyllophaga crinita (Burmeister)	49	2	3	9	14	77
Phyllophaga reinhardi Saylor			1			1
Phyllophaga rubiginosa (LeConte)	7		1			8
Phyllophaga submucida (LeConte)		19	24	1	2	46
Phyllophaga texensis Saylor	2	1				3
Phyllophaga torta (LeConte)					1	1
Phyllophaga trichodes (Bates)		50		1	4	55
Phyllophaga vexata (Horn)	13	12		5	5	35
Platytomus longulus (Cartwright)	2					2
Pseudocanthon perplexus (LeConte)	42	169	139	4	29	383
Strategus aloeus (Linnaeus)		1				1
Tetraclipeoides dentiger (LeConte)			1		1	2
Scirtidae	54	28	8	4	46	140
Cyphon sp. / spp.	2	2	5	3	15	27
Ora hyacintha Blatchley	8	2			1	11
Ora sp. EGR 1		1	2			3
Ora troberti (Guérin-Méneville)	40	22			3	65
Scirtes orbiculatus (Fabricius)	4	1			1	6
Scirtes sp. EGR 1			1	1	26	28
Scraptiidae	788	180	130	50	61	1209
Allopoda sp. 1	231	87	113	16	4	451
Canifa sp. 1	5		11			16
Diclidia sp. 1	107	74	1	18	2	202

Family Species	LAG	SPG	MCM	LAC1	LAC2	Total
Naucles sp. 1	441	1	1	1	4	448
Pentaria sp. 1		17	4	7	51	79
Scraptia sp. 1	4	1		8		13
Scydmaenidae	19	1	5			25
Euconnus sp./spp.	19	1	5			25
Silvanidae	135	1	388	9	16	549
Ahasverus rectus (LeConte)	133	1	388	8	16	546
Cathartus quadricollis (Guérin-Méneville)				1		1
Nausibius sp. EGR 1	2					2
Smicripidae	1914	149	1636	76	84	3859
Smicrips texana (Casey)	1914	149	1636	76	84	3859
Sphindidae		1			2	3
Sphindus sp./spp.		1			2	3
Tenebrionidae	775	545	1346	264	285	3215
Adelina bidens (Schaeffer)		2	1	6	24	33
Alphitobius laevigatus (Fabricius)		1				1
Anaedus texanus Linell		37				37
Apsida belti Bates			5		4	9
Armalia texanus (LeConte)	67	1	9	2	14	93
Blapstinus fortis LeConte	4		4	19	33	60
Blapstinus fuscus Casey	4	4	44	22	20	94
Blapstinus sp. (=*lobatus* Davis, ms. name)	12	75	1008	53	5	1153
Bothrotes canaliculatus acutus (LeConte)			1	3	8	12
Cymatothes tristis (Laporte)		1				1
Eleodes goryi Solier	81	17				98
Eleodes spinipes ventricosus LeConte	8		1			9
Eutochia crenata (LeConte)	1		3		1	5
Glyptotus cribratus LeConte	4					4
Gnatocerus sp. 1	2	1		5	3	11
Gonwanocrypticus platensis				1		1
Helops impolitus LeConte	1					1
Helops perforatus Horn	2	5				7
Hymenorus dubius Fall	15	47	19	24	4	109
Hymenorus occidentalis Champion	27	9	3	2	2	43
Hymenorus sp. 1 (large, dark *texensis*)	148	103	27	4	4	286
Hymenorus sp. 2 (small, reddish *texensis*)	13	18	25	3	2	61
Hymenorus sp. 3 (small, big eyes)	23					23

Family Species	LAG	SPG	MCM	LAC1	LAC2	Total
Hymenorus sp. 4 (small *occidentalis*)	16					16
Hypogena tricornis (Laporte)	1				2	3
Iccius cylindricus Champion			1			1
Lepidocnemeplatia sericea Horn			72	2	1	75
Lobopoda opacicollis Champion			2	1		3
Lobopoda punctulata (Melsheimer)	61	17	9	16	36	139
Lobopoda socia (LeConte)	29	15	14	16	19	93
Lystronichus piliferus Champion	11	58	7	5	4	85
Menoeceus texanus (Champion)					1	1
Neomida bicornis (Fabricius)	1					1
Oenopion zopheroides (Horn)	1					1
Opatrinus aciculatus LeConte			1	23	35	59
Paratenetus punctatus Spinola	170	3	5	52	36	266
Platydema excavatum (Say)				1	6	7
Platydema micans Zimmerman	1	71	79			151
Platydema nigratum (Motschoulsky)	2	1				3
Poecilocrypticus formicophilus Gebien		1	1		1	3
Rhipidandrus peninsularis Horn					1	1
Rhypasma sp.	2				10	12
Statira hirsuta Champion	6	5	2	1	3	17
Statira pulchella Maklin					2	2
Stenosides texanus (Wickham)	61					61
Strongylium hemistriatum TripleHorn & Spilman	1	53	3	2	4	63
Tribolium castaneum (Herbst)				1		1
Tetratomidae		1	1	1	4	7
Eustrophinus bicolor (Fabricius)			1	1	4	6
Eustrophinus sp. EGR 1		1				1
Throscidae	1	10	2	1	2	16
Aulonothroscus nodifrons Blanchard		7				7
Aulonothroscus sp. 1		2	1	1		4
Aulonothroscus sp. 2	1	1			1	3
Aulonothroscus sp. 3			1		1	2
Trogidae	16	45	60	31	23	175
Omorgus fuliginosus (Robinson)	6	6	16	8	8	44
Omorgus rubricans (Robinson)	7		4	7	9	27
Trox sonorae LeConte		2			2	4
Trox spinulosus Robinson	3	37	40	16	4	100
Trogossitidae	13	15	18	32	1178	1256

Family Species	LAG	SPG	MCM	LAC1	LAC2	Total
Airora cylindrica (Audinet-Serville)			11	3	3	17
Corticotomus cylindricus (LeConte)	1	3	2	5	18	29
Euschaefferia hicoriae (Schaeffer)			1			1
Temnochila acuta LeConte	8	5	4	22	65	104
Tenebroides corticalis (Melsheimer)		1				1
Tenebroides nanus (Melsheimer)	2	2		2	1092	1098
Tenebroides semicylindricus (Horn)	2	4				6
Grand Total	38890	20314	25142	13328	15816	113490

APPENDIX 7

Laguna species list by family, ranked alphabetically with collecting method

Family Species	Beating	Lindgren funnel trap	Pitfall trap	UV light	Totals
Aderidae	7	4		30	41
Aderidae, undet. genus 1 sp. 1				9	9
Aderus sp. EGR 1				4	4
Aderus tantillus (Champion)				1	1
Axylophilus sp. EGR 1	2	2			4
Cnopus impressus (LeConte)	3	2		7	12
Elonus basalis (LeConte)				7	7
Ganascus ventricosus (LeConte)	2			2	4
Anobiidae	107	228	145	132	612
Caenocara sp. 2		2			2
Cryptorama sp. 1 (*confusum* or near)	25	45	2	2	74
Cryptorama sp. 2 (*punctatum* or near)	5	11	1	1	18
Cryptorama sp. 3 (*vorticale* or near)		4			4
Lasioderma falli Pic				3	3
Niptinus unilineatus (Pic)	3	18	2		23
Petalium debile Fall	49	1		1	51
Petalium schwarzi Fall	1				1
Petalium sp. 1		4		3	7
Petalium sp. 2	1	1		1	3
Ptinus falli Pic		4			4
Ptinus hystrix Fall	5	4	7	15	31
Ptinus paulonotatus Pic			123	11	134
Ptinus sp. 1	3	8	3	12	26
Ptinus sp. 2	1	3	1	2	7
Ptinus tumidus Fall	4	4	3	5	16
Striatheca sp. 1				5	5
Trichodesma texana Schaeffer				1	1
Tricorynus bifoveatus White		1		1	2
Tricorynus congruus (Fall)		3		7	10
Tricorynus fastigiatus (Fall)	1	8		33	42
Tricorynus lucidus White	1	1			2
Tricorynus similis (LeConte)				1	1
Tricorynus sp./spp.	3	93	1	22	119
Tricorynus sp. 1		2			2
Tricorynus sp. 3		2	2	2	6
Tricorynus texanus White	1	9		4	14
Xyletinus fasciatus White	4				4

Family Species	Beating	Lindgren funnel trap	Pitfall trap	UV light	Totals
Anthicidae	158	16	3	49	226
Acanthinus scitulus (LeConte)			1		1
Cyclodinus californicus (LaFerté-Sénectère)		2		39	41
Ischyropalpus occidentalis (Champion)	158	11	2	5	176
Ischyropalpus subtilissimus (Pic)				1	1
Rilettius sp.		3		2	5
Sapintus sp. 1				1	1
Vacusus vicinus (LaFerté-Sénectère)				1	1
Anthribidae	10	8		1	19
Eusphyrus rectus Schaeffer	2				2
Goniocloeus bimaculatus (Olivier)		3			3
Ormiscus albofasciatus (Schaeffer)		1		1	2
Ormiscus sp. EGR 10	2				2
Ormiscus sp. EGR 12		1			1
Toxonotus bipunctatus (Schaeffer)		1			1
Toxonotus cornutus (Say)	4	2			6
Toxonotus penicellatus (Schaeffer)	2				2
Attelabidae	60	2	1		63
Temnocerus macrophthalmus (Schaeffer)	60	2	1		63
Bostrichidae	6	42	18	140	206
Amphicerus cornutus (Pallas)	3	20	17	7	47
Dendrobiella sericans (LeConte)				2	2
Melalgus plicatus (LeConte)	1	3			4
Trogoxylon aequale ((Wollaston)		9	1		10
Xylobiops texanus (Horn)	2	8		122	132
Xylomeira tridens (Fabricius)		2		9	11
Bothrideridae		3		2	5
Bothrideres geminatus (Say)		1		2	3
Lithophorus ornatus Arrow		2			2
Brentidae	2				2
Apion subornatum Fall	2				2
Buprestidae	6	7	9	1	23
Acmaeodera tubulus-neoneglecta Complex		5	9		14
Actenodes flexicaulis Schaeffer	1				1
Agrilus lecontei celticola Fisher	2				2
Agrilus obolinus LeConte	2				2
Agrilus pectoralis Waterhouse				1	1
Agrilus prosopidis Fisher	1	1			2
Agrilus viridescens Knull		1			1
Cantharidae		1			1

Family Species	Beating	Lindgren funnel trap	Pitfall trap	UV light	Totals
Tytthonyx ruficollis Schaeffer		1			1
Carabidae	7	67	64	4019	4157
Agonum texanum (LeConte)				3	3
Agra sp. 1		2			2
Amblygnathus subtinctus (LeConte)				2	2
Anatrichis oblonga G. Horn				1	1
Apenes sinuatus (Say)				22	22
Apenes sp. EGR 1			6		6
Apenes sp. EGR 4				1	1
Athrostictus punctatulus Putzeys				1	1
Axinopalpus sp. 1		1	2		3
Bembidion impotens Casey				1	1
Bembidion sp. 1				2	2
Bembidion sp. 3				1	1
Bembidion viridicolle (LaFerté-Sénectère)				29	29
Brachinus adustipennis Erwin			1		1
Brachinus sp. 1				1	1
Brachinus sp. 2				1	1
Calleida decora (Fabricius)				3	3
Calleida fimbriata Bates	6				6
Calleida punctulata Chaudoir		16		5	21
Calosoma aurocinctum Chaudoir			1		1
Calosoma sayi Dejean		1		4	5
Cicindela pamphila LeConte				3	3
Cicindela severa severa LaFerté-Sénectère				18	18
Clivina bipustulata (Fabricius)			3		3
Clivina dentipes Dejean				1	1
Clivina sp. 1			19		19
Clivina sp. 2				1	1
Clivina sp. 3				1	1
Colliuris tetrastigma (Chaudoir)				2	2
Cymindis platicollis (Say)		3		1	4
Diplochaetus lecontei (Horn)				1	1
Diplochaetus rutilis (Chevrolat)				4	4
Discoderus impotens (LeConte)			1	2	3
Dyschiriodes abbreviatus (Putzeys)		1		29	30
Dyschiriodes analis (LeConte)				3	3
Dyschiriodes edentulus (Putzeys)				8	8
Dyschiriodes sp. 1				1	1
Dyschiriodes sublaevis (Putzeys)				19	19
Elaphropus sp. 1				1	1
Elaphropus sp. 2			7		7

Family Species	Beating	Lindgren funnel trap	Pitfall trap	UV light	Totals
Elaphropus sp. 5			1		1
Galerita lecontei lecontei Dejean		1			1
Harpalus gravis LeConte				19	19
Helluomorphoides papago (Casey)			2		2
Helluomorphoides sp./spp.		1	17	34	52
Lebia analis Dejean				1	1
Lebia grandis Hentz				2	2
Lebia rufopleura Schaeffer		2		8	10
Lebia sp. 1				1	1
Lebia viridis Say				1	1
Loxandrus infimus Bates				1	1
Loxandrus sculptilis Bates				13	13
Micratopus aenescens (LeConte)				6	6
Nemotarsus rhombifer Bates	1	15		20	36
Notiobia maculicornis (Chaudoir)				4	4
Notiobia terminata (Say)				7	7
Oodes amaroides Dejean				1	1
Paratachys sp. 1		1	1	3	5
Plochionus timidus Haldeman		15	1	1	17
Pogonus texanus Chaudoir				13	13
Scarites sp. 1				2	2
Selenophorus fatuus (LeConte)		2		20	22
Selenophorus palliatus (Fabricius)				14	14
Selenophorus sp. 1				23	23
Selenophorus sp. 2		1		92	93
Selenophorus sp. 3				7	7
Selenophorus sp. 4				4	4
Selenophorus sp. 5		1		3	4
Stenocrepis duodecimstriata (Chevrolat)				10	10
Stenocrepis mexicana (Chevrolat)				2	2
Stenolophus dissimilis Dejean				5	5
Stenomorphus californicus rufipes LeConte				1934	1934
Tachys misellus LaFerté-Sénectère				10	10
Tachys pallidus Chaudoir				23	23
Tachys pulchellus LaFerté-Sénectère				25	25
Tachys sp. 1				1044	1044
Tachys sp. 2		1		427	428
Tachys sp. 3				18	18
Tachys sp. 4		3	2	5	10
Tachys sp. 5				1	1
Thalpius dorsalis (Brullé)				11	11

Family Species	Beating	Lindgren funnel trap	Pitfall trap	UV light	Totals
Thalpius horni (Chaudoir)				2	2
Thalpius pygmaeus (Dejean)				2	2
Zuphium americanum Dejean				25	25
Zuphium longicolle LeConte				2	2
Zuphium mexicanum Chaudoir				1	1
Cerambycidae	30	60	4	57	151
Achryson surinamum (Linnaeus)		1			1
Aneflomorpha tenuis (LeConte)				3	3
Aneflus prolixus insoletus Chemsak & Linsley				1	1
Anelaphus debilis (LeConte)		5		4	9
Anelaphus niveivestitus (Schaeffer)		1		3	4
Anelaphus spurcus (LeConte)		11	3		14
Ataxia crypta (Say)	1				1
Eburia mutica LeConte		1			1
Ecyrus arcuatus Gahan	3	1		3	7
Enaphalodes taeniatus (LeConte)		4		1	5
Euderces reichei LeConte	6				6
Geropa concolor (LeConte)		3		9	12
Gnaphalodes trachyderoides Thomson		3		4	7
Lissonotus flavocinctus puncticollis Bates		1			1
Lophalia cyanicollis (Dupont)	2				2
Methia necydalea (Fabricius)				7	7
Obrium glabrum Knull		2	1	1	4
Obrium maculatum (Olivier)	3	9		1	13
Obrium mozinnae Linell	1			2	3
Oncideres cingulata texana Horn				2	2
Placosternus difficilis (Chevrolat)		5		1	6
Psyrassa brevicornis Linsley				3	3
Psyrassa castanea Bates				7	7
Sternidius mimeticus (Casey)	14	10		5	29
Tetranodus niveicollis (Linell)		1			1
Trachyderes mandibularis (Audinet-Serville)		1			1
Tylonotus bimaculatus Haldeman		1			1
Chrysomelidae	200	114	13	133	460
Acanthoscelides prosopoides (Schaeffer)				1	1
Algarobius bottimeri Kingsolver	7	57	2	16	82
Anisostena gracilis (Horn)	1				1
Anomoea rufifrons mutabilis (Lacordaire)	3				3
Babia tetraspilota J. L. LeConte	3	3			6

Family Species	Beating	Lindgren funnel trap	Pitfall trap	UV light	Totals
Chaetocnema quadricollis Schwarz			1		1
Colaspis brownsvillensis Blake	1				1
Colaspis crinicornis crinicornis Schaeffer				3	3
Colaspis planicostata Blake				1	1
Coraia subcyanescens (Schaeffer)	22		1		23
Cryptocephalus fulguratus J. L. LeConte	7				7
Cryptocephalus trizonatus Suffrian	1				1
Diabrotica balteata J. L. LeConte				2	2
Diabrotica longicornis (Say)				4	4
Diachus auratus (Fabricius)		1			1
Disonycha barberi Blake	2	9			11
Epitrix fasciata Blatchley	1				1
Glyptina sp. EGR 1	1				1
Griburius lecontii Crotch				1	1
Longitarsus sp. 1	1			2	3
Longitarsus sp. 2			2		2
Longitarsus sp. 4				1	1
Longitarsus sp. 5		1			1
Merobruchus major (Fall)	10	1			11
Metachroma sp. EGR 1				1	1
Metachroma texanum Schaeffer			4		4
Metaparia sp. EGR 1	64				64
Mimosestes amicus (Horn)	42	23		1	66
Mimosestes nubigens (Motschulsky)	1	2			3
Mimosestes protractus (Horn)		1			1
Miraces aeneipennis Jacoby	2				2
Monoxia sordida (J. L. LeConte)	1	1			2
Myochrous denticollis (Say)				2	2
Myochrous denticollis-cyphus Complex				1	1
Neochlamisus velutinus Karren	1	1			2
Ophraella communa LeSage		1			1
Pachybrachis brevicornis Fall		7		2	9
Pachybrachis latithorax Clavareau	1				1
Pachybrachis pusillus Bowditch	1	3	1	87	92
Pachybrachis sp. 2	11		1		12
Pachybrachis uncinatus Fall				7	7
Paranapiacaba connexa (J. L. LeConte)				1	1
Spintherophyta globosa (Olivier)	6	3			9
Stator beali Johnson	9				9
Stator sordidus (Horn)	1				1
*Zenocolaspis subtro*Pica (Schaeffer)			1		1

Family Species	Beating	Lindgren funnel trap	Pitfall trap	UV light	Totals
Ciidae		3	2		5
Cis huachucae Dury		1			1
Hadraule sp. 1		1			1
Orthocis sp. 1		1	2		3
Cleridae	6	36		12	54
Cregya quadrinotata (Chevrolat)				1	1
Cregya sp. EGR 1	1				1
Cymatodera balteata LeConte	1				1
Cymatodera sirpata Horn		5		5	10
Enoclerus quadrisignatus (Say)		27		5	32
LeConte*lla* sp. 1 (*brunnea?*)		1			1
Neorthopleura texana (Bland)		1		1	2
Phyllobaenus varipunctatus Knull	4	2			6
Coccinellidae	17	9	4	11	41
Brachiacantha barberi Gordon	2				2
Brachiacantha testudo Casey	1	1			2
Coleomegilla maculata (Degeer)				2	2
Cycloneda sanguinea sanguinea (Linnaeus)				1	1
Diomus pseudotaedatus Gordon	1				1
Diomus terminatus (Say)				4	4
Hippodamia convergens Guérin-Méneville	1	1			2
Hyperaspidius sp. 1			1		1
Hyperaspis globula Casey	1				1
Naemia seriata seriata (Melsheimer)				1	1
Nephus flavifrons (Melsheimer)	3				3
Olla v-nigrum (Mulsant)		1		1	2
Psyllobora renifer Casey	3	2		2	7
Scymnus caudalis LeConte		1			1
Scymnus loewii Mulsant	1	2			3
Selvadius sp. 1			1		1
Stethorus sp. 1	1				1
Zagloba hystrix Casey	3	1	2		6
Colydiidae		30		14	44
Bitoma sulcata (LeConte)				2	2
Phloeonemus integer (Reitter)		29		11	40
Phloeonemus interruptus Reitter		1		1	2
Corylophidae	4	10	9	2	25
Arthrolips sp. /spp.		7	4	1	12
Arthrolips splendens (Schwarz)				1	1
Holopsis sp.	4				4
Orthoperus sp. EGR 1		2			2

Family Species	Beating	Lindgren funnel trap	Pitfall trap	UV light	Totals
Rypobius sp.			5		5
Sericoderus sp. 1		1			1
Curculionidae	505	211	52	92	860
Anthonomus leucostictus Dietz	7				7
Anthonomus squamans Champion		1			1
Anthonomus testaceosquamosus Linell	1				1
Anthonomus unipustulatus (Champion)	1				1
Anthonomus xanthoxyli Linell	1				1
Bagous sp. 2				2	2
Brachystylus microphthalmus Champion	1				1
Catapastinus Casey*i* Champion	4				4
Catapastus seriatus Casey	1				1
Chalcodermus semicostatus Schaeffer	2	4			6
Chramesus subopacus Schaeffer	2				2
Colecerus marmoratus (Horn)	49	33	16		98
Compsus auricephalus (Say)	26	1	1		28
Conotrachelus cameronensis Sleeper		1	7	2	10
Conotrachelus floridanus Fall		1			1
Cophes Fall*ax* (LeConte)			1		1
Copturomorpha rileyi Hespenheide		1			1
Episcirrus brachialis (LeConte)		1			1
Eudiagogus pulcher Fåhraeus				1	1
Hylocurus parkinsoniae Blackman		5			5
Hypothenemus brunneus (Hopkins)	2	8			10
Hypothenemus erectus LeConte	10	14	1		25
Hypothenemus eruditus Westwood	2	18	1	1	22
Hypothenemus interstitialis (Hopkins)	7	32			39
Hypothenemus pubescens Hopkins	1	2	2		5
Hypothenemus rotundicollis (Eichhoff)	4	3	1		8
Hypothenemus seriatus (Eichhoff)		8	5		13
Hypothenemus sp. 2	2				2
Hypothenemus squamosus (Hopkins)	3	17	3		23
Lignyodes adamanteus (Clark)	1		1	2	4
Lissorhoptrus sp.				1	1
Listronotus sp. 2		1		8	9
Listronotus sp. 3				1	1
Listronotus sp. *7*				1	1

Family Species	Beating	Lindgren funnel trap	Pitfall trap	UV light	Totals
Listronotus sp. 8		1			1
Maemactes cribratus (LeConte)			3		3
Micracisella opacithorax (Schedl)	3	4		62	69
Molytinae, undet. genus sp. 1	12			1	13
Molytinae, undet. genus sp. 3			1		1
Myrmex texanus (Schaeffer)	1				1
Neomastix sp.		1			1
Notiodes aeratus (LeConte)	1	1			2
Nyssonotus seriatus Casey	4				4
Pandeleteius longicollis Champion	22	14	1	2	39
Pheloconus hispidus (LeConte)			1		1
Phloeotribus texanus Schaeffer	1				1
Platyomus flexicaulis (Schaeffer)	2		1		3
Pseudopentarthrum sp. 1	7	2			9
Pseudothysanoes acaciae (Blackman)		1			1
Sibinia errans (Casey)	1	5	1		7
Sibinia inermis (Casey)	10	1			11
Sibinia pallida (Schaeffer)	306	9	4		319
Sibinia setosa (LeConte)	5	14		1	20
Smicronyx sp. 1		1			1
Smicronyx sp. 2	1				1
Smicronyx sp. 3				1	1
Smicronyx sp. 6	2				2
Stenopelmus rufinasus Gyllenhal				1	1
Thysanoes texanus Blackman		2	1	3	6
Trischidias sp. 1		1			1
Xyleborus affinis Eichhoff				1	1
Xyleborus ferrugineus (Fabricius)		3			3
Yuccaborus frontalis (LeConte)				1	1
Dermestidae		58	1		59
Apsectus sp.		9			9
Cryptorhopalum obesulum Casey		1			1
Cryptorhopalum reversum Casey		1			1
Cryptorhopalum triste LeConte		1	1		2
Novelsis aequalis (Sharp)		24			24
Trogoderma primum (Jayne)		9			9
Trogoderma sp.		13			13
Dryopidae				160	160
Pelonomus obscurus LeConte				160	160
Dytiscidae		3		712	715
Celina sp.				3	3
Copelatus sp. 2 (big)				29	29
Copelatus sp. 1 (small)		2		347	349

Family Species	Beating	Lindgren funnel trap	Pitfall trap	UV light	Totals
Desmopachria dispersa (Crotch)				3	3
Desmopachria sp.				1	1
Hydaticus bimarginatus (Say)				19	19
Hydrovatus Horn*ii* Crotch				3	3
Hygrotus nubilus (LeConte)				1	1
Laccophilus proximus Say				36	36
Laccophilus quadrilineatus quadrilineatus Horn				16	16
Neobidessus sp. 1				11	11
Pachydrus sp.				64	64
Thermonectus basillaris (Harris)		1		169	170
Uvarus sp.				10	10
Elateridae		33	2	265	300
Aeolus sp. 1		1		31	32
Aeolus sp. 2				11	11
Aeolus subornatus (Schaeffer)				1	1
Agrypnus rectangularis (Say)				1	1
Anchastus bicolor LeConte				1	1
Anchastus rufus Candèze		1		3	4
Anchastus uniquus Knull		1		43	44
Conoderus aversus (LeConte)		2		5	7
Deilelater physoderus (Germar)		6		13	19
Dipropus sp. 1		1		9	10
Esthesopus sp. 1		1		2	3
Glyphonyx sp./spp.		1		63	64
Heteroderes amplicollis (Gyllenhal)				2	2
Horistonotus simplex LeConte				24	24
Megapenthes nigriceps Schaeffer		8		11	19
Melanotus lanceatus Quate		4		11	15
Melanotus opacicollis LeConte				1	1
Mulsanteus texanus (LeConte)		7	1	29	37
Mulsant*eus variatus* (Schaeffer)				2	2
Pherhimius fascicularis (Fabricius)				1	1
Physorhinus sp. 1				1	1
Scaptolenus sp.			1		1
Eucnemidae		1		12	13
Dromaeolus teres (Horn)		1		12	13
Geotrupidae				1	1
Bolbelasmus minor (Linell)				1	1
Haliplidae		3		52	55
Haliplus lewisii Crotch				20	20
Haliplus tumidus LeConte		3		32	35
Heteroceridae		2		15448	15450
Heterocerus spp. -group 1 (small)				3	3

Family Species	Beating	Lindgren funnel trap	Pitfall trap	UV light	Totals
Heterocerus spp. -group 2 (big)		2		439	441
Tropicus pusillus (Say)				15006	15006
Histeridae		3	1		4
Teretrius orbus Lewis		2			2
Xerosaprinus sp. 1		1	1		2
Hybosoridae				1	1
Hybosorus illigeri Reiche				1	1
Hydraenidae		9		3	12
Gymnochthebius sp. 1		4			4
Hydraena sp./spp.		1			1
Ochthebius sp./spp.		4		3	7
Hydrophilidae		5	3	5521	5529
Berosus exiguus (Say)				1911	1911
Berosus infuscatus LeConte				855	855
Berosus metalliceps Sharp				1324	1324
Cercyon praetextatus (Say)				10	10
Cercyon quisquilius (Linnaeus)				2	2
Enochrus sp. 3 (big)				76	76
Enochrus sp. 2 (*medium*)				313	313
Enochrus sp. 1 (small)		1		96	97
Helobata striata (Brullé)				1	1
Hydrophilus insularis Laporte				1	1
Paracymus sp./spp.		1		63	64
Pelosoma praecursor Smetana		2	2		4
Tropisternus collaris (Fabricius)				15	15
Tropisternus lateralis nimbatus (Say)				20	20
Tropisternus sp. 1		1			1
Tropisternus sp. 2			1	824	825
Tropisternus sp. 3				10	10
Laemophloeidae	3	34	1	8	46
Lathropus robustulus Casey	3	15			18
Metaxyphloeus texanus (Schaeffer)		19		8	27
Placonotus sp.			1		1
Lampyridae			1	6	7
Photinus sp. 2				1	1
Photinus sp./spp. 1			1	3	4
Pleotomus sp.				2	2
Languriidae		6	1	5	12
Cryptophilus integer (Heer)		1		2	3
Hapalips texanus Schaeffer		1		1	2
Toramus sp. EGR 1		4	1	2	7
Latridiidae	479	380	161	51	1071
Corticaria sp.		30	2		32

Family Species	Beating	Lindgren funnel trap	Pitfall trap	UV light	Totals
Melanophthalma (*Cortilena*) *picta* (LeConte)	2	3	1		6
Melanophthalma (*Cortilena*) *simplex* (LeConte)	42	24	29	2	97
Melanophthalma (*Melanophthalma*) sp./spp.	435	319	13	43	810
Metophthalmus rileyi Andrews		3	116		119
Migneauxia orientalis (Reitter)		1		6	7
Limnichidae		8		153	161
Physemus minutus LeConte				1	1
Throscinus politus Casey		2		19	21
Throscinus schwarzii Schaeffer		6		133	139
Melandryidae	13	3		3	19
Anisoxya sp.	2	2		3	7
Symphora sp.	11	1			12
Meloidae		6		17	23
Epicauta fortis Werner		5			5
Epicauta temexa Adams & Selander				6	6
Pseudozonitis labialis Enns				3	3
Pyrota insulata (LeConte)		1		5	6
Pyrota tenuicostatis (Dugès)				3	3
Melyridae	18	22	8	1	49
Ablechrus sp. 1	4		2		6
Attalus rufiventris Horn	2	6			8
Attalus scapularis Marshall	4				4
Chaetocoelus sp. /spp.		3			3
Listrus sp. 1	5	13	5	1	24
Listrus sp. 2	3		1		4
Monotomidae		2	3	1	6
Bactridium sp.		2	2	1	5
Europs fervidus Blatchley			1		1
Mordellidae	4	21	5	52	82
Falsomordellistena pubescens (Fabricius)			1		1
Mordellaria serval (Say)		9			9
Mordellina ancilla (LeConte)		6	1	1	8
Mordellina pustulata (Melsheimer)				1	1
Mordellina sp. 1	1	1		4	6
Mordellina sp. 2				14	14
Mordellina sp. 3		2	1	12	15
Mordellina sp. 6				1	1
Mordellistena sp. 12				1	1
Mordellistena sp. 3				1	1
Mordellistena sp. 5		1		1	2
Mordellistena sp. 6				11	11

Family Species	Beating	Lindgren funnel trap	Pitfall trap	UV light	Totals
Mordellistena sp. 8	2				2
Mordellistena trifasciata (Say)	1	1	2		4
Pseudotolida sp. / spp.		1		5	6
Mycetophagidae	1		7	1	9
Typhaea stercorea (Linnaeus)	1		7	1	9
Nitidulidae		34	231	14	279
Aethina tumida (Murray)		1		1	2
Carpophilus freemanni Dobson		2	1	1	4
Carpophilus mutilatus (Erichson)		5	1	2	8
Carpophilus sp. 2		2			2
Cybocephalus sp.		2			2
Epuraea luteolus Erichson				8	8
Lobiopa insularis (Laporte)		14	64	2	80
Stelidota coenosa Erichson		8	165		173
Noteridae				114	114
Hydrocanthus sp.				99	99
Notomicrus sp./spp.				7	7
Suphis inflatus (LeConte)				2	2
Suphisellus bicolor bicolor (Say)				4	4
Suphisellus lineatus (Horn)				2	2
Ochodaeidae				20	20
Parochodaeus biarmatus (LeConte)				20	20
Oedemeridae	1	12		13	26
Oxacis angustata Champion		2		5	7
Oxacis bernadettae Arnett		9		4	13
Oxacis pallida (LeConte)		1			1
Polypria cruxrufa Chevrolat	1			4	5
Passandridae		9		9	18
Taphroscelidia linearis (LeConte)		9		9	18
Phalacridae	38	5		11	54
Acylomus sp./spp.	32	1		1	34
Litochropus sp. 1		1			1
Litochrus pulchellus (LeConte)		1		4	5
Litochrus sp. 1	3	2		1	6
Phalacridae, undet. genus sp. 1	2			1	3
Stilbus sp. 1				2	2
Stilbus sp. 2				2	2
Xanthocomus rutilans (Casey)	1				1
Phengodidae				5	5
Cenophengus pallidus Schaeffer				4	4
Distremocephalus sp. EGR 1				1	1
Ptilodactylidae			1	1	2
Lachnodactyla texana Schaeffer			1	1	2
Rhipiphoridae	2			52	54

Family Species	Beating	Lindgren funnel trap	Pitfall trap	UV light	Totals
Trigonodera schaefferi Rivnay	2			52	54
Salpingidae			12	2	14
Dacoderus steineri Aalbu, Andrews & Pollock			12	2	14
Scarabaeidae		78	1919	1813	3810
Anomala insitiva Robinson				34	34
Ataeniopsis figurator (Harold)				117	117
Ataenius cognatus (LeConte)			3	1212	1215
Ataenius gracilis (Melsheimer)			1		1
Ataenius imbricatus (Melsheimer)				1	1
Ataenius inquisitus Horn		18	48	1	67
Ataenius platensis (Blanchard)				1	1
Ataenius setiger Bates		13	34	15	62
Ateuchus texanus (Robinson)		5	674	50	729
Auperia donominata (Chevrolat)				4	4
Blackburneus stercorosus (Melsheimer)				1	1
Canthon probus (Germar)			1		1
Canthon viridis (Palisot de Beauvois)			1043	1	1044
Diplotaxis curvaticeps Fall			5	60	65
Diplotaxis pubipes Schaeffer				5	5
Diplotaxis simplex Blanchard			2	49	51
Diplotaxis thoracica Fall		3	1	66	70
Diplotaxis truncatula LeConte				41	41
Gymnetis caseyi Antonie		7		3	10
Haroldiataenius convexus (Robinson)		11	91		102
Onthophagus gazella (Fabricius)				49	49
Onthophagus subtropicus Howden & Cartwright		3			3
Oscarinus welderi Gordon & Skelley		2		4	6
Phileurus valgus (Linnaeus)		14		2	16
Phyllophaga crinita (Burmeister)				49	49
Phyllophaga rubiginosa (LeConte)				7	7
Phyllophaga texensis Saylor				2	2
Phyllophaga vexata (Horn)			2	11	13
Platytomus longulus (Cartwright)				2	2
Pseudocanthon perplexus (LeConte)		2	14	26	42
Scirtidae	4	1		49	54
Cyphon sp. / spp.	1			1	2
Ora hyacintha Blatchley				8	8
Ora troberti (Guérin-Méneville)				40	40

Family Species	Beating	Lindgren funnel trap	Pitfall trap	UV light	Totals
Scirtes orbiculatus (Fabricius)	3	1			4
Scraptiidae	266	212	12	298	788
Allopoda sp. 1	38	86	3	104	231
Canifa sp. 1		3		2	5
Diclidia sp. 1	2	98	1	6	107
Naucles sp. 1	226	24	8	183	441
Scraptia sp. 1		1		3	4
Scydmaenidae			19		19
Euconnus sp./spp.			19		19
Silvanidae		7	108	20	135
Ahasverus rectus (LeConte)		7	107	19	133
Nausibius sp. EGR 1			1	1	2
Smicripidae		83	1820	11	1914
Smicrips texana (Casey)		83	1820	11	1914
Tenebrionidae	85	285	171	234	775
Armalia texanus (LeConte)	2	44	3	18	67
Blapstinus fortis LeConte				4	4
Blapstinus fuscus Casey		1		3	4
Blapstinus sp. (=*lobatus* Davis, ms. name)		1	11		12
Eleodes goryi Solier			81		81
Eleodes spinipes ventricosus LeConte			8		8
Eutochia crenata (LeConte)			1		1
Glyptotus cribratus LeConte		4			4
Gnatocerus sp. 1				2	2
Helops impolitus LeConte		1			1
Helops perforatus Horn	1		1		2
Hymenorus dubius Fall		15			15
Hymenorus occidentalis Champion		12		15	27
Hymenorus sp. 1 (large, dark *texensis*)		64		84	148
Hymenorus sp. 2 (small, reddish *texensis*)		1		12	13
Hymenorus sp. 3 (small, big eyes)		20		3	23
Hymenorus sp. 4 (small *occidentalis*)		12		4	16
Hypogena tricornis (Laporte)				1	1
Lobopoda punctulata (Melsheimer)		60		1	61
Lobopoda socia (LeConte)	1	28			29
Lystronichus piliferus Champion	2	5		4	11
Neomida bicornis (Fabricius)		1			1
Oenopion zopheroides (Horn)			1		1
Paratenetus punctatus Spinola	78	11	1	80	170
Platydema micans Zimmerman				1	1

Family Species	Beating	Lindgren funnel trap	Pitfall trap	UV light	Totals
Platydema nigratum (Motschoulsky)		2			2
Rhypasma sp.			2		2
Statira hirsuta Champion	1	2	1	2	6
Stenosides texanus (Wickham)			61		61
Strongylium hemistriatum TripleHorn & Spilman		1			1
Throscidae		1			1
Aulonothroscus sp. 2		1			1
Trogidae			1	15	16
Omorgus fuliginosus (Robinson)			1	5	6
Omorgus rubricans (Robinson)				7	7
Trox spinulosus Robinson				3	3
Trogossitidae		5		8	13
Corticotomus cylindricus (LeConte)		1			1
Temnochila acuta LeConte		2		6	8
Tenebroides nanus (Melsheimer)		2			2
Tenebroides semicylindricus (Horn)				2	2
Grand Total	2039	2182	4812	29857	38890

APPENDIX 8

Sabal Palm Grove species list by family, ranked alphabetically with collecting method

Family Species	Beating	Lindgren funnel trap	Pitfall trap	UV light	Total
Aderidae	46	21	3	51	121
Aderidae, undet. genus 1 sp. 1				1	1
Aderus tantillus (Champion)	6	1		16	23
Ariotus subtropicus Casey	5	1	1	4	11
Axylophilus sp. EGR 1	11	13	1		25
Cnopus impressus (LeConte)				8	8
Elonus basalis (LeConte)	8		1	9	18
Ganascus ventricosus (LeConte)	15	4		12	31
Zonantes nubifer (LeConte)	1	2		1	4
Anobiidae	44	42	8	26	120
Caenocara sp. 1	1				1
Calymmaderus nitidus (LeConte)				1	1
Cryptorama sp. 1 (confusum or near)	3	2		1	6
Cryptorama sp. 2 (punctatum or near)				1	1
Cryptorama sp. 3 (vorticale or near)				1	1
Lasioderma falli Pic	1				1
Niptinus unilineatus (Pic)	17	26	6		49
Petalium sp. / spp. 4		2		5	7
Petalium sp. 2	4	2		2	8
Ptinus hystrix Fall				1	1
Ptinus sp. 2	1				1
Ptinus sp. 4	3		1	1	5
Ptinus tumidus Fall	3		1	1	5
Stichtoptychus agonus Fall	1	7			8
Striatheca sp. 1		1		2	3
Trichodesma pulchella Schaeffer				2	2
Trichodesma texana Schaeffer	4				4
Tricorynus congruus (Fall)				6	6
Tricorynus fastigiatus (Fall)	6			1	7
Tricorynus lucidus White		1			1
Tricorynus punctatus (LeConte)				1	1
Tricorynus sp. 3		1			1
Anthicidae	103	8	3	17	131
Acanthinus clavicornis (Champion)	17		1		18
Acanthinus spinicollis (LaFerté-Sénectère)	85	8	2	6	101
Cyclodinus californicus (LaFerté-Sénectère)	1				1

Family Species	Beating	Lindgren funnel trap	Pitfall trap	UV light	Total
Rilettius sp.				9	9
Sapintus sp. 1				2	2
Anthribidae	372	44	13	4	433
Araeoderes texanus Schaeffer	9	1			10
Brachycorynus hirsutus Valentine			5		5
Discotenes nigrotuberculata (Schaeffer)	14				14
Eusphyrus eusphyroides (Schaeffer)	2				2
Goniocloeus bimaculatus (Olivier)	8	7	1		16
Ischnocerus infuscatus Fåhraeus				2	2
Neoxenus versicolor Valentine	323	10	4		337
Ormiscus irroratus (Schaeffer)		1			1
Ormiscus sp. EGR 10	1				1
Ormiscus sp. EGR 12	1				1
Phoenicobiella schwarzii (Schaeffer)	1	11	3	1	16
Toxonotus bipunctatus (Schaeffer)	1	8			9
Toxonotus penicellatus (Schaeffer)	11	6		1	18
Trigonorhinus alternatus (Say)	1				1
Bostrichidae	1	4		6	11
Amphicerus cornutus (Pallas)				2	2
Lichenophanes bicornis (Weber)				1	1
Melalgus plicatus (LeConte)		3		2	5
Micrapate dinoderoides (Horn)		1			1
Xylobiops texanus (Horn)	1				1
Xylomeira tridens (Fabricius)				1	1
Brentidae	10				10
Apion xanthoxyli Fall	1				1
Coelocephalapion buchanani (Kissinger)	8				8
Fallapion sp. 2	1				1
Buprestidae	1	1			2
Acmaeodera tubulus-neoneglecta Complex		1			1
Agrilus lecontei celticola Fisher	1				1
Cantharidae	1				1
Belotus bicolor Brancucci	1				1
Carabidae	5	17	118	169	309
Agra sp. 1			1	1	2
Apenes sp. EGR 1			16		16
Apenes sp. EGR 2			25	1	26
Apenes sp. EGR 4			1	3	4
Athrostictus punctatulus Putzeys			19		19
Axinopalpus sp. 1			2		2
Badister elegans LeConte				1	1

Family Species	Beating	Lindgren funnel trap	Pitfall trap	UV light	Total
Bembidion impotens Casey				19	19
Bembidion sp. 1				7	7
Bembidion sp. 2				1	1
Bembidion viridicolle (LaFerté-Sénectère)				10	10
Brachinus sp. 2				1	1
Calleida planulata LeConte	1	7			8
Calleida punctulata Chaudoir		5		1	6
Calosoma sayi Dejean			4		4
Chlaenius texanus G. Horn				1	1
Clivina bipustulata (Fabricius)			3		3
Dicaelus purpuratus purpuratus Bonelli			2		2
Dyschiriodes abbreviatus (Putzeys)				1	1
Dyschiriodes analis (LeConte)				4	4
Elaphropus sp. 1			1	16	17
Elaphropus sp. 3				1	1
Euproctinus abjetus (Bates)	1			1	2
Galerita aequinoctialis Chaudoir			26		26
Helluomorphoides sp./spp.				1	1
Hyboptera auxiliadora Erwin		1			1
Lebia esurialis Casey				1	1
Lebia grandis Hentz				2	2
Lebia rufopleura Schaeffer				8	8
Lebia sp. 1	1			1	2
Loxandrus sp. 1				1	1
Micratopus aenescens (LeConte)		1		32	33
Nemotarsus rhombifer Bates	2	3			5
Oxycrepis intercepta (Chaudoir)			18		18
Paratachys sp. 1				3	3
Paratachys sp. 2				4	4
Plochionus timidus Haldeman				1	1
Pogonodaptus mexicanus (Bates)				2	2
Selenophorus fatuus (LeConte)				1	1
Selenophorus sp. 1				3	3
Selenophorus sp. 2				6	6
Selenophorus sp. 3				10	10
Selenophorus sp. 4				1	1
Stenocrepis mexicana (Chevrolat)				1	1
Stenocrepis tibialis (Chevrolat)				1	1
Tachys pulchellus LaFerté-Sénectère				2	2
Tachys sp. 2				1	1
Tachys sp. 3				1	1

Family Species	Beating	Lindgren funnel trap	Pitfall trap	UV light	Total
Thalpius dorsalis (Brullé)				2	2
Thalpius horni (Chaudoir)				1	1
Zuphium mexicanum Chaudoir				14	14
Cerambycidae	18	21	4	21	64
Adetus sp. JEW 1				1	1
Anelaphus debilis (LeConte)		1			1
Anelaphus spurcus (LeConte)				2	2
Ataxia crypta (Say)		1			1
Cacostola salicicola (Linsley)	1				1
Desmiphora hirticollis (Olivier)	1				1
Eburia mutica LeConte	1			1	2
Eburia stigmatica (Chevrolat)				1	1
Ecyrus penicillatus (Bates)	1				1
Euderces reichei LeConte	1				1
Geropa concolor (LeConte)		1		3	4
Gnaphalodes trachyderoides Thomson				1	1
Leptostylus cretatellus Bates	1	3	1		5
Lepturges angulatus (LeConte)				1	1
Lochmaeocles cornuticeps cornuticeps (Schaeffer)				1	1
Lophalia cyanicollis (Dupont)		1			1
Neocompsa exclamationis (Thomson)		1			1
Neocompsa mexicana (Thomson)	2			2	4
Obrium glabrum Knull		4		4	8
Obrium maculatum (Olivier)		6		2	8
Obrium mozinnae Linell	1	1		1	3
Parmenonta wickhami Schaeffer			3		3
Pygmaeopsis viticola Schaeffer	1				1
Smodicum texanum Knull				1	1
Sternidius mimeticus (Casey)	6	2			8
Urgleptes celtis (Schaeffer)	2				2
Cerylonidae		1		2	3
Philothermus sp. 1		1		2	3
Chrysomelidae	132	8	3	11	154
Acanthoscelides macrophthalmus (Schaeffer)	1				1
Algarobius bottimeri Kingsolver	1				1
Baliosus sp. 1	1				1
Brucita marmorata (Jacoby)	14	1			15
Coptocycla texana (Schaeffer)	63	1	1	7	72
Cryptocephalus fulguratus J. L. LeConte	1				1
Derospidea ornata (Schaeffer)	1				1

Family Species	Beating	Lindgren funnel trap	Pitfall trap	UV light	Total
Diabrotica undecimpunctata howardi Barber				1	1
Hemisphaerota cyanea (Say)		1			1
Megascelis texana Linell	1				1
Merobruchus major (Fall)		1			1
Metaparia sp. EGR 1	12				12
Pachybrachis sp. 1	5				5
Pachybrachis sp. 2				1	1
Pentispa distincta (Baly)	13				13
Plagiodera thymaloides Stål	12	4			16
Rhabdopterus sp. EGR 1				1	1
Sennius guttifer (Sharp)	6				6
*Zenocolaspis subtro*Pic*a* (Schaeffer)	1		2	1	4
Ciidae	1	3	2	1	7
Ceracis sp. 3				1	1
Cis sp. 2	1	1			2
Hadraule sp. 1		1	2		3
Orthocis sp. 1		1			1
Cleridae	11	5		10	26
Ababa tantilla (LeConte)		1			1
Bogcia obliquefasciata (Schaeffer)				1	1
Cregya quadrinotata (Chevrolat)	4			2	6
Cregya sp. EGR 1				1	1
Cymatodera balteata LeConte	2				2
Hydnocerinae Genus undet., sp. EGR 1		2			2
Neorthopleura texana (Bland)				5	5
Pelonium maculicolle Schaeffer	1				1
Phyllobaenus varipunctatus Knull	4	2		1	7
Coccinellidae	11		3	3	17
Cephaloscymnus sp. 1	1				1
Chilocorus cacti (Linnaeus)	1				1
Cycloneda sanguinea sanguinea (Linnaeus)	1				1
Diomus debilis (LeConte)			1		1
Hyperaspis globula Casey			1		1
Nephus flavifrons (Melsheimer)	2				2
Nephus intrusus (Horn)				1	1
Psyllobora renifer Casey			1	1	2
Scymnus (*Scymnus*) sp. 4	1				1
Scymnus loewii Mulsant				1	1
Scymnus louisianae J. Chapin	2				2
Stethorus sp. 1	1				1
Zagloba hystrix Casey	2				2

Family Species	Beating	Lindgren funnel trap	Pitfall trap	UV light	Total
Colydiidae	4	2		20	26
Bitoma vittata Schaeffer	4	1		4	9
Microsicus parvulus (Guérin-Méneville)				8	8
Phloeonemus interruptus Reitter				7	7
Synchita fuliginosa Melsheimer		1		1	2
Corylophidae	412	147	33	10	602
Arthrolips sp. /spp.	12	123	6	3	144
Clypastraea lepida (LeConte)		1		6	7
Corylophidae Genus 1 sp. 1	399	12			411
Holopsis sp.	1			1	2
Orthoperus sp. EGR 1			1		1
Sericoderus sp. 1		11	26		37
Curculionidae	234	337	34	104	709
Acamptus texanus (Sleeper)	2				2
Anthonomus leucostictus Dietz				1	1
Anthonomus schwarzi Clark & Burke	2				2
Anthonomus unipustulatus (Champion)	18				18
Apinocis deplanata (Casey)		1			1
Catapastinus Casey*i* Champion	1				1
Catapastus squamirostris Casey	1				1
Chalcodermus semicostatus Schaeffer	2	2			4
Chramesus mimosae Blackman	1				1
Compsus auricephalus (Say)	8	3			11
Conotrachelus cameronensis Sleeper	1				1
Cophes Fall*ax* (LeConte)			5		5
Cophes texanus Sleeper				1	1
Cossoninae, undet. genus sp.	7	5	1		13
Cryptocarenus seriatus Eggers		2			2
*E*Pic*aerus mexicanus* Boheman	12		2		14
Hylocurus parkinsoniae Blackman		20	2		22
Hypothenemus brunneus (Hopkins)		32	1		33
Hypothenemus californicus Hopkins			1		1
Hypothenemus erectus LeConte		29			29
Hypothenemus eruditus Westwood		91	8	4	103
Hypothenemus interstitialis (Hopkins)		11			11
Hypothenemus pubescens Hopkins			1		1
Hypothenemus rotundicollis (Eichhoff)		1			1
Hypothenemus seriatus (Eichhoff)	2	46	6		54

Family Species	Beating	Lindgren funnel trap	Pitfall trap	UV light	Total
Hypothenemus squamosus (Hopkins)	4	24	2		30
Lechriops oculata (Say)	26	4			30
Lissorhoptrus sp.				1	1
Madarellus sp. / spp.		2			2
Micracisella opacithorax (Schedl)		2			2
Myrmex dichrous (LeConte)	2	3	1		6
Myrmex texanus (Schaeffer)	2				2
Notolomus sp. 1		1		5	6
Plocetes versicolor (Champion)	9				9
Polydacrys depressifrons (Boheman)	59	6	2	1	68
Pseudopentarthrum sp. 1	3				3
Pseudopentarthrum sp. 2	70		2		72
Pseudothysanoes acaciae (Blackman)		1			1
Sibinia inermis (Casey)	2				2
Thysanoes texanus Blackman		1		3	4
Tomolips quercicola (Boheman)		9			9
Xyleborus affinis Eichhoff		3		48	51
Xyleborus ferrugineus (Fabricius)		37		40	77
Xyleborus spinulosus Blandford		1			1
Dermestidae	2	54	1		57
Apsectus sp.		7			7
Novelsis aequalis (Sharp)	1	17			18
Trogoderma primum (Jayne)	1	25			26
Trogoderma sp.		5	1		6
Dryopidae				1	1
Pelonomus obscurus LeConte				1	1
Dytiscidae		1		100	101
Bidessonotus sp. 1				1	1
Celina sp.				1	1
Copelatus sp. 2 (big)				31	31
Copelatus sp. 1 (small)				8	8
Desmopachria dispersa (Crotch)				3	3
Desmopachria sp.				7	7
Hydaticus bimarginatus (Say)				1	1
Laccophilus proximus Say				22	22
Laccophilus quadrilineatus quadrilineatus Horn				5	5
Neobidessus sp. 1				8	8
Neoclypeodytes sp.		1		2	3
Pachydrus sp.				2	2
Thermonectus basillaris (Harris)				4	4
Uvarus sp.				5	5

Family Species	Beating	Lindgren funnel trap	Pitfall trap	UV light	Total
Elateridae	23	68	36	323	450
Agrypnus rectangularis (Say)			1	1	2
Anchastus bicolor LeConte				4	4
Anchastus rufus Candèze				12	12
Conoderus aversus (LeConte)	17	14	25	40	96
Dipropus sp. 1		1		40	41
Drapetes niger Bonvouloir		1			1
Esthesopus sp. 1		5		26	31
Glyphonyx bimarginatus Schaeffer				1	1
Glyphonyx sp./spp.				4	4
Horistonotus simplex LeConte	4	15	3	34	56
Horistonotus uhleri Horn	1	1		2	4
Megapenthes nigriceps Schaeffer		1	1	28	30
Melanotus lanceatus Quate			1	9	10
Mulsant*eus texanus* (LeConte)	1	30	5	117	153
Mulsant*eus variatus* (Schaeffer)				4	4
Pherhimius fascicularis (Fabricius)				1	1
Elmidae				1	1
Hexacylloepus sp.				1	1
Endomychidae		15	1	13	29
Epipocus cinctus LeConte		12		9	21
Epipocus punctatus LeConte		2	1	4	7
Holoparamecus sp.		1			1
Eucnemidae		1		9	10
Arrhipis sp. 1		1		2	3
Dromaeolus teres (Horn)				6	6
Nematodes atropos (Say)				1	1
Haliplidae				39	39
Haliplus lewisii Crotch				4	4
Haliplus tumidus LeConte				35	35
Heteroceridae		2		330	332
Heterocerus spp. -group 1 (small)		1		22	23
Heterocerus spp. -group 2 (big)				39	39
Tropicus pusillus (Say)		1		269	270
Histeridae	1	4	12	2	19
Carcinops sp. 1		1			1
Epierus antillarum Marseul		1		1	2
Euspilotus auctus (Schmidt)		1	8		9
Hetaeriine, genus 5 sp. 1				1	1
Hololepta minuta (Erichson)		1	1		2
Pinaxister sp. EGR 1			3		3
Teretriosoma conigerum Lewis	1				1
Hybosoridae				14	14
Germarostes aphodioides (Illiger)				14	14

Family Species	Beating	Lindgren funnel trap	Pitfall trap	UV light	Total
Hydraenidae		1			1
Ochthebius sp./spp.		1			1
Hydrophilidae		1	3	1911	1915
Berosus aculeatus / peregrinus				1	1
Berosus exiguus (Say)		1	1	1349	1351
Berosus infuscatus LeConte				492	492
Berosus pugnax LeConte				1	1
Derallus altus (LeConte)				2	2
Enochrus sp. 3 (big)				8	8
Enochrus sp. 2 (*medium*)				5	5
Enochrus sp. 1 (small)				2	2
Helobata striata (Brullé)				1	1
Paracymus sp./spp.				12	12
Pelosoma praecursor Smetana			2		2
Tropisternus collaris (Fabricius)				5	5
Tropisternus lateralis nimbatus (Say)				3	3
Tropisternus sp. 2				16	16
Tropisternus sp. 3				14	14
Laemophloeidae		1	2	18	21
Cryptolestes unicornis (Reitter)				3	3
Laemophloeus terminalis Casey		1		1	2
Lathropus robustulus Casey				1	1
Metaxyphloeus texanus (Schaeffer)			2	11	13
Rhabdophloeus horni (Casey)				2	2
Lampyridae	2			12	14
Photinus sp. 3				1	1
Photinus sp./spp. 1				5	5
Photuris sp. EGR 1	2			6	8
Languriidae	123	12	1	5	141
Dasydactylus cnici Schaeffer	52	9			61
Loberus ornatus Schaeffer	66			2	68
Toramus chamaeropis (Schaeffer)	5	3		1	9
Toramus sp. EGR 1			1	2	3
Latridiidae	72	43	92	6	213
Melanophthalma (*Cortilena*) *picta* (LeConte)	1				1
Melanophthalma (*Cortilena*) *simplex* (LeConte)		1			1
Melanophthalma (*Melanophthalma*) sp./spp.	71	40	4	6	121
Metophthalmus rileyi Andrews		2	88		90
Leiodidae			1		1
Liocyrtusa sp.			1		1
Limnichidae				13	13

Family Species	Beating	Lindgren funnel trap	Pitfall trap	UV light	Total
Physemus minutus LeConte				10	10
Throscinus schwarzii Schaeffer				3	3
Melandryidae	2				2
Symphora sp.	2				2
Meloidae			1	6	7
Pyrota tenuicostatis (Dugès)			1	6	7
Melyridae	12	16	2		30
Chaetocoelus sp. /spp.	2				2
Hypebaeus sp. 1	10	7			17
Melyrodes basalis (LeConte)		9	2		11
Monotomidae		15	16	6	37
Bactridium sp.				1	1
Europs fervidus Blatchley		14	16	5	35
Hesperobaenus constricticollis Bousquet		1			1
Mordellidae	9	17	2	4	32
Falsomordellistena pubescens (Fabricius)			1		1
Mordellaria serval (Say)		4	1		5
Mordellina ancilla (LeConte)		2			2
Mordellina sp. 1				1	1
Mordellina sp. 6	1	6		2	9
Mordellistena sp. 3	1				1
Mordellistena sp. 4	1				1
Mordellistena sp. 6				1	1
Mordellistena sp. 8		1			1
Mordellistena trifasciata (Say)	4	1			5
Paramordellaria carinata (Smith)	2				2
Pseudotolida sp. / spp.		3			3
Mycetophagidae	8	9	1	2	20
Berginus nigricolor Champion	8	5			13
Litargus balteatus LeConte		4	1	2	7
Nitidulidae	2	9	326	9	346
Amphicrossus ciliatus (Olivier)		1		5	6
Camptodes texanus Schaeffer		2			2
Carpophilus freemanni Dobson			3		3
Carpophilus mutilatus (Erichson)		3			3
Lobiopa insularis (Laporte)		1	1		2
Stelidota coenosa Erichson	2	2	320	4	328
Stelidota geminata (Say)			2		2
Noteridae				27	27
Hydrocanthus sp.				3	3
Notomicrus sp./spp.				20	20
Suphisellus bicolor bicolor (Say)				1	1

Family Species	Beating	Lindgren funnel trap	Pitfall trap	UV light	Total
Suphisellus lineatus (Horn)				3	3
Ochodaeidae				4	4
Parochodaeus biarmatus (LeConte)				4	4
Oedemeridae				1	1
Oxacis trirossi Arnett				1	1
Passandridae				4	4
Taphroscelidia linearis (LeConte)				4	4
Phalacridae	35	8		8	51
Acylomus sp./spp.	31	1		2	34
Litochropus sp. 1		4		6	10
Litochrus sp. 1	4	2			6
Stilbus sp. 1		1			1
Phengodidae		2		23	25
Cenophengus pallidus Schaeffer				23	23
Phengodes sp. 1		2			2
Ptilodactylidae		3		2	5
Lachnodactyla texana Schaeffer		3		2	5
Salpingidae		1	94		95
Dacoderus steineri Aalbu, Andrews & Pollock		1	94		95
Scarabaeidae		27	11426	1081	12534
Anomala flavipennis luteipennis LeConte				2	2
Anomala foraminosa Bates				7	7
Anomala insitiva Robinson				2	2
Ataenius cognatus (LeConte)			1	4	5
Ataenius inquisitus Horn			54	6	60
Ataenius setiger Bates				4	4
Ateuchus texanus (Robinson)			3593	27	3620
Blackburneus stercorosus (Melsheimer)				1	1
Canthon cyanellus LeConte			1		1
Canthon viridis (Palisot de Beauvois)		1	7577		7578
Diplotaxis curvaticeps Fall			1		1
Diplotaxis pubipes Schaeffer				404	404
Diplotaxis simplex Blanchard			1	364	365
Diplotaxis thoracica Fall		1		138	139
Diplotaxis truncatula LeConte				2	2
Gymnetis caseyi Antonie		24	1		25
Haroldiellus sallei (Harold)				1	1
Onthophagus schaefferi Howden & Cartwright			61		61
Phileurus valgus (Linnaeus)		1	1		2
Phyllophaga crinita (Burmeister)				2	2

Family Species	Beating	Lindgren funnel trap	Pitfall trap	UV light	Total
Phyllophaga submucida (LeConte)				19	19
Phyllophaga texensis Saylor				1	1
Phyllophaga trichodes (Bates)				50	50
Phyllophaga vexata (Horn)			1	11	12
Pseudocanthon perplexus (LeConte)			134	35	169
Strategus aloeus (Linnaeus)				1	1
Scirtidae		1		27	28
Cyphon sp. / spp.				2	2
Ora hyacintha Blatchley		1		1	2
Ora sp. EGR 1				1	1
Ora troberti (Guérin-Méneville)				22	22
Scirtes orbiculatus (Fabricius)				1	1
Scraptiidae	71	18	3	88	180
Allopoda sp. 1	65	13	2	7	87
Diclidia sp. 1	4	2		68	74
Naucles sp. 1			1		1
Pentaria sp. 1	2	2		13	17
Scraptia sp. 1		1			1
Scydmaenidae			1		1
Euconnus sp./spp.			1		1
Silvanidae			1		1
Ahasverus rectus (LeConte)			1		1
Smicripidae		11	136	2	149
Smicrips texana (Casey)		11	136	2	149
Sphindidae				1	1
Sphindus sp./spp.				1	1
Tenebrionidae	18	148	213	166	545
Adelina bidens (Schaeffer)				2	2
Alphitobius laevigatus (Fabricius)		1			1
Anaedus texanus Linell			35	2	37
Armalia texanus (LeConte)			1		1
Blapstinus fuscus Casey			3	1	4
Blapstinus sp. (=*lobatus* Davis, ms. name)			75		75
Cymatothes tristis (Laporte)		1			1
Eleodes goryi Solier			17		17
Gnatocerus sp. 1				1	1
Helops perforatus Horn	2		3		5
Hymenorus dubius Fall		27		20	47
Hymenorus occidentalis Champion		6		3	9
Hymenorus sp. 1 (large, dark *texensis*)	2	7	3	91	103
Hymenorus sp. 2 (small, reddish *texensis*)		1		17	18

Family Species	Beating	Lindgren funnel trap	Pitfall trap	UV light	Total
Lobopoda punctulata (Melsheimer)	3	13		1	17
Lobopoda socia (LeConte)		14		1	15
Lystronichus piliferus Champion	8	33	5	12	58
Paratenetus punctatus Spinola		1		2	3
Platydema micans Zimmerman			70	1	71
Platydema nigratum (Motschoulsky)		1			1
Poecilocrypticus formicophilus Gebien		1			1
Statira hirsuta Champion		4		1	5
Strongylium hemistriatum TripleHorn & Spilman	3	38	1	11	53
Tetratomidae			1		1
Eustrophinus sp. EGR 1			1		1
Throscidae	1	9			10
Aulonothroscus nodifrons Blanchard	1	6			7
Aulonothroscus sp. 1		2			2
Aulonothroscus sp. 2		1			1
Trogidae		1	17	27	45
Omorgus fuliginosus (Robinson)			5	1	6
Trox sonorae LeConte			1	1	2
Trox spinulosus Robinson		1	11	25	37
Trogossitidae		4		11	15
Corticotomus cylindricus (LeConte)		3			3
Temnochila acuta LeConte				5	5
Tenebroides corticalis (Melsheimer)		1			1
Tenebroides nanus (Melsheimer)				2	2
Tenebroides semicylindricus (Horn)				4	4
Grand Total	1787	1163	12613	4751	20314

APPENDIX 9

McManus species list by family, ranked alphabetically with collecting method

Family Species	beating	Lindgren funnel trap	pit-fall trap	UV light	Total
Aderidae	1		1	6	8
Aderidae, undet. genus 1 sp. 1				1	1
Aderus tantillus (Champion)				3	3
Cnopus impressus (LeConte)				1	1
Elonus basalis (LeConte)	1		1	1	3
Anobiidae	132	217	32	268	649
Byrrhodes tristriatus (LeConte)		3			3
Caenocara sp. 2		2			2
Calymmaderus nitidus (LeConte)				1	1
Calymmaderus similis (Fall)		1		1	2
Cryptorama sp. 1 (*confusum* or near)	40	45	1	10	96
Cryptorama sp. 2 (*punctatum* or near)	21	31	1	5	58
Cryptorama sp. 4		11			11
Cryptorama sp. 3 (*vorticale* or near)	18	9	1	28	56
Niptinus ovipennis Fall			6		6
Niptinus unilineatus (Pic)	8	55	6		69
Petalium schwarzi Fall		2			2
Petalium sp. / spp. 4				1	1
Petalium sp. 1				4	4
Protheca hispida LeConte		1	1		2
Ptinus paulonotatus Pic			2		2
Ptinus sp. 2	7	2			9
Ptinus sp. 3			8		8
Ptinus tumidus Fall	8	1	3	3	15
Stegobium paniceum (Linnaeus)				1	1
Stichtoptychus agonus Fall		4		1	5
Striatheca sp. 1		11	3	3	17
Trichodesma pulchella Schaeffer	1			2	3
Trichodesma sordida Horn	3	6		2	11
Trichodesma texana Schaeffer	18	7			25
Tricorynus bifoveatus White	1	4		18	23
Tricorynus congruus (Fall)	5	14		68	87
Tricorynus fastigiatus (Fall)	2	3		101	106
Tricorynus similis (LeConte)				7	7
Tricorynus sp./spp.		3		8	11
Tricorynus sp. 1		2		2	4
Tricorynus sp. 3				1	1

Family Species	beating	Lindgren funnel trap	pit-fall trap	UV light	Total
Tricorynus texanus White				1	1
Anthicidae	5	46		61	112
Acanthinus scitulus (LeConte)				1	1
Anthicus sp. 1				1	1
Rilettius sp.	5	46		55	106
Vacusus vicinus (LaFerté-Sénectère)				4	4
Anthribidae	15	33	15		63
Brachycorynus hirsutus Valentine			13		13
Euparius marmoreus (Olivier)		3			3
Eusphyrus eusphyroides (Schaeffer)		1			1
Eusphyrus rectus Schaeffer	5	17	1		23
Ormiscus sp. EGR 10	1				1
Ormiscus sp. EGR 12	6	1			7
Toxonotus bipunctatus (Schaeffer)	3	5			8
Toxonotus cornutus (Say)		2			2
Toxonotus penicellatus (Schaeffer)		4			4
Trigonorhinus alternatus (Say)			1		1
Bostrichidae	7	19	3	38	67
Amphicerus cornutus (Pallas)	6	12	2	5	25
Dendrobiella sericans (LeConte)				11	11
Melalgus plicatus (LeConte)		4		3	7
Micrapate dinoderoides (Horn)	1				1
Xylobiops basilaris (Say)				3	3
Xylobiops texanus (Horn)				4	4
Xylomeira tridens (Fabricius)		3	1	12	16
Bothrideridae	1			4	5
Bothrideres geminatus (Say)				2	2
Bothrideres sp. 1	1			2	3
Buprestidae	1	11			12
Acmaeodera tubulus-neoneglecta Complex		7			7
Agrilus prosopidis Fisher	1	1			2
Chrysobothris acutipennis Chevrolat		3			3
Cantharidae	4	11		3	18
Belotus bicolor Brancucci	3	11		3	17
Chauliognathus marginatus (Fabricius)	1				1
Carabidae	13	58	178	228	477
Apenes sinuatus (Say)			1	1	2
Apenes sp. EGR 1			36	1	37
Apenes sp. EGR 2			56		56
Apenes sp. EGR 4			2	4	6

Family Species	beating	Lindgren funnel trap	pit-fall trap	UV light	Total
Aspidoglossa subangulata (Chaudoir)				2	2
Athrostictus punctatulus Putzeys			1	6	7
Axinopalpus sp. 1			6		6
Bembidion impotens Casey				9	9
Bembidion sp. 1				3	3
Bembidion sp. 3				1	1
Brachinus geniculatus Dejean			1		1
Bradycellus sp. 1				1	1
Calleida decora (Fabricius)	2				2
Calleida fimbriata Bates				1	1
Calleida punctulata Chaudoir	1	4			5
Calosoma marginale Casey			1		1
Calosoma sayi Dejean			2		2
Calybe sallei (Chevrolat)				1	1
Chlaenius texanus G. Horn				1	1
Clivina bipustulata (Fabricius)	2		38	1	41
Clivina dentipes Dejean				1	1
Clivina sp. 2				1	1
Cymindis platicollis (Say)		6	3		9
Discoderus sp. 1				1	1
Dyschiriodes analis (LeConte)				1	1
Elaphropus sp. 1				26	26
Elaphropus sp. 5			2		2
Helluomorphoides papago (Casey)			7	1	8
Helluomorphoides sp./spp.			4		4
Lebia analis Dejean	4			2	6
Lebia calliope Bates				2	2
Lebia grandis Hentz		38		9	47
Loxandrus sculptilis Bates				5	5
Micratopus aenescens (LeConte)				9	9
Nemotarsus rhombifer Bates	4	1		1	6
Notiobia terminata (Say)				1	1
Oodinus alutaceus (Bates)				1	1
Oxycrepis intercepta (Chaudoir)			3		3
Paratachys austinicus Casey				3	3
Paratachys sp. 1				14	14
Paratachys sp. 2				8	8
Paratachys sp. 3				1	1
Poecilus sp.				1	1
Polyderis laevis (Say)		1			1
Pseudomorpha sp.				2	2
Selenophorus fatuus (LeConte)			3	22	25

Family Species	beating	Lindgren funnel trap	pit-fall trap	UV light	Total
Selenophorus sp. 1		7	4	25	36
Selenophorus sp. 2		1		6	7
Selenophorus sp. 3			4	16	20
Stenocrepis tibialis (Chevrolat)				1	1
Stenolophus dissimilis Dejean				2	2
Tachys pallidus Chaudoir				4	4
Tachys pulchellus LaFerté-Sénectère				8	8
Tachys sp. 2				1	1
Tachys sp. 5				18	18
Tetracha carolina carolina (Linnaeus)			3		3
Thalpius dorsalis (Brullé)				1	1
Zuphium americanum Dejean			1	1	2
Zuphium mexicanum Chaudoir				1	1
Cerambycidae	67	53	4	90	214
Achryson surinamum (Linnaeus)				1	1
Anelaphus debilis (LeConte)		6		3	9
Anelaphus moestus moestus (LeConte)				1	1
Anelaphus niveivestitus (Schaeffer)		1			1
Anelaphus spurcus (LeConte)		3		5	8
Ataxia crypta (Say)	1				1
Eburia ovicollis LeConte				2	2
Ecyrus arcuatus Gahan				1	1
Euderces reichei LeConte	1	1			2
Geropa concolor (LeConte)	2	11		35	48
Gnaphalodes trachyderoides Thomson		2		2	4
Heterachthes nobilis LeConte		1			1
Lepturges angulatus (LeConte)	1		1	1	3
Methia necydalea (Fabricius)				1	1
Neocompsa exclamationis (Thomson)		4		2	6
Neocompsa intricata Martins	2	2		1	5
Neocompsa mexicana (Thomson)	2	1		1	4
Obrium glabrum Knull		2			2
Obrium maculatum (Olivier)		5		1	6
Obrium mozinnae Linell	3	6		28	37
Oncideres cingulata texana Horn		1		5	6
Placosternus difficilis (Chevrolat)		2			2
Plionoma suturalis (LeConte)			1		1
Stenelytrana gigas (LeConte)		1			1
Stenosphenus lugens LeConte	4	3	2		9

Family Species	beating	Lindgren funnel trap	pit-fall trap	UV light	Total
Sternidius alpha (*texana* Casey form) (Say)	1				1
Sternidius mimeticus (Casey)	18	1			19
Urgleptes celtis (Schaeffer)	32				32
Chrysomelidae	23	38	10	21	92
Acalymma trivittatum (Mannerheim)		1			1
Acanthoscelides macrophthalmus (Schaeffer)	2				2
Acanthoscelides prosopoides (Schaeffer)		1			1
Algarobius bottimeri Kingsolver	1	4		4	9
Altica texana Schaeffer			1		1
Anomoea rufifrons mutabilis (Lacordaire)	1				1
Babia tetraspilota J. L. LeConte			1		1
Chaetocnema ectypa Horn			1		1
Chaetocnema sp. 1			1		1
Colaspis planicostata Blake		1		3	4
Diabrotica balteata J. L. LeConte				3	3
Diabrotica tibialis Jacoby	1				1
Disonycha glabrata (Fabricius)	8	2			10
Disonycha leptolineata Blatchley		1			1
Epitrix fasciata Blatchley		2			2
Epitrix hirtipennis (F. E. Melsheimer)	1	1	1	1	4
Glyptina sp. EGR 19		1	1		2
Glyptina sp. EGR 20		1			1
Griburius lecontii Crotch		9		2	11
Megacerus cubiculus (Casey)				1	1
Merobruchus major (Fall)	2	1		2	5
Mimosestes amicus (Horn)	4				4
Monoxia sordida (J. L. LeConte)			1		1
Neltumius texanus (Schaeffer)	1				1
Pachybrachis pusillus Bowditch				1	1
Pachybrachis sp. 2		2			2
Pachybrachis spumarius Suffrian	1	4			5
Phyllotreta sp.				1	1
Spintherophyta globosa (Olivier)		1			1
Stator beali Johnson	1	4	3	2	10
Stator limbatus (Horn)		1			1
Stator pruininus (Horn)				1	1
Stator subaeneus (Schaeffer)		1			1
Ciidae	2	3	2		7

Family Species	beating	Lindgren funnel trap	pit-fall trap	UV light	Total
Cis huachucae Dury		1			1
Cis sp. 2	2	1	1		4
Cis sp. 5			1		1
Hadraule sp. 1		1			1
Cleridae	16	28	4	17	65
Bogcia obliquefasciata (Schaeffer)				10	10
Cymatodera balteata LeConte	11	1	3		15
Cymatodera sirpata Horn				1	1
Cymatoderella collaris (Spinola)		13			13
Enoclerus quadrisignatus (Say)		1			1
LeConte*lla* sp. 1 (*brunnea?*)				1	1
Neorthopleura texana (Bland)	1			4	5
Pelonides granulatipennis (Schaeffer)			1		1
Pelonium maculicolle Schaeffer	2	6			8
Phyllobaenus varipunctatus Knull	2	7		1	10
Coccinellidae	13	8	3	5	29
Chilocorus cacti (Linnaeus)	4				4
Cycloneda sanguinea sanguinea (Linnaeus)				1	1
Diomus terminatus (Say)		1		2	3
Hyperaspis globula Casey			1		1
Microweisea sp.	6				6
Nephus flavifrons (Melsheimer)	1	1			2
Nephus intrusus (Horn)		1	1		2
Olla v-nigrum (Mulsant)		1			1
Psyllobora renifer Casey				2	2
Scymnus loewii Mulsant		2	1		3
Stethorus sp. 1		2			2
Zagloba hystrix Casey	2				2
Colydiidae		1		6	7
Bitoma sulcata (LeConte)				2	2
Microsicus parvulus (Guérin-Méneville)		1		1	2
Phloeonemus integer (Reitter)				3	3
Corylophidae		1		2	3
Clypastraea lepida (LeConte)				2	2
Sericoderus sp. 1		1			1
Curculionidae	84	132	36	41	293
Anthonomus albopilosus Dietz			1		1
Anthonomus schwarzi Clark & Burke		1			1
Aphrastus unicolor Horn	14		3		17
Apinocis deplanata (Casey)			1		1

Family Species	beating	Lindgren funnel trap	pit-fall trap	UV light	Total
Bagous dietzi Tanner				2	2
Centrinopus helvinus Casey			1		1
Colecerus marmoratus (Horn)			1		1
Compsus auricephalus (Say)	3	2			5
Conotrachelus belfragei LeConte	1	8			9
Conotrachelus floridanus Fall	13	12	1		26
Cophes Fall*ax* (LeConte)	2		5		7
Copturomorpha rileyi Hespenheide		17			17
Cossoninae, undet. genus sp.	21				21
*E*Pic*aerus lepidotis* Pierce	2				2
Episcirrus brachialis (LeConte)	6	16		1	23
Euplatypus parallelus (Fabricius)				2	2
Hylocurus parkinsoniae Blackman		12			12
Hypothenemus brunneus (Hopkins)		6			6
Hypothenemus californicus Hopkins			5		5
Hypothenemus erectus LeConte		3			3
Hypothenemus eruditus Westwood		5	1		6
Hypothenemus interstitialis (Hopkins)		2	2		4
Hypothenemus pubescens Hopkins		1			1
Hypothenemus rotundicollis (Eichhoff)	1				1
Hypothenemus seriatus (Eichhoff)		12	4		16
Hypothenemus squamosus (Hopkins)		3			3
Listronotus sp. 6				1	1
Madarellus sp. / spp.	1	4			5
Micracisella opacithorax (Schedl)	1			3	4
Molytinae, undet. genus sp. 1	1				1
Ophryastes sp. 1			1		1
Pandeleteius cinereus (Horn)	4		1		5
Pandeleteius longicollis Champion			1		1
Phloeotribus texanus Schaeffer			1	3	4
Pseudothysanoes acaciae (Blackman)		10		5	15
Sibinia errans (Casey)		1			1
Sibinia inermis (Casey)	8	2			10
Sibinia pallida (Schaeffer)	2				2
Sitophilus zeamais Motschulsky			6		6
Smicronyx albonotatus Anderson	3				3
Smicronyx sp. 1	1				1
Stenopelmus rufinasus Gyllenhal				2	2
Thysanoes texanus Blackman		12		7	19
Xyleborus affinis Eichhoff		1		14	15

Family Species	beating	Lindgren funnel trap	pit-fall trap	UV light	Total
Xyleborus ferrugineus (Fabricius)		2	1		3
Xyleborus horridus Eichhoff				1	1
Dermestidae		55			55
Apsectus sp.		1			1
Cryptorhopalum reversum Casey		5			5
Novelsis aequalis (Sharp)		40			40
Trogoderma primum (Jayne)		8			8
Trogoderma sp.		1			1
Dryopidae				15	15
Pelonomus obscurus LeConte				15	15
Dytiscidae		2		68	70
Anodocheilus sp.		1			1
Bidessonotus sp. 1				2	2
Celina sp.				5	5
Copelatus sp. 2 (big)				8	8
Copelatus sp. 1 (small)		1		10	11
Coptotomus sp.				1	1
Desmopachria dispersa (Crotch)				1	1
Desmopachria sp.				2	2
Laccophilus proximus Say				10	10
Laccophilus quadrilineatus quadrilineatus Horn				2	2
Neobidessus sp. 1				9	9
Pachydrus sp.				1	1
Thermonectus nigrofasciatus ornaticollis Aubé				2	2
Uvarus sp.				15	15
Elateridae	7	181	103	369	660
Agrypnus rectangularis (Say)			46		46
Anchastus bicolor LeConte				2	2
Anchastus rufus Candèze		2		16	18
Conoderus aversus (LeConte)		19	19	55	93
Conoderus vespertinus (Fabricius)	1				1
Deilelater physoderus (Germar)	1	2	1	3	7
Dipropus sp. 1				7	7
Esthesopus sp. 1		15	2	18	35
Glyphonyx sp./spp.		1		19	20
Horistonotus simplex LeConte	5	134	32	134	305
Horistonotus uhleri Horn				1	1
Megapenthes nigriceps Schaeffer		3		24	27
Mulsanteus texanus (LeConte)		5	3	90	98
Elmidae				9	9
Hexacylloepus sp.				1	1

Family Species	beating	Lindgren funnel trap	pit-fall trap	UV light	Total
Macrelmis texanus (Schaeffer)				1	1
Stenelmis occidentalis Schmude & Brown				7	7
Endomychidae		2	1	5	8
Epipocus cinctus LeConte		2	1	5	8
Eucnemidae		2		4	6
Dromaeolus teres (Horn)				4	4
Vitellius texanus Knull		2			2
Haliplidae				12	12
Haliplus lewisii Crotch				1	1
Haliplus tumidus LeConte				11	11
Heteroceridae				13866	13866
Heterocerus spp. -group 1 (small)				8	8
Heterocerus spp. -group 2 (big)				64	64
Tropicus pusillus (Say)				13794	13794
Histeridae	1		32		33
Euspilotus auctus (Schmidt)			23		23
Hister lagoi Caterino			1		1
Hister servus Erichson			6		6
Teretriosoma chalybaeum Horn	1				1
Xerosaprinus sp. 1			2		2
Hydraenidae		2		2	4
Hydraena sp./spp.		1		1	2
Ochthebius sp./spp.		1		1	2
Hydrophilidae			1	170	171
Berosus aculeatus / peregrinus				6	6
Berosus exiguus (Say)				56	56
Berosus infuscatus LeConte				46	46
Berosus metalliceps Sharp				5	5
Berosus miles LeConte				1	1
Enochrus sp. 3 (big)			1	3	4
Enochrus sp. 2 (medium)				35	35
Enochrus sp. 1 (small)				8	8
Paracymus sp./spp.				8	8
Tropisternus collaris (Fabricius)				1	1
Tropisternus sp. 3				1	1
Laemophloeidae	4	2		32	38
Laemophloeus terminalis Casey				1	1
Lathropus robustulus Casey		1			1
Metaxyphloeus texanus (Schaeffer)	4	1		31	36
Lampyridae	1		1		2
Photuris sp. EGR 1	1		1		2
Languriidae	12	8	4	22	46

Family Species	beating	Lindgren funnel trap	pit-fall trap	UV light	Total
Cryptophilus integer (Heer)		1		5	6
Hapalips texanus Schaeffer		1			1
Pharaxonotha kirschii (Reitter)			1		1
Toramus sp. EGR 1	12	6	3	17	38
Latridiidae	4	10	92	32	138
Corticarina cavicollis (Mannerheim)	1				1
Melanophthalma (*Cortilena*) *simplex* (LeConte)	1	4	1	4	10
Melanophthalma (*Melanophthalma*) sp./spp.	2	4	2	2	10
Metophthalmus rileyi Andrews		2	89	1	92
Migneauxia orientalis (Reitter)				25	25
Limnichidae				1	1
Throscinus schwarzii Schaeffer				1	1
Melyridae		2			2
Chaetocoelus sp. /spp.		1			1
Melyrodes basalis (LeConte)		1			1
Monotomidae		3	11		14
Europs fervidus Blatchley		3	1		4
Monotoma americana Aubé			10		10
Mordellidae	6	45	1	46	98
Mordellaria serval (Say)		3			3
Mordellina ancilla (LeConte)		6		3	9
Mordellina pustulata (Melsheimer)				1	1
Mordellina sp. 3		1		1	2
Mordellina sp. 5		1		2	3
Mordellistena sp. 1				2	2
Mordellistena sp. 13		1			1
Mordellistena sp. 5				1	1
Mordellistena sp. 6	4	11		29	44
Mordellistena trifasciata (Say)	1	11	1		13
Paramordellaria carinata (Smith)		1			1
Pseudotolida sp. / spp.	1	10		7	18
Mycetophagidae	5	176	32	47	260
Litargus balteatus LeConte	2	173	18	29	222
Typhaea stercorea (Linnaeus)	3	3	14	18	38
Nitidulidae	128	51	1498	41	1718
Aethina tumida (Murray)		2			2
Amphicrossus ciliatus (Olivier)		1	1	5	7
Carpophilus freemanni Dobson		11	83	15	109
Carpophilus mutilatus (Erichson)		10	18	12	40
Lobiopa insularis (Laporte)		6	67	2	75
Stelidota coenosa Erichson	127	20	1320	7	1474

Family Species	beating	Lindgren funnel trap	pit-fall trap	UV light	Total
Urophorus humeralis (Fabricius)	1	1	9		11
Noteridae				9	9
Notomicrus sp./spp.				8	8
Suphisellus lineatus (Horn)				1	1
Oedemeridae	1			19	20
Oxacis bernadettae Arnett				1	1
Oxacis sp. 1				1	1
Polypria cruxrufa Chevrolat	1			17	18
Passandridae				1	1
Taphroscelidia linearis (LeConte)				1	1
Phalacridae		1		3	4
Acylomus sp./spp.		1		3	4
Phengodidae		1			1
Phengodes sp. 1		1			1
Ptilodactylidae		1		3	4
Lachnodactyla texana Schaeffer		1		3	4
Salpingidae			8		8
Dacoderus steineri Aalbu, Andrews & Pollock			8		8
Scarabaeidae	43	27	1701	383	2154
Anomala flavipennis flavipennis Burmeister				12	12
Anomala flavipennis luteipennis LeConte			1	41	42
Anomala foraminosa Bates		5	5	80	90
Anomala insitiva Robinson				11	11
Ataenius cognatus (LeConte)				14	14
Ataenius inquisitus Horn	5		229	9	243
Ataenius picinus Harold				1	1
Ataenius platensis (Blanchard)				11	11
Ataenius setiger Bates			1	1	2
Ateuchus texanus (Robinson)	38	2	1081	52	1173
Blackburneus stercorosus (Melsheimer)				1	1
Canthon cyanellus LeConte			52		52
Canthon viridis (Palisot de Beauvois)			25		25
Coprophanaeus pluto (Harold)			3		3
Cyclocephala lurida Bland				1	1
Diplotaxis curvaticeps Fall			1	2	3
Diplotaxis thoracica Fall		1	4	64	69
Diplotaxis truncatula LeConte				44	44
Gymnetis caseyi Antonie		7			7
Martineziella dutertrei (Chalumeau)				1	1

Family Species	beating	Lindgren funnel trap	pit-fall trap	UV light	Total
Onthophagus schaefferi Howden & Cartwright			159		159
Onthophagus subtropicus Howden & Cartwright		2	7		9
Phileurus valgus (Linnaeus)		9		3	12
Phyllophaga crinita (Burmeister)			2	1	3
Phyllophaga reinhardi Saylor				1	1
Phyllophaga rubiginosa (LeConte)			1		1
Phyllophaga submucida (LeConte)			1	23	24
Pseudocanthon perplexus (LeConte)		1	129	9	139
Tetraclipeoides dentiger (LeConte)				1	1
Scirtidae		4		4	8
Cyphon sp. / spp.		2		3	5
Ora sp. EGR 1		1		1	2
Scirtes sp. EGR 1		1			1
Scraptiidae	16	52	3	59	130
Allopoda sp. 1	16	44	3	50	113
Canifa sp. 1		8		3	11
Diclidia sp. 1				1	1
Naucles sp. 1				1	1
Pentaria sp. 1				4	4
Scydmaenidae			5		5
Euconnus sp./spp.			5		5
Silvanidae	18	9	360	1	388
Ahasverus rectus (LeConte)	18	9	360	1	388
Smicripidae	28	90	1510	8	1636
Smicrips texana (Casey)	28	90	1510	8	1636
Tenebrionidae	7	56	1187	96	1346
Adelina bidens (Schaeffer)				1	1
Apsida belti Bates	3	2			5
Armalia texanus (LeConte)		2		7	9
Blapstinus fortis LeConte			4		4
Blapstinus fuscus Casey		8	30	6	44
Blapstinus sp. (=*lobatus* Davis, ms. name)			1008		1008
Bothrotes canaliculatus acutus (LeConte)	1				1
Eleodes spinipes ventricosus LeConte			1		1
Eutochia crenata (LeConte)			3		3
Hymenorus dubius Fall		7		12	19
Hymenorus occidentalis Champion		2		1	3
Hymenorus sp. 1 (large, dark	1	4	1	21	27

Family Species	beating	Lindgren funnel trap	pit-fall trap	UV light	Total
texensis)					
Hymenorus sp. 2 (small, reddish *texensis*)		1	1	23	25
Iccius cylindricus Champion		1			1
Lepidocnemeplatia sericea Horn			65	7	72
Lobopoda opacicollis Champion	1	1			2
Lobopoda punctulata (Melsheimer)		8		1	9
Lobopoda socia (LeConte)		12	2		14
Lystronichus piliferus Champion		4		3	7
Opatrinus aciculatus LeConte			1		1
Paratenetus punctatus Spinola		1		4	5
Platydema micans Zimmerman	1	1	69	8	79
Poecilocrypticus formicophilus Gebien			1		1
Statira hirsuta Champion		1	1		2
Strongylium hemistriatum TripleHorn & Spilman		1		2	3
Tetratomidae		1			1
Eustrophinus bicolor (Fabricius)		1			1
Throscidae		2			2
Aulonothroscus sp. 1		1			1
Aulonothroscus sp. 3		1			1
Trogidae	2		48	10	60
Omorgus fuliginosus (Robinson)	1		14	1	16
Omorgus rubricans (Robinson)	1		3		4
Trox spinulosus Robinson			31	9	40
Trogossitidae		13		5	18
Airora cylindrica (Audinet-Serville)		10		1	11
Corticotomus cylindricus (LeConte)		2			2
Euschaefferia hicoriae (Schaeffer)		1			1
Temnochila acuta LeConte				4	4
Grand Total	667	1457	6886	16132	25142

APPENDIX 10

La Coma 1 species list by family, ranked alphabetically with collecting method

Family Species	Beating	Lindgren funnel trap	Pitfall trap	UV light	Total
Aderidae		2		3	5
Cnopus impressus (LeConte)		1			1
Elonus basalis (LeConte)				3	3
Zonantes sp. EGR 1		1			1
Anobiidae	21	45	16	28	110
Byrrhodes tristriatus (LeConte)		5			5
Cryptorama sp. 1 (*confusum* or near)	6	18			24
Cryptorama sp. 2 (*punctatum* or near)		1	1		2
Niptinus unilineatus (Pic)		5			5
Petalium sp. / spp. 4				1	1
Ptinus sp. 2	2	1		2	5
Ptinus sp. 3			11		11
Ptinus tumidus Fall	9		4		13
Striatheca sp. 1		7			7
Tricorynus bifoveatus White	2	2		5	9
Tricorynus congruus (Fall)	1	2		15	18
Tricorynus fastigiatus (Fall)				1	1
Tricorynus punctatus (LeConte)				2	2
Tricorynus similis (LeConte)				1	1
Tricorynus sp./spp.		3		1	4
Tricorynus sp. 3		1			1
Tricorynus texanus White	1				1
Anthicidae	17	4		17	38
Ischyropalpus occidentalis (Champion)	17	4		6	27
Rilettius sp.				2	2
Sapintus sp. 1				4	4
Vacusus vicinus (LaFerté-Sénectère)				5	5
Anthribidae	22	23	3	1	49
Brachycorynus hirsutus Valentine			2		2
Discotenes nigrotuberculata (Schaeffer)	8	3	1		12
Eusphyrus eusphyroides (Schaeffer)	2	8			10
Eusphyrus rectus Schaeffer		6			6
Eusphyrus sp. 2	1	1			2
Ischnocerus infuscatus Fåhraeus	1	2		1	4

Family Species	Beating	Lindgren funnel trap	Pitfall trap	UV light	Total
Ormiscus irroratus (Schaeffer)		2			2
Ormiscus sp. EGR 10	3				3
Ormiscus sp. EGR 12	1				1
Ormiscus sp. EGR 20		1			1
Ormiscus sp. EGR 8	2				2
Toxonotus bipunctatus (Schaeffer)	1				1
Toxonotus penicellatus (Schaeffer)	3				3
Bostrichidae	262	331	26	44	663
Amphicerus cornutus (Pallas)	1	48		13	62
Dendrobiella sericans (LeConte)		1	1	5	7
Lichenophanes bicornis (Weber)				7	7
Melalgus plicatus (LeConte)		2		5	7
Micrapate dinoderoides (Horn)	261	257	20		538
Trogoxylon aequale ((Wollaston)		2			2
Xylobiops parilis Lesne		2			2
Xylobiops texanus (Horn)				10	10
Xylomeira tridens (Fabricius)		19	5	4	28
Bothrideridae	4	12		11	27
Bothrideres geminatus (Say)		4		5	9
Bothrideres sp. 1	4	8		6	18
Brentidae	12	1		1	14
Apion fumitarse Fall	1				1
Apion subornatum Fall	2	1			3
Apion xanthoxyli Fall	8				8
Coelocephalapion buchanani (Kissinger)	1				1
Cylas formicarius (Fabricius)				1	1
Buprestidae	5	6	5	3	19
Acmaeodera tubulus-neoneglecta Complex		4	2		6
Agrilus acaciae Fisher				2	2
Agrilus macer LeConte	1				1
Agrilus prosopidis Fisher	3	1		1	5
Agrilus viridescens Knull	1				1
Chrysobothris acutipennis Chevrolat		1	2		3
Chrysobothris sp. 1			1		1
Cantharidae	5	3	1	2	11
Belotus bicolor Brancucci	4			1	5
Ditemnus freemani (Brown)	1	2	1	1	5
Tytthonyx ruficollis Schaeffer		1			1
Carabidae	13	75	278	303	669
Agra sp. 1		1			1
Apenes sinuatus (Say)			6	1	7

Family Species	Beating	Lindgren funnel trap	Pitfall trap	UV light	Total
Apenes sp. EGR 1			2	1	3
Apenes sp. EGR 2			9		9
Apenes sp. EGR 4			12	1	13
Aspidoglossa subangulata (Chaudoir)				1	1
Athrostictus punctatulus Putzeys			26	2	28
Axinopalpus sp. 1		4	28		32
Badister flavipes laticeps Blatchley				1	1
Bembidion impotens Casey				21	21
Bembidion sp. 1				11	11
Bembidion sp. 3				6	6
Brachinus geniculatus Dejean			9	2	11
Calleida punctulata Chaudoir	2	1			3
Calosoma marginale Casey			1		1
Calosoma sayi Dejean			5		5
Calybe sallei (Chevrolat)				11	11
Clivina bipustulata (Fabricius)			22		22
Clivina dentipes Dejean				1	1
Clivina sp. 2				5	5
Clivina sp. 5				1	1
Cymindis platicollis (Say)		5	1		6
Discoderus impotens (LeConte)				5	5
Dyschiriodes abbreviatus (Putzeys)				1	1
Dyschiriodes analis (LeConte)				4	4
Dyschiriodes sublaevis (Putzeys)				1	1
Elaphropus sp. 1		1		29	30
Elaphropus sp. 5	1	2	66		69
Euproctinus abjetus (Bates)	6				6
Helluomorphoides papago (Casey)			1	1	2
Helluomorphoides sp./spp.				2	2
Lebia analis Dejean	1			1	2
Lebia grandis Hentz		30	1	2	33
Lebia rufopleura Schaeffer	1	5			6
Loxandrus infimus Bates				1	1
Micratopus aenescens (LeConte)		1	2	6	9
Nemotarsus rhombifer Bates	2	14			16
Notiobia maculicornis (Chaudoir)				2	2
Notiobia terminata (Say)				1	1
Oxycrepis intercepta (Chaudoir)			6		6
Paratachys austinicus Casey				12	12
Paratachys sp. 1				18	18
Paratachys sp. 2				44	44
Pogonodaptus mexicanus (Bates)				1	1

Family Species	Beating	Lindgren funnel trap	Pitfall trap	UV light	Total
Scarites sp. 1			3		3
Selenophorus fatuus (LeConte)				13	13
Selenophorus palliatus (Fabricius)				1	1
Selenophorus sp. 1		3		3	6
Selenophorus sp. 2				13	13
Selenophorus sp. 3		7	62	17	86
Stenocrepis mexicana (Chevrolat)			2	1	3
Stenocrepis tibialis (Chevrolat)				1	1
Stenomorphus californicus rufipes LeConte		1	11	6	18
Tachys pulchellus LaFerté-Sénectère				3	3
Tachys sp. 5				32	32
Tachys sp. 6				2	2
Tetracha carolina carolina (Linnaeus)			2		2
Thalpius dorsalis (Brullé)			1	12	13
Thalpius horni (Chaudoir)				2	2
Zuphium mexicanum Chaudoir				1	1
Cerambycidae	65	148	6	95	314
Achryson surinamum (Linnaeus)		1	3	1	5
Anelaphus debilis (LeConte)		18	1	1	20
Anelaphus niveivestitus (Schaeffer)				1	1
Anelaphus spurcus (LeConte)		2		6	8
Ataxia crypta (Say)	4	2			6
Eburia mutica LeConte				2	2
Ecyrus arcuatus Gahan	1				1
Elaphidion linsleyi Knull		6		2	8
Euderces reichei LeConte	4				4
Geropa concolor (LeConte)	1	6		19	26
Gnaphalodes trachyderoides Thomson		8	1	3	12
Lepturges angulatus (LeConte)				1	1
Lepturges infilatus Bates	1	1		2	4
Lissonotus flavocinctus puncticollis Bates		1			1
Methia necydalea (Fabricius)				6	6
Neocompsa exclamationis (Thomson)	1				1
Neocompsa mexicana (Thomson)	5	4			9
Obrium maculatum (Olivier)	1	19	1	6	27
Oncideres pustulatus LeConte	3	3		10	16
Parmenonta wickhami Schaeffer	1				1
Placosternus difficilis (Chevrolat)		4			4

Family Species	Beating	Lindgren funnel trap	Pitfall trap	UV light	Total
Smodicum texanum Knull		4		18	22
Stenosphenus lugens LeConte		1			1
Sternidius alpha (Say)	2				2
Sternidius alpha (*texana* Casey form) (Say)	29	62		17	108
Sternidius mimeticus (Casey)	8				8
Trachyderes mandibularis (Audinet-Serville)		6			6
Urgleptes celtis (Schaeffer)	4				4
Chrysomelidae	134	49	6	13	202
Acanthoscelides macrophthalmus (Schaeffer)	6				6
Acanthoscelides prosopoides (Schaeffer)		1			1
Algarobius bottimeri Kingsolver	1	1			2
Anisostena gracilis (Horn)			2		2
Anomoea rufifrons mutabilis (Lacordaire)	7				7
Babia tetraspilota J. L. LeConte			1		1
Brachycoryna pumila Guérin-Méneville			1		1
Brachypnoea rotundicollis (Schaeffer)	1				1
Chaetocnema confinis Crotch	1				1
Chaetocnema ectypa Horn				1	1
Chaetocnema quadricollis Schwarz	5				5
Charidotella sexpunctata sexpunctata (Fabricius)	2				2
Colaspis planicostata Blake				2	2
Coptocycla texana (Schaeffer)	71			1	72
Cryptocephalus brunneovittatus Schaeffer	1				1
Cryptocephalus fulguratus J. L. LeConte	2				2
Cryptocephalus guttulatellus Schaeffer	7	6			13
Cryptocephalus trizonatus Suffrian				1	1
Diabrotica balteata J. L. LeConte				1	1
Diachus auratus (Fabricius)		1			1
Disonycha barberi Blake		18			18
Disonycha glabrata (Fabricius)		1	1		2
Glenidion flexicaulis (Schaeffer)				1	1
Longitarsus sp. 1				1	1
Longitarsus sp. 3			1	1	2
Merobruchus major (Fall)	5	3		1	9

Family Species	Beating	Lindgren funnel trap	Pitfall trap	UV light	Total
Mimosestes amicus (Horn)	5				5
Mimosestes nubigens (Motschulsky)	1	1			2
Miraces aeneipennis Jacoby	1				1
Monoxia sordida (J. L. LeConte)	1				1
Pachybrachis latithorax Clavareau	1	2			3
Pachybrachis sp. 2	2	1		1	4
Pachybrachis sp. 5	3	1			4
Pachybrachis texanus Bowditch		2		1	3
Physonota alutacea Boheman	3				3
Rhabdopterus weisei (Schaeffer)	1				1
Spintherophyta globosa (Olivier)	1				1
Stator beali Johnson		2			2
Stator limbatus (Horn)	1	2			3
Stator pruininus (Horn)	1				1
Stator sordidus (Horn)		1			1
Triachus sp. 1	2	6		1	9
Triachus sp. EGR 1	2				2
Ciidae		6			6
Ceracis sp. 1		3			3
Cis sp. 2		1			1
Hadraule sp. 1		2			2
Cleridae	13	28	5	14	60
Ababa tantilla (LeConte)		2			2
Cregya quadrinotata (Chevrolat)				1	1
Cymatodera balteata LeConte	7	3	3		13
Enoclerus quadrisignatus (Say)	1	9	1	4	15
Monophylla pallipes (Schaeffer)		1		1	2
Neorthopleura texana (Bland)		5		8	13
Pelonium maculicolle Schaeffer	2				2
Perilypus ornaticollis (LeConte)		1	1		2
Phyllobaenus varipunctatus Knull	3	7			10
Coccinellidae	38	6	23	9	76
Cephaloscymnus sp. 1	1				1
Chilocorus cacti (Linnaeus)	10				10
Cycloneda sanguinea sanguinea (Linnaeus)	2			1	3
Diomus terminatus (Say)				2	2
Harmonia axyridis (Pallas)	1				1
Nephus flavifrons (Melsheimer)	2				2
Nephus intrusus (Horn)		1	19		20
Olla v-nigrum (Mulsant)	1	2		5	8
Psyllobora renifer Casey	14	1	2	1	18
Scymnus loewii Mulsant	1	2	1		4

Family Species	Beating	Lindgren funnel trap	Pitfall trap	UV light	Total
Selvadius sp. 1	2		1		3
Zagloba hystrix Casey	4				4
Colydiidae		12		13	25
Bitoma sulcata (LeConte)				2	2
Microsicus parvulus (Guérin-Méneville)		12		8	20
Phloeonemus integer (Reitter)				2	2
Phloeonemus interruptus Reitter				1	1
Corylophidae	5	14	32	8	59
Arthrolips sp. /spp.	1	9	4		14
Clypastraea lepida (LeConte)		1		7	8
Clypastraea sp. 1		1		1	2
Corylophidae Genus 1 sp. 1	3				3
Holopsis sp.	1				1
Rypobius sp.		1	26		27
Sericoderus sp. 1		2	2		4
Curculionidae	135	193	26	36	390
Anthonomus leucostictus Dietz	2				2
Anthonomus schwarzi Clark & Burke	5				5
Anthonomus unipustulatus (Champion)	1				1
Anthonomus xanthoxyli Linell	7				7
Apinocis deplanata (Casey)	1				1
Bagous dietzi Tanner				1	1
Catapastus squamirostris Casey	2				2
Colecerus marmoratus (Horn)	83	11	3		97
Compsus auricephalus (Say)	4	1			5
Conotrachelus seniculus LeConte			1		1
Cophes fallax (LeConte)	1		4	1	6
Cophes texanus Sleeper	2				2
Cossoninae, undet. genus sp.		1			1
Euplatypus parallelus (Fabricius)				3	3
Hylocurus parkinsoniae Blackman		1		1	2
Hypothenemus brunneus (Hopkins)		15		1	16
Hypothenemus californicus Hopkins			6		6
Hypothenemus erectus LeConte		2			2
Hypothenemus eruditus Westwood		24			24
Hypothenemus interstitialis (Hopkins)		9			9
Hypothenemus pubescens Hopkins		4	2	1	7
Hypothenemus seriatus (Eichhoff)	1	61	6		68
Hypothenemus squamosus (Hopkins)	3	15			18

Family Species	Beating	Lindgren funnel trap	Pitfall trap	UV light	Total
Lechriops oculata (Say)	1				1
Lissorhoptrus sp.				1	1
Listronotus sp. 3				1	1
Madarellus sp. / spp.		1			1
Micracisella opacithorax (Schedl)		4			4
Phloeotribus texanus Schaeffer		1			1
Pseudothysanoes acaciae (Blackman)		3		1	4
Sibinia errans (Casey)	1				1
Sibinia inermis (Casey)	8			1	9
Sibinia pallida (Schaeffer)	6				6
Sibinia triseriata Clark	1				1
Sitophilus zeamais Motschulsky			4		4
Smicronyx albonotatus Anderson	3				3
Smicronyx sp. 1	3				3
Smicronyx sp. 6				1	1
Thysanoes texanus Blackman		17		11	28
Tomolips quercicola (Boheman)		2			2
Xyleborus affinis Eichhoff		1		5	6
Xyleborus ferrugineus (Fabricius)		3		1	4
Xyleborus horridus Eichhoff		1			1
Xyleborus similis Ferrari		16		6	22
Dermestidae		10			10
Cryptorhopalum reversum Casey		7			7
Novelsis aequalis (Sharp)		3			3
Dryopidae				45	45
Pelonomus obscurus LeConte				45	45
Dytiscidae		1	2	120	123
Bidessonotus sp. 1				2	2
Celina sp.				3	3
Copelatus sp. 2 (big)		1		11	12
Copelatus sp. 1 (small)				22	22
Desmopachria dispersa (Crotch)				1	1
Desmopachria sp.				3	3
Laccophilus fasciatus terminalis Sharp				1	1
Laccophilus proximus Say				9	9
Laccophilus quadrilineatus quadrilineatus Horn			2	2	4
Neobidessus sp. 1				50	50
Pachydrus sp.				1	1
Thermonectus basillaris (Harris)				2	2
Thermonectus nigrofasciatus ornaticollis Aubé				1	1

Family Species	Beating	Lindgren funnel trap	Pitfall trap	UV light	Total
Uvarus sp.				12	12
Elateridae	1	119	14	165	299
Aeolus trilineatus Candèze			1		1
Agrypnus rectangularis (Say)			9	1	10
Anchastus rufus Candèze		1		3	4
Conoderus aversus (LeConte)				9	9
Conoderus bellus (Say)				1	1
Conoderus browni Knull				6	6
Conoderus similis (Schaeffer)				6	6
Deilelater physoderus (Germar)		2		7	9
Dipropus sp. 1		1		29	30
Dipropus sp. 2				1	1
Esthesopus sp. 1		26	1	10	37
Glyphonyx bimarginatus Schaeffer		3			3
Glyphonyx mimeticus Horn				3	3
Glyphonyx sp./spp.		57		38	95
Heteroderes amplicollis (Gyllenhal)				1	1
Horistonotus simplex LeConte		10		12	22
Horistonotus uhleri Horn	1	1		2	4
Megapenthes nigriceps Schaeffer		1		2	3
Mulsant*eus texanus* (LeConte)		12	3	31	46
Paradonus sp. EGR 1				1	1
Pherhimius fascicularis (Fabricius)		5		2	7
Elmidae				7	7
Hexacylloepus sp.				1	1
Stenelmis occidentalis Schmude & Brown				6	6
Endomychidae		9		21	30
Epipocus cinctus LeConte		9		21	30
Eucnemidae				1	1
Dromaeolus teres (Horn)				1	1
Haliplidae				13	13
Haliplus lewisii Crotch				1	1
Haliplus tumidus LeConte				12	12
Heteroceridae		1		7964	7965
Heterocerus spp. -group 1 (small)		1		191	192
Heterocerus spp. -group 2 (big)				135	135
Tropicus pusillus (Say)				7638	7638
Histeridae	19	11	3		33
Euspilotus (*Neosaprinus*) sp.		1			1
Euspilotus auctus (Schmidt)			1		1
Geomysaprinus sp.			1		1
Hister servus Erichson			1		1

Family Species	Beating	Lindgren funnel trap	Pitfall trap	UV light	Total
Histerini, genus 1 sp.		1			1
Teretriosoma conigerum Lewis	18	5			23
Teretrius orbus Lewis	1	4			5
Hydraenidae				3	3
Ochthebius sp./spp.				3	3
Hydrophilidae		4	1	334	339
Berosus aculeatus / peregrinus				8	8
Berosus exiguus (Say)			1	52	53
Berosus infuscatus LeConte				112	112
Berosus miles LeConte				1	1
Berosus pugnax LeConte				2	2
Cercyon praetextatus (Say)				1	1
Derallus altus (LeConte)				11	11
Enochrus sp. 3 (big)				24	24
Enochrus sp. 2 (*medium*)				72	72
Enochrus sp. 1 (small)				16	16
Paracymus sp./spp.				21	21
Tropisternus collaris (Fabricius)				12	12
Tropisternus lateralis nimbatus (Say)				1	1
Tropisternus sp. 1		4			4
Tropisternus sp. 3				1	1
Laemophloeidae	1	4		16	21
Cryptolestes sp.				2	2
Cryptolestes unicornis (Reitter)				1	1
Lathropus robustulus Casey		3		1	4
Metaxyphloeus texanus (Schaeffer)	1			5	6
Placonotus sp.		1		1	2
Rhabdophloeus horni (Casey)				6	6
Lampyridae	6	7		16	29
Photinus sp./spp. 1	2			1	3
Photuris sp. EGR 1	1	3		6	10
Pyractomena sp.	3	4		9	16
Languriidae	6	12	12	25	55
Cryptophilus integer (Heer)		1	1	2	4
Hapalips texanus Schaeffer			1		1
Toramus sp. EGR 1	6	11	10	23	50
Latridiidae	82	54	70	15	221
Corticarina sp.			1		1
Melanophthalma (*Cortilena*) *simplex* (LeConte)	5	4	2	5	16
Melanophthalma (*Cortilena*) sp. 1		2	24		26
Melanophthalma (*Melanophthalma*) sp./spp.	77	39	4	3	123

Family Species	Beating	Lindgren funnel trap	Pitfall trap	UV light	Total
Metophthalmus rileyi Andrews		9	38		47
Migneauxia orientalis (Reitter)			1	7	8
Limnichidae				6	6
Eulimnichus ater (LeConte)				1	1
Physemus minutus LeConte				5	5
Melyridae		2	2		4
Attalus rufiventris Horn		1			1
Attalus sp. 3		1	1		2
Chaetocoelus sp. /spp.			1		1
Monommatidae				1	1
Hyporhagus sp. 1				1	1
Monotomidae		2	22	1	25
Bactridium sp.		2			2
Monotoma americana Aubé			22		22
Monotoma arida Casey				1	1
Mordellidae	6	23	3	17	49
Mordella sp. 2		1			1
Mordellaria serval (Say)		1			1
Mordellina ancilla (LeConte)	1	7		3	11
Mordellina sp. 3				1	1
Mordellina sp. 5	1	1			2
Mordellina sp. 6				1	1
Mordellistena sp. 2		1			1
Mordellistena sp. 5				3	3
Mordellistena trifasciata (Say)		5			5
Paramordellaria carinata (Smith)	4	1	3	2	10
Pseudotolida sp. / spp.		6		7	13
Mycetophagidae		20	14	5	39
Litargus balteatus LeConte		18	2	2	22
Litargus sexpunctatus (Say)				1	1
Typhaea stercorea (Linnaeus)		2	12	2	16
Nitidulidae	1	133	70	17	221
Aethina tumida (Murray)		2			2
Amphicrossus ciliatus (Olivier)		37	1	11	49
Camptodes texanus Schaeffer		1			1
Carpophilus freemanni Dobson	1	9	20		30
Carpophilus mutilatus (Erichson)		56	10	1	67
Conotelus sp. 1			1		1
Epuraea luteolus Erichson		1	2		3
Lobiopa insularis (Laporte)		6	4	2	12
Stelidota coenosa Erichson		18	28	2	48
Urophorus humeralis (Fabricius)		3	4	1	8
Noteridae				23	23

Family Species	Beating	Lindgren funnel trap	Pitfall trap	UV light	Total
Notomicrus sp./spp.				19	19
Suphisellus bicolor bicolor (Say)				1	1
Suphisellus lineatus (Horn)				3	3
Oedemeridae				8	8
Polypria cruxrufa Chevrolat				8	8
Passandridae	2	6		28	36
Catogenus rufus (Fabricius)		2		1	3
Taphroscelidia linearis (LeConte)	2	4		27	33
Phalacridae	57	15	10	12	94
Acylomus sp./spp.	53	9	2	3	67
Litochropus sp. 1		4	1	4	9
Litochrus sp. 1		1			1
Phalacrus sp.				1	1
Stilbus sp. 1	4	1	6	2	13
Xanthocomus concinnus (Casey)				1	1
Xanthocomus rutilans (Casey)			1	1	2
Ptilodactylidae		5		3	8
Lachnodactyla texana Schaeffer		5		3	8
Rhipiphoridae			2		2
Trigonodera schaefferi Rivnay			2		2
Scarabaeidae		46	70	297	413
Anomala flavipennis luteipennis LeConte				56	56
Anomala foraminosa Bates		5		9	14
Ataenius cognatus (LeConte)			15	84	99
Ataenius inquisitus Horn		2	41		43
Ataenius platensis (Blanchard)				9	9
Ataenius setiger Bates				5	5
Ataenius wenzelii Horn				1	1
Ateuchus texanus (Robinson)		1	9	20	30
Coprophanaeus pluto (Harold)		1	1		2
Diplotaxis curvaticeps Fall				6	6
Diplotaxis thoracica Fall		18	4	78	100
Diplotaxis truncatula LeConte				2	2
Euphoria sepulcralis nitens Casey		3			3
Gymnetis caseyi Antonie		9		1	10
Onthophagus gazella (Fabricius)		1		7	8
Onthophagus schaefferi Howden & Cartwright		1			1
*Onthophagus subtro*Pic*us* Howden & Cartwright		2			2
Phileurus valgus (Linnaeus)		2			2
Phyllophaga crinita (Burmeister)				9	9
Phyllophaga submucida (LeConte)				1	1

Family Species	Beating	Lindgren funnel trap	Pitfall trap	UV light	Total
Phyllophaga trichodes (Bates)				1	1
Phyllophaga vexata (Horn)				5	5
Pseudocanthon perplexus (LeConte)		1		3	4
Scirtidae	1	1		2	4
Cyphon sp. / spp.	1			2	3
Scirtes sp. EGR 1		1			1
Scraptiidae	2	26	3	19	50
Allopoda sp. 1		4	3	9	16
Diclidia sp. 1		12		6	18
Naucles sp. 1				1	1
Pentaria sp. 1	2	2		3	7
Scraptia sp. 1		8			8
Silvanidae		2	6	1	9
Ahasverus rectus (LeConte)		1	6	1	8
Cathartus quadricollis (Guérin-Méneville)		1			1
Smicripidae		44	28	4	76
Smicrips texana (Casey)		44	28	4	76
Tenebrionidae	36	73	107	48	264
Adelina bidens (Schaeffer)				6	6
Armalia texanus (LeConte)		1		1	2
Blapstinus fortis LeConte		1	17	1	19
Blapstinus fuscus Casey	1	5	8	8	22
Blapstinus sp. (=*lobatus* Davis, ms. name)			53		53
Bothrotes canaliculatus acutus (LeConte)	3				3
Gnatocerus sp. 1	1			4	5
Gonwanocrypticus platensis			1		1
Hymenorus dubius Fall		16	1	7	24
Hymenorus occidentalis Champion		1		1	2
Hymenorus sp. 1 (large, dark *texensis*)		2		2	4
Hymenorus sp. 2 (small, reddish *texensis*)				3	3
Lepidocnemeplatia sericea Horn			2		2
Lobopoda opacicollis Champion		1			1
Lobopoda punctulata (Melsheimer)		16			16
Lobopoda socia (LeConte)		16			16
Lystronichus piliferus Champion		3	1	1	5
Opatrinus aciculatus LeConte			23		23
Paratenetus punctatus Spinola	31	8	1	12	52
Platydema excavatum (Say)		1			1

Family Species	Beating	Lindgren funnel trap	Pitfall trap	UV light	Total
Statira hirsuta Champion		1			1
Strongylium hemistriatum TripleHorn & Spilman				2	2
Tribolium castaneum (Herbst)		1			1
Tetratomidae		1			1
Eustrophinus bicolor (Fabricius)		1			1
Throscidae		1			1
Aulonothroscus sp. 1		1			1
Trogidae			10	21	31
Omorgus fuliginosus (Robinson)			5	3	8
Omorgus rubricans (Robinson)				7	7
Trox spinulosus Robinson			5	11	16
Trogossitidae	1	18		13	32
Airora cylindrica (Audinet-Serville)		2		1	3
Corticotomus cylindricus (LeConte)		5			5
Temnochila acuta LeConte	1	11		10	22
Tenebroides nanus (Melsheimer)				2	2
Grand Total	972	1608	876	9872	13328

APPENDIX 11

La Coma 2 species list, ranked alphabetically with collecting method

Family Species	Beating	Lindgren funnel trap	Pitfall trap	UV light	Total
Aderidae	1	2		5	8
Elonus basalis (LeConte)				3	3
Cnopus impressus (LeConte)		2		1	3
Ganascus ventricosus (LeConte)	1				1
Aderus sp. EGR 1				1	1
Anobiidae	20	62		23	105
Cryptorama sp. 1 (confusum or near)	5	32		2	39
Tricorynus bifoveatus White		6		11	17
Ptinus sp. 2	12	2		2	16
Tricorynus sp./spp.		7			7
Tricorynus congruus (Fall)				5	5
Tricorynus texanus White	1	3			4
Cryptorama sp. 2 (*punctatum* or near)	1	2			3
Tricorynus sp. 3		2			2
Tricorynus fastigiatus (Fall)		2			2
Byrrhodes tristriatus (LeConte)		2			2
Ptinus tumidus Fall	1			1	2
Niptinus unilineatus (Pic)		1			1
Petalium sp. / spp. 4		1			1
Striatheca sp. 1		1			1
Calymmaderus nitidus (LeConte)		1			1
Ptinus hystrix Fall				1	1
Tricorynus punctatus (LeConte)				1	1
Anthicidae	78	30	3	42	153
Ischyropalpus occidentalis (Champion)	77	29	3	9	118
Sapintus sp. 1				14	14
Acanthinus dromedarius (LaFerté-Sénectère)	1			10	11
Ischyropalpus subtilissimus (Pic)		1		3	4
Anthicus sp. 1				3	3
Acanthinus scitulus (LeConte)				2	2
Cyclodinus californicus (LaFerté-Sénectère)				1	1
Anthribidae	37	29		3	69
Eusphyrus eusphyroides (Schaeffer)	6	14			20
Discotenes nigrotuberculata (Schaeffer)	12	1			13

Family Species	Beating	Lindgren funnel trap	Pitfall trap	UV light	Total
Ischnocerus infuscatus Fåhraeus	2	4		2	8
Ormiscus sp. EGR 12	4	4			8
Toxonotus penicellatus (Schaeffer)	4	1		1	6
Eusphyrus rectus Schaeffer	3	1			4
Toxonotus cornutus (Say)	2				2
Eusphyrus sp. 1	2				2
Ormiscus sp. EGR 20		1			1
Ormiscus sp. EGR 8		1			1
Eusphyrus sp. 2		1			1
Trigonorhinus alternatus (Say)		1			1
Ormiscus sp. EGR 10	1				1
Ormiscus irroratus (Schaeffer)	1				1
Bostrichidae	132	600	8	76	816
Micrapate dinoderoides (Horn)	130	358	2		490
Amphicerus cornutus (Pallas)		141	2	10	153
Xylomeira tridens (Fabricius)		41		6	47
Dendrobiella sericans (LeConte)		15	1	21	37
Melalgus plicatus (LeConte)		20		5	25
Xylobiops texanus (Horn)		2		18	20
Lichenophanes bicornis (Weber)				15	15
Trogoxylon aequale ((Wollaston)	1	12	1	1	15
Xylobiops parilis Lesne	1	10	2		13
Rhyzopertha dominica (Fabricius)		1			1
Bothrideridae	35	73	2	52	162
Bothrideres sp. 1	33	59	2	37	131
Bothrideres geminatus (Say)	2	14		15	31
Brentidae	27				27
Apion subornatum Fall	27				27
Buprestidae	12	32	4		48
Agrilus prosopidis Fisher	8	21	1		30
Chrysobothris acutipennis Chevrolat		5			5
Chrysobothris basalis LeConte		4			4
Acmaeodera tubulus-neoneglecta Complex		2			2
Taphrocerus chevrolati Obenberger			2		2
Agrilus viridescens Knull	2				2
Actenodes calcarata (Chevrolat)	1				1
Chrysobothris analis LeConte	1				1
Aphanisticus cochinchinae seminulum Obenberger			1		1
Cantharidae	74	13	1	10	98
Belotus bicolor Brancucci	71	10	1	4	86
Ditemnus freemani (Brown)	3	3		6	12

Family Species	Beating	Lindgren funnel trap	Pitfall trap	UV light	Total
Carabidae	26	58	255	407	746
Elaphropus sp. 1			2	83	85
Chlaenius orbus Horn			73		73
Clivina bipustulata (Fabricius)			44		44
Nemotarsus rhombifer Bates	11	16		13	40
Tachys sp. 5				38	38
Micratopus aenescens (LeConte)				28	28
Thalpius dorsalis (Brullé)			1	26	27
Selenophorus sp. 3			8	15	23
Paratachys sp. 2				21	21
Athrostictus punctatulus Putzeys			20	1	21
Elaphropus sp. 5			20		20
Lebia grandis Hentz		16		4	20
Stenomorphus californicus rufipes LeConte			13	5	18
Bembidion impotens Casey				18	18
Selenophorus sp. 2		1		17	18
Paratachys austinicus Casey				18	18
Paratachys sp. 1				18	18
Stenocrepis mexicana (Chevrolat)			15	1	16
Tetracha carolina carolina (Linnaeus)			15		15
Euproctinus abjetus (Bates)	12	2			14
Clivina sp. 2				13	13
Panagaeus sallei Chaudoir			12		12
Aspidoglossa subangulata (Chaudoir)			1	10	11
Calybe sallei (Chevrolat)				10	10
Bembidion sp. 1		1		8	9
Cymindis platicollis (Say)		8			8
Apenes sinuatus (Say)			4	4	8
Calleida punctulata Chaudoir		7			7
Selenophorus fatuus (LeConte)			2	4	6
Stenocrepis tibialis (Chevrolat)				6	6
Dyschiriodes analis (LeConte)				5	5
Calleida decora (Fabricius)				5	5
Tetracha impressa (Chevrolat)			5		5
Scarites sp. 1			5		5
Bembidion sp. 3				5	5
Oxycrepis intercepta (Chaudoir)			4		4
Calosoma sayi Dejean			4		4
Loxandrus infimus Bates				4	4
Helluomorphoides sp./spp.		1		3	4
Axinopalpus sp. 1		1	3		4

Family Species	Beating	Lindgren funnel trap	Pitfall trap	UV light	Total
Agra sp. 1	3	1			4
Thalpius horni (Chaudoir)				3	3
Tachys pulchellus LaFerté-Sénectère				3	3
Selenophorus sp. 1		2		1	3
Selenophorus palliatus (Fabricius)				2	2
Brachinus geniculatus Dejean			1	1	2
Zuphium mexicanum Chaudoir				2	2
Apenes sp. EGR 4			2		2
Polyderis laevis (Say)		2			2
Lebia analis Dejean				1	1
Notiobia terminata (Say)				1	1
Apenes sp. EGR 1				1	1
Zuphium americanum Dejean				1	1
Dyschiriodes abbreviatus (Putzeys)				1	1
Helluomorphoides papago (Casey)			1		1
Lebia bitaeniata Chevrolat				1	1
Tachys misellus LaFerté-Sénectère				1	1
Lebia viridis Say				1	1
Tachys pallidus Chaudoir				1	1
Bembidion viridicolle (LaFerté-Sénectère)				1	1
Stenolophus dissimilis Dejean				1	1
Lebia rufopleura Schaeffer				1	1
Cerambycidae	153	366	11	82	612
Sternidius alpha (*texana* Casey form) (Say)	62	121		21	204
Trachyderes mandibularis (Audinet-Serville)		53			53
Oncideres pustulatus LeConte	17	22		12	51
Obrium maculatum (Olivier)	4	22	1	12	39
Anelaphus debilis (LeConte)	3	29	1	3	36
Lepturges infilatus Bates	5	17		11	33
Gnaphalodes trachyderoides Thomson		28	1	3	32
Sternidius alpha (Say)	28				28
Achryson surinamum (Linnaeus)		18	2	2	22
Ataxia crypta (Say)	12	5		1	18
Neocompsa mexicana (Thomson)	11	4			15
Elaphidion Linsley*i* Knull		12		1	13
Anelaphus spurcus (LeConte)		4	2	6	12
Lissonotus flavocinctus puncticollis Bates		8			8
Placosternus difficilis (Chevrolat)		6			6

Family Species	Beating	Lindgren funnel trap	Pitfall trap	UV light	Total
Parmenonta wickhami Schaeffer	2		4		6
Smodicum texanum Knull		2		4	6
Geropa concolor (LeConte)		3		2	5
Urgleptes celtis (Schaeffer)	1	3			4
Sternidius mimeticus (Casey)	2	1			3
Anelaphus niveivestitus (Schaeffer)		1		1	2
Tylosis oculatus LeConte	2				2
Eburia stigmatica (Chevrolat)		1		1	2
Lepturges angulatus (LeConte)		1			1
Stenosphenus lugens LeConte	1				1
Sphaenothecus bivittata Dupont	1				1
Ecyrus arcuatus Gahan				1	1
Oncideres cingulata texana Horn		1			1
Neoclytus augusti (Chevrolat)		1			1
Mallodon dasytomus (Say)		1			1
Euderces reichei LeConte	1				1
Neoclytus mucronatus vogti Linsley		1			1
Lophalia cyanicollis (Dupont)	1				1
Methia necydalea (Fabricius)				1	1
Neoclytus acuminatus (Fabricius)		1			1
Cerylonidae		2			2
Philothermus sp. 1		1			1
Mycocerinus depressus (LeConte)		1			1
Chrysomelidae	141	45	18	19	223
Physonota alutacea Boheman	31				31
Coptocycla texana (Schaeffer)	26				26
Acanthoscelides macrophthalmus (Schaeffer)	18	6			24
Diachus auratus (Fabricius)	9	4	2		15
Anisostena gracilis (Horn)	1	2	9		12
Diabrotica balteata J. L. LeConte	4	1		3	8
Glenidion flexicaulis (Schaeffer)	7	1			8
Triachus sp. 1		8			8
Mimosestes nubigens (Motschulsky)	3	4			7
Algarobius bottimeri Kingsolver	4	1		1	6
Metachroma ustum J. L. LeConte		1		5	6
Pachybrachis sp. 5	3	3			6
Chaetocnema quadricollis Schwarz	2		4		6
Chaetocnema ectypa Horn		1		3	4
Longitarsus sp. 3	1		1	2	4
Mimosestes amicus (Horn)	4				4
Spintherophyta globosa (Olivier)	4				4
Merobruchus major (Fall)	3				3

Family Species	Beating	Lindgren funnel trap	Pitfall trap	UV light	Total
Pachybrachis latithorax Clavareau	1	2			3
Epitrix fasciata Blatchley	1	2			3
Brachycoryna pumila Guérin-Méneville			1	1	2
Ophraella communa LeSage		2			2
Capraita sexmaculata (Illiger)	2				2
Cryptocephalus fulguratus J. L. LeConte	2				2
Griburius lecontii Crotch		2			2
Rhabdopterus weisei (Schaeffer)	1	1			2
Cryptocephalus trizonatus Suffrian	2				2
Diabrotica tibialis Jacoby	2				2
Colaspis planicostata Blake		1		1	2
Disonycha glabrata (Fabricius)	2				2
Brachypnoea rotundicollis (Schaeffer)	1				1
Anomoea rufifrons mutabilis (Lacordaire)	1				1
Parchicola tibialis (Olivier)				1	1
Acanthoscelides desmanthi Johnson				1	1
Stator limbatus (Horn)	1				1
Chaetocnema sp. 1		1			1
Pachybrachis texanus Bowditch			1		1
Charidotella sexpunctata sexpunctata (Fabricius)	1				1
Altica litigata Fall				1	1
Miraces aeneipennis Jacoby	1				1
Diabrotica undecimpunctata howardi Barber	1				1
Epitrix hirtipennis (F. E. Melsheimer)		1			1
Cryptocephalus brunneovittatus Schaeffer	1				1
Fidia clematis Schaeffer	1				1
Disonycha barberi Blake		1			1
Ciidae		12			12
Cis creberrimus Mellié		4			4
Hadraule sp. 1		2			2
Ceracis sp. 4		2			2
Ceracis sp. 1		2			2
Cis tristis Mellié		1			1
Cis sp. 1		1			1
Cleridae	32	98		35	165
Enoclerus quadrisignatus (Say)		49		3	52
Neorthopleura texana (Bland)		8		30	38

Family Species	Beating	Lindgren funnel trap	Pitfall trap	UV light	Total
Cymatodera balteata LeConte	5	20			25
Cregya quadrinotata (Chevrolat)	15	7		1	23
Monophylla pallipes (Schaeffer)	2	8			10
Phyllobaenus varipunctatus Knull	5	3			8
Enoclerus vetus Wolcott	4				4
Perilypus ornaticollis (LeConte)		2			2
Cregya sp. EGR 1				1	1
Ababa tantilla (LeConte)		1			1
Pelonium maculicolle Schaeffer	1				1
Coccinellidae	48	12	7	9	76
Chilocorus cacti (Linnaeus)	18	1	1	3	23
Psyllobora renifer Casey	9	4		1	14
Cycloneda sanguinea sanguinea (Linnaeus)	6			2	8
Scymnus caudalis LeConte	4		1		5
Nephus intrusus (Horn)	1		4		5
Cephaloscymnus sp. 1		5			5
Olla v-nigrum (Mulsant)	2			1	3
Diomus terminatus (Say)				2	2
Scymnus loewii Mulsant	2				2
Nephus flavifrons (Melsheimer)	2				2
Harmonia axyridis (Pallas)		1			1
Selvadius sp. 1		1			1
Scymnus louisianae J. Chapin	1				1
Hyperaspis octonotata Casey	1				1
Zagloba hystrix Casey			1		1
Diomus pseudotaedatus Gordon	1				1
Diomus xanthaspis (Mulsant)	1				1
Colydiidae		25	1	27	53
Microsicus parvulus (Guérin-Méneville)		20	1	14	35
Bitoma sulcata (LeConte)		4		11	15
Phloeonemus integer (Reitter)		1		1	2
Phloeonemus interruptus Reitter				1	1
Corylophidae	8	80	12	10	110
Sericoderus sp. 1	2	44	9		55
Orthoperus sp. EGR 1	2	14	2		18
Clypastraea sp. 1	1	9		6	16
Arthrolips sp. /spp.	1	11	1		13
Clypastraea lepida (LeConte)		2		4	6
Holopsis sp.	1				1
Corylophidae Genus 1 sp. 1	1				1
Curculionidae	366	1033	51	96	1546

Family Species	Beating	Lindgren funnel trap	Pitfall trap	UV light	Total
Colecerus marmoratus (Horn)	277	470	15	1	763
Hypothenemus seriatus (Eichhoff)	1	178	4		183
Xyleborus similis Ferrari		138		2	140
Hypothenemus eruditus Westwood	1	74	1		76
Thysanoes texanus Blackman		25		37	62
Compsus auricephalus (Say)	26	19			45
Hypothenemus interstitialis (Hopkins)	5	23			28
Euplatypus parallelus (Fabricius)				25	25
Hypothenemus brunneus (Hopkins)	1	23			24
Xyleborus affinis Eichhoff		6		17	23
Xyleborus ferrugineus (Fabricius)		13	8	2	23
Smicronyx albonotatus Anderson	16	2		2	20
Cophes Fall*ax* (LeConte)		5	11		16
Pseudothysanoes acaciae (Blackman)		16			16
Sitophilus zeamais Motschulsky		2	7		9
Hypothenemus squamosus (Hopkins)	1	8			9
Madarellus sp. / spp.	6	3			9
Xyleborus horridus Eichhoff		6		2	8
Sibinia inermis (Casey)	7	1			8
Tomolips quercicola (Boheman)		7			7
Centrinopus helvinus Casey	4	2			6
Cophes texanus Sleeper	4	1			5
Smicronyx sp. 1	4				4
Micracisella opacithorax (Schedl)		1		2	3
Anthonomus xanthoxyli Linell	3				3
Apinocis deplanata (Casey)	1		1		2
Conotrachelus seniculus LeConte				2	2
Coccotrypes distinctus (Motschulsky)		1	1		2
Phloeotribus texanus Schaeffer		1		1	2
Conotrachelus cameronensis Sleeper	2				2
Rhyssomatus pruinosus (Boheman)	2				2
Hypothenemus erectus LeConte		2			2
Acamptus texanus (Sleeper)		2			2
Tanymecus sp. EGR 1			1		1
Pandeleteius longicollis Champion	1				1
Anthonomus leucostictus Dietz	1				1
Rhyssomatus texanus Sleeper		1			1
Cryptorhynchine, undet. genus sp. 1			1		1
Sibinia errans (Casey)	1				1

Family Species	Beating	Lindgren funnel trap	Pitfall trap	UV light	Total
Hypothenemus distinctus Wood		1			1
Hylocurus parkinsoniae Blackman				1	1
Trischidias sp. 1		1			1
Apinocis blandita (Casey)			1		1
Baridinae undet. genus 2 sp. 1	1				1
Lignyodes adamanteus (Clark)				1	1
Anthonomus aeneolus Dietz	1				1
Lissorhoptrus sp.				1	1
Hypothenemus pubescens Hopkins		1			1
Dermestidae	5	18	6	1	30
Novelsis aequalis (Sharp)		8	6		14
Trogoderma sp.	1	6			7
Cryptorhopalum triste LeConte	3	1		1	5
Trogoderma primum (Jayne)		2			2
Attagenus sp.		1			1
Cryptorhopalum reversum Casey	1				1
Dryopidae				14	14
Pelonomus obscurus LeConte				14	14
Dytiscidae				113	113
Neobidessus sp. 1				59	59
Uvarus sp.				20	20
Copelatus sp. 2 (big)				9	9
Laccophilus proximus Say				6	6
Desmopachria sp.				5	5
Celina sp.				3	3
Copelatus sp. 1 (small)				3	3
Coptotomus sp.				2	2
Bidessonotus sp. 1				2	2
Desmopachria dispersa (Crotch)				1	1
Thermonectus nigrofasciatus ornaticollis Aubé				1	1
Thermonectus basillaris (Harris)				1	1
Pachydrus sp.				1	1
Elateridae	2	53	40	423	518
Glyphonyx sp./spp.	2	19		198	219
Dipropus sp. 1				76	76
Conoderus browni Knull		1	2	39	42
Conoderus aversus (LeConte)		2		39	41
Agrypnus rectangularis (Say)		6	21	1	28
Esthesopus sp. 1		8		9	17
Heteroderes amplicollis (Gyllenhal)			12	4	16
Pherhimius fascicularis (Fabricius)		9		2	11
Mulsant*eus texanus* (LeConte)		2		9	11

Family Species	Beating	Lindgren funnel trap	Pitfall trap	UV light	Total
Conoderus similis (Schaeffer)				10	10
Horistonotus simplex LeConte		2		7	9
Glyphonyx bimarginatus Schaeffer		1		7	8
Horistonotus uhleri Horn		1		5	6
Glyphonyx mimeticus Horn				5	5
Aeolus sp. 3			3		3
Paradonus sp. EGR 1				3	3
Aeolus trilineatus Candèze			2		2
Dipropus sp. 2				2	2
Anchastus bicolor LeConte				1	1
Melanotus lanceatus Quate				1	1
Conoderus vespertinus (Fabricius)				1	1
Deilelater physoderus (Germar)				1	1
Alaus lusciosus (Hope)		1			1
Aeolus scutellatus (Schaeffer)		1			1
Anchastus rufus Candèze				1	1
Anchastus uniquus Knull				1	1
Megapenthes nigriceps Schaeffer				1	1
Elmidae				47	47
Stenelmis occidentalis Schmude & Brown				43	43
Hexacylloepus sp.				4	4
Endomychidae	1	38	2	15	56
Epipocus cinctus LeConte		37	2	15	54
Anamorphus sp.	1				1
Bystus sp.		1			1
Eucnemidae		3		3	6
Dromaeolus teres (Horn)		2		3	5
Nematodes atropos (Say)		1			1
Haliplidae		1		2	3
Haliplus lewisii Crotch		1		1	2
Haliplus tumidus LeConte				1	1
Heteroceridae				5571	5571
*Tro*Pi*cus pusillus* (Say)				5311	5311
Heterocerus spp. -group 1 (small)				169	169
Heterocerus spp. -group 2 (big)				91	91
Histeridae	30	23	4		57
Teretriosoma conigerum Lewis	29	10			39
Teretrius orbus Lewis	1	3			4
Carcinops sp. 3		3			3
Teretriosoma chalybaeum Horn		2			2
Epierus antillarum Marseul		2			2
Xerosaprinus sp. 2		1	1		2

Family Species	Beating	Lindgren funnel trap	Pitfall trap	UV light	Total
Phelister panamensis J. E. LeConte			1		1
Carcinops sp. 1		1			1
Euspilotus auctus (Schmidt)			1		1
Hister servus Erichson			1		1
Histerini, genus 1 sp.		1			1
Hydraenidae		3		7	10
Ochthebius sp./spp.		2		7	9
Gymnochthebius sp. 2		1			1
Hydrophilidae			6	209	215
Berosus exiguus (Say)				98	98
Berosus infuscatus LeConte				57	57
Enochrus sp. 2 (*medium*)				11	11
Berosus aculeatus / peregrinus				10	10
Enochrus sp. 1 (small)				9	9
Pelosoma praecursor Smetana			6		6
Tropisternus collaris (Fabricius)				5	5
Cercyon praetextatus (Say)				5	5
Tropisternus sp. 3				5	5
Enochrus sp. 3 (big)				3	3
Paracymus sp./spp.				2	2
Derallus altus (LeConte)				1	1
Berosus miles LeConte				1	1
Hydrochus sp.				1	1
Berosus pugnax LeConte				1	1
Laemophloeidae	9	51	20	55	135
Rhabdophloeus horni (Casey)	3	12		15	30
Lathropus robustulus Casey	3	19	1	5	28
Cryptolestes unicornis (Reitter)		3	1	23	27
Placonotus sp.		1	17	3	21
Metaxyphloeus texanus (Schaeffer)	2	11	1	4	18
Laemophloeus terminalis Casey		2		5	7
Cryptolestes sp.	1	2			3
Laemophloeus sp.		1			1
Lampyridae	11	14	2	16	43
Photuris sp. EGR 1	3	11	1	8	23
Photinus sp./spp. 1	6	2	1	7	16
Pyropyga sp.	2	1			3
Pyractomena sp.				1	1
Languriidae	6	29	11	52	98
Toramus sp. EGR 1	6	24	10	46	86
Cryptophilus integer (Heer)		5		4	9
Hapalips texanus Schaeffer				2	2
Pharaxonotha kirschii (Reitter)			1		1

Family Species	Beating	Lindgren funnel trap	Pitfall trap	UV light	Total
Latridiidae	55	93	30	32	210
Melanophthalma (*Melanophthalma*) sp./spp.	44	55	2	15	116
Melanophthalma (*Cortilena*) *simplex* (LeConte)	10	31	5	7	53
Metophthalmus rileyi Andrews		5	16		21
Migneauxia orientalis (Reitter)		1		10	11
Melanophthalma (*Cortilena*) sp. 1			7		7
Corticarina cavicollis (Mannerheim)	1	1			2
Limnichidae				9	9
Eulimnichus ater (LeConte)				5	5
Throscinus schwarzii Schaeffer				2	2
Physemus minutus LeConte				2	2
Meloidae	1				1
Epicauta obesa (Chevrolat)	1				1
Melyridae		2		1	3
Chaetocoelus sp. /spp.		2			2
Attalus sp. 1				1	1
Monotomidae		3	69	5	77
Monotoma americana Aubé			69	4	73
Bactridium sp.		3			3
Monotoma arida Casey				1	1
Mordellidae	2	50	5	20	77
Mordellina ancilla (LeConte)		27	1	1	29
Mordellistena sp. 5		3		5	8
Pseudotolida sp. / spp.		3		3	6
Mordella sp. 2		5			5
Mordellina sp. 3		2		3	5
Mordellistena sp. 3				4	4
Paramordellaria carinata (Smith)		2	2		4
Mordellina sp. 5	1	2		1	4
Mordellina sp. 6		3		1	4
Mordellina sp. 4		3			3
Mordellistena sp. 6	1			2	3
Mordella mexicana (Champion)			1		1
Mordellistena sp. 13			1		1
Mycetophagidae	1	15	32	6	54
Typhaea stercorea (Linnaeus)	1	4	25	4	34
Litargus balteatus LeConte		11	7		18
Litargus sexpunctatus (Say)				2	2
Nitidulidae	1	174	35	27	237
Amphicrossus ciliatus (Olivier)		128		24	152
Stelidota coenosa Erichson		8	18		26

Family Species	Beating	Lindgren funnel trap	Pitfall trap	UV light	Total
Carpophilus freemanni Dobson	1	13	7	1	22
Carpophilus mutilatus (Erichson)		12	3	1	16
Urophorus humeralis (Fabricius)		3	3	1	7
Lobiopa insularis (Laporte)		2	4		6
Carpophilus pallidipennis (Say)		4			4
Camptodes texanus Schaeffer		2			2
Epuraea luteolus Erichson		2			2
Noteridae				22	22
Notomicrus sp./spp.				21	21
Suphisellus lineatus (Horn)				1	1
Oedemeridae		2		9	11
Oxacis trirossi Arnett				7	7
Polypria cruxrufa Chevrolat		2		2	4
Passandridae	4	14		15	33
Taphroscelidia linearis (LeConte)	4	14		15	33
Phalacridae	99	18	27	24	168
Acylomus sp./spp.	92	10	1	19	122
Stilbus sp. 1	3		24	2	29
Litochropus sp. 1		7		2	9
Xanthocomus rutilans (Casey)	4	1	1		6
Xanthocomus concinnus (Casey)			1		1
Litochrus pulchellus (LeConte)				1	1
Phengodidae		1			1
Phengodes sp. 1		1			1
Ptilodactylidae		6		5	11
Lachnodactyla texana Schaeffer		6		5	11
Rhipiphoridae				2	2
Trigonodera schaefferi Rivnay				2	2
Scarabaeidae		42	42	1168	1252
Ataenius cognatus (LeConte)			22	705	727
Onthophagus gazella (Fabricius)		5		155	160
Anomala flavipennis luteipennis LeConte				100	100
Ataenius platensis (Blanchard)				57	57
Ateuchus texanus (Robinson)		2	4	27	33
Pseudocanthon perplexus (LeConte)		1	5	23	29
Anomala foraminosa Bates		1		24	25
Diplotaxis thoracica Fall		3	1	17	21
Phyllophaga crinita (Burmeister)		2	1	11	14
Gymnetis caseyi Antonie		12			12
Diplotaxis truncatula LeConte				12	12
Labarrus pseudolividus (Balthasar)				10	10

Family Species	Beating	Lindgren funnel trap	Pitfall trap	UV light	Total
Phileurus valgus (Linnaeus)		9			9
Coprophanaeus pluto (Harold)			8		8
Ataenius setiger Bates		2		4	6
Phyllophaga vexata (Horn)				5	5
Diplotaxis curvaticeps Fall				5	5
Phyllophaga trichodes (Bates)		1		3	4
Ataeniopsis figurator (Harold)				2	2
Ataenius inquisitus Horn			1	1	2
Blackburneus stercorosus (Melsheimer)				2	2
Phyllophaga submucida (LeConte)				2	2
Onthophagus schaefferi Howden & Cartwright		2			2
Euphoria sepulcralis nitens Casey		1			1
Tetraclipeoides dentiger (LeConte)				1	1
Phyllophaga torta (LeConte)				1	1
Ataenius gracilis (Melsheimer)				1	1
Onthophagus subtropicus Howden & Cartwright		1			1
Scirtidae	2	27		17	46
Scirtes sp. EGR 1	2	23		1	26
Cyphon sp. / spp.		3		12	15
Ora troberti (Guérin-Méneville)				3	3
Ora hyacintha Blatchley		1			1
Scirtes orbiculatus (Fabricius)				1	1
Scraptiidae	17	28	5	11	61
Pentaria sp. 1	16	27	3	5	51
Naucles sp. 1			2	2	4
Allopoda sp. 1				4	4
Diclidia sp. 1	1	1			2
Silvanidae		2	8	6	16
Ahasverus rectus (LeConte)		2	8	6	16
Smicripidae		38	44	2	84
Smicrips texana (Casey)		38	44	2	84
Sphindidae				2	2
Sphindus sp./spp.				2	2
Tenebrionidae	28	100	90	67	285
Lobopoda punctulata (Melsheimer)		36			36
Paratenetus punctatus Spinola	13	9	1	13	36
Opatrinus aciculatus LeConte			35		35
Blapstinus fortis LeConte			32	1	33
Adelina bidens (Schaeffer)	2	1		21	24
Blapstinus fuscus Casey			5	15	20
Lobopoda socia (LeConte)	1	17		1	19

Family Species	Beating	Lindgren funnel trap	Pitfall trap	UV light	Total
Armalia texanus (LeConte)		13		1	14
Rhypasma sp.			10		10
Bothrotes canaliculatus acutus (LeConte)	8				8
Platydema excavatum (Say)		5		1	6
Blapstinus sp. (=*lobatus* Davis, ms. name)			5		5
*Strongylium hemistriatum Triple*Horn *& Spilman*		3		1	4
Apsida belti Bates	2	2			4
Lystronichus piliferus Champion		4			4
Hymenorus dubius Fall		2		2	4
Hymenorus sp. 1 (large, dark *texensis*)		2		2	4
Statira hirsuta Champion		2		1	3
Gnatocerus sp. 1				3	3
Hymenorus sp. 2 (small, reddish *texensis*)				2	2
Statira pulchella Maklin	2				2
Hymenorus occidentalis Champion		2			2
Hypogena tricornis (Laporte)		2			2
Menoeceus texanus (Champion)				1	1
Rhipidandrus peninsularis Horn				1	1
Poecilocrypticus formicophilus Gebien			1		1
Lepidocnemeplatia sericea Horn				1	1
Eutochia crenata (LeConte)			1		1
Tetratomidae		3		1	4
Eustrophinus bicolor (Fabricius)		3		1	4
Throscidae				2	2
Aulonothroscus sp. 3				1	1
Aulonothroscus sp. 2				1	1
Trogidae			14	9	23
Omorgus rubricans (Robinson)			6	3	9
Omorgus fuliginosus (Robinson)			7	1	8
Trox spinulosus Robinson				4	4
Trox sonorae LeConte			1	1	2
Trogossitidae	2	83		1093	1178
Tenebroides nanus (Melsheimer)		8		1084	1092
Temnochila acuta LeConte		58		7	65
Corticotomus cylindricus (LeConte)	2	14		2	18
Airora cylindrica (Audinet-Serville)		3			3
Grand Total	1466	3506	865	9979	15816

APPENDIX 12

Identification metrics

Total # of specimens	# of specimens identified to species	Total # of specimens from morphospecies	# of morphospecies specimens identified to genus	# of morphospecies specimens identified to family
113490	99842 (88.0%)	13648 (12.0%)	13163	485

Total # of species/ morphospecies	# identified to species	# identified to morphospecies	# of morphospecies identified to genus	# of morphospecies identified to family
977	701 (71.8%)	276 (28.2%)	266	10