AN INVENTORY OF REPTILES AND AMPHIBIANS

OF

PADRE ISLAND NATIONAL SEASHORE
SAN ANTONIO MISSIONS NATIONAL HISTORICAL PARK AND
PALO ALTO BATTLEFIELD NATIONAL HISTORIC SITE

REPORT PREPARED BY

C. MICHAEL DURAN
VERTEBRATE ZOOLOGIST

TEXAS CONSERVATION DATA CENTER
The Nature Conservancy

Edited and submitted under cooperative agreement number H5028 01 0268 to the National Park Service by

Mark Gallyoun and Debbie Benesh
Texas Conservation Data Center
The Nature Conservancy
P.O. Box 1440
San Antonio, Texas 78295-1440

AN INVENTORY OF REPTILES AND AMPHIBIANS

OF

PADRE ISLAND NATIONAL SEASHORE

SAN ANTONIO MISSIONS NATIONAL HISTORICAL PARK

AND

PALO ALTO BATTLEFIELD NATIONAL HISTORIC SITE

RESULTS OF A 2002-2003 ZOOLOGICAL INVENTORY
AND RELATED RESEARCH AND REVIEWS

REPORT
15 JULY, 2004

REPORT PREPARED BY

C. MICHAEL DURAN
VERTEBRATE ZOOLOGIST

TEXAS CONSERVATION DATA CENTER
THE NATURE CONSERVANCY

Edited and submitted under cooperative agreement number H5028 01 0268 to the National Park Service by

Mark Gallyoun, Debbie Benesh
Texas Conservation Data Center
The Nature Conservancy
P.O. Box 1440
San Antonio, Texas 78295-1440

TABLE OF CONTENTS

LIST OF TABLES ..... **IV**

LIST OF FIGURES ..... **VI**

INTRODUCTION **1**

NATIONAL PARK SERVICE INVENTORY AND MONITORING PROGRAM 1
DOCUMENTATION STANDARDS, DATA QUALITY, TAXONOMY 2
DESCRIPTION OF PADRE ISLAND NATIONAL SEASHORE 3
DESCRIPTION OF SAN ANTONIO MISSIONS NATIONAL HISTORICAL PARK 6
DESCRIPTION OF PALO ALTO BATTLEFIELD NATIONAL HISTORIC SITE 8

METHODS **10**

LITERATURE REVIEW AND MUSEUM SEARCH 10
HABITAT DELINEATION AND SELECTION OF SAMPLE SITES 10
PAIS *10*
PAAL *11*
SAAN *11*
TRAPPING 12
VISUAL ENCOUNTER SURVEYS 12
COVERBOARDS 12
AUDITORY SURVEYS 13
ROAD SURVEYS 13
COLLECTION AND PRESERVATION OF SPECIMENS 13

RESULTS **14**

Format for Presentation of Results *14*
Determining Frequency of Occurrence *14*
RESULTS FOR PADRE ISLAND NATIONAL SEASHORE 15
SPECIES DETAILS AND DISCUSSION – PAIS 17
Frogs and Toads *17*
Turtles *20*
Alligators and Lizards *20*
Snakes *25*
OTHER POTENTIAL SPECIES—PAIS 32
Sirens and Newts *32*
Frogs and Toads *32*
Turtles *33*
Lizards *33*
Snakes *34*
SUMMARY AND DISCUSSION—PAIS 35
Notable Finds *35*
Amphibians and Drought *35*
Herpetofaunal Diversity and the Laguna Madre *36*
Unusual Specimens *36*
Indefinite Confirmations *36*
Checklist Revisions *36*
RESULTS FOR SAN ANTONIO MISSIONS NATIONAL HISTORICAL PARK 37
SPECIES DETAILS AND DISCUSSION – SAAN 39
Frogs and Toads *39*
Turtles *40*
Lizards *42*
Snakes *45*
OTHER POTENTIAL SPECIES--SAAN 49
Salamanders and Newts *49*
Frogs and Toads *49*

Turtles *50*
Lizards *50*
Snakes *51*
SUMMARY AND DISCUSSION—SAAN 52
RESULTS FOR PALO ALTO BATTLEFIELD NATIONAL HISTORIC SITE 53
SPECIES DETAILS AND DISCUSSION—PAAL 55
Frogs and Toads *55*
Turtles *56*
Lizards *57*
Snakes *59*
OTHER POTENTIAL SPECIES—PAAL 62
Salamanders, Sirens, and Newts *62*
Frogs and Toads *62*
Turtles *63*
Lizards *63*
Snakes *63*
SUMMARY AND DISCUSSION—PAAL 65

INVENTORY AND MONITORING: COMMENTS AND RECOMMENDATIONS 65

Monitoring Recommendations *66*

ACKNOWLEDGEMENTS 67

LITERATURE CITED 68

FIGURES NOT INCLUDED WITH TEXT 71

APPENDICES 105

Appendix 1. All collections, observations, and museum records collected during a reptile and amphibian inventory of Padre Island National Seashore - January 2002 – October 2003. ..... *105*
Appendix 2. Trap data for reptile and amphibian survey of Padre Island National Seashore; May 2002 – October 2002. ..... *118*
Appendix 3. Major visual encounter surveys routes and results for reptile and amphibian inventory conducted at Padre Island National Seashore January 2002 – October 2003. (These data condensed somewhat from original data sheets – more data on original data sheets). *123*
Appendix 4. Road kills and other casual observations at PAIS during herpetological inventory January 2002-October 2003 ..... *126*
Appendix 5. Results of auditory surveys during herpetological inventory at Padre Island National Seashore, February 2002 – October 2003. (BUWO = Bufo woodhousii; RABE = Rana berlandieri; HYCI = Hyla cinerea; SCHU = Scaphiopus hurterii; PSCL = Pseudacris clarkii; BUNE = Bufo nebulifer). *127*
Appendix 6. Specimens Collected During Herpetological Inventory of Padre Island National Seashore – February 2002 – March 2003. ..... *129*
Appendix 7. Global Ranks, State Ranks, Federal and State Status Categories and Abbreviations. *130*
Appendix 8. All collections, observations, and museum records collected during a reptile and amphibian inventory of San Antonio National Missions Historical Park; March 2002 – October 2003. ..... *131*
Appendix 9. Trapping results during reptile and amphibian inventory of San Antonio Missions National Historical Park; March 2002 – October 2003. ..... *136*
Appendix 10. Results and locations of visual encounter surveys conducted during reptile and amphibian inventory of San Antonio Missions National Historical Park; March 2002 – October 2003. ..... *139*
Appendix 11. Road kills and other casual observations made during the reptile and amphibian inventory of San Antonio Missions National Historical Park; March 2002 – October 2003. ..... *143*
Appendix 12. Results of auditory surveys from reptile and amphibian inventory conducted of San Antonio National Missions Historical Park; March 2002 – October 2003. (BUNE = Bufo nebulifer; ACCR = Acris crepitans) *143*
Appendix 13. List of Specimens Collected During 2002-2003 Herpetological Inventory of San Antonio Missions National Historic Park. *144*
Appendix 14. All collections, observations, and museum records collected during a reptile and amphibian inventory of Palo Alto Battlefield National Historic Site; March 2002 – October 2003. ..... *145*
Appendix 15. Trapping results during reptile and amphibian inventory of Palo Alto Battlefield National Historic Site; March 2003 – July 2003. ..... *151*

Appendix 16. Visual encounter survey locations and results during reptile and amphibian inventory of Palo Alto Battlefield National Historic Site; March 2003 – July 2003. ..... *155*
Appendix 17. Road kills and casual observation of species during reptile and amphibian inventory of Palo Alto Battlefield National Historic Site; March 2002 – October 2003. ..... *158*
Appendix 18. Results of auditory surveys during the reptile and amphibian inventory of Palo Alto Battlefield National Historic Site; March 2002 – October 2003. BUNE = Bufo nebulifer; PSCL = Pseudacris clarkii; GAOL=Gastrophryne olivacea; SMBA=Smilisca baudinii; RABE=Rana berlandieri. *158*
Appendix 19. Specimens Collected During the 2002-2003 Herpetological Inventory at Palo Alto Battlefield Historical Park *159*

LIST OF TABLES

Table 1. Locations of Major Sampling Efforts—PAIS..... 10
Table 2. Locations of Major Sampling Efforts—PAAL..... 11
Table 3. Locations of Major Sampling Efforts—SAAN..... 11
Table 4. Checklist of Reptiles and Amphibians of Padre Island National Seashore..... 16
Table 5. Species with Special Conservation Status Known to Occur on Padre Island National Seashore. 17
Table 6. Known locations of Woodhouse's Toad on North Padre Island..... 17
Table 7. Known locations of the Green Tree Frog on North Padre Island..... 18
Table 8. Known locations of the Spotted Chorus Frog on North Padre Island..... 19
Table 9. Known locations of the Hurter's Spadefoot Toad on North Padre Island..... 19
Table 10. Known locations of the Rio Grande Leopard Frog on North Padre Island..... 20
Table 11. Known locations of the Red-eared Slider on North Padre Island..... 20
Table 12. Home range sizes of alligators observed during three telemetry studies in Louisiana (Joanen and McNease 1970, 1972, 1974) 21
Table 13. Known locations of the Six-lined Racerunner on North Padre Island..... 22
Table 14. Known locations of the Great Plains Skink on North Padre Island..... 23
Table 15. Known locations of the Mediterranean Gecko on North Padre Island..... 23
Table 16. Known locations of the Western Slender Glass Lizard on North Padre Island..... 24
Table 17. Known locations of the Ground Skink on North Padre Island..... 25
Table 18. Known locations of the Texas Glossy Snake on North Padre Island..... 25
Table 19. Known locations of the Mexican Racer on North Padre Island..... 26
Table 20. Known locations of the Western Diamondback Rattlesnake on North Padre Island..... 27
Table 21 Known locations of the Great Plains Rat Snake on North Padre Island..... 27
Table 22. Known locations of the Eastern Hognose Snake on North Padre Island..... 28
Table 23. Known locations of the Mexican Milk Snake on North Padre Island..... 28
Table 24. Known locations of the Western Coachwhip on North Padre Island..... 29
Table 25. Known locations of the Diamondback Water Snake on North Padre Island..... 29
Table 26. Known locations of the Western and Desert Massasauga on North Padre Island..... 31
Table 27. Known locations of the Flathead Snake on North Padre Island..... 31
Table 28. Known locations of the Checkered Garter Snake on North Padre Island..... 31
Table 29. Known locations of the Gulf Coast Ribbon Snake on North Padre Island..... 32
Table 30. Checklist of Reptiles and Amphibians at San Antonio Missions Historical Park..... 38
Table 31. Known locations of Blanchard's Cricket Frog at San Antonio Missions National Historical Park..... 39
Table 32. Known locations of the Coastal Plain Toad at San Antonio Missions National Historical Park..... 39
Table 33. Known locations of the Great Plains Narrowmouth Toad at San Antonio Missions National Historical Park..... 40
Table 34. Known locations of the Rio Grande Chirping Frog at San Antonio Missions National Historical Park..... 40
Table 35. Known locations of the Guadalupe Spiny Softshell at San Antonio Missions National Historical Park..... 41
Table 36. Known locations of the Common Snapping Turtle at San Antonio Missions National Historical Park..... 41
Table 37. Known locations of the Texas Tortoise at San Antonio Missions National Historical Park..... 41
Table 38. Known locations of the Texas River Cooter at San Antonio Missions National Historical Park..... 42
Table 39. Known locations of the Red-eared Slider at San Antonio Missions National Historical Park..... 42
Table 40. Known locations of the Green Anole at San Antonio Missions National Historical Park..... 43
Table 41. Known locations of the Texas Spotted Whiptail at San Antonio Missions National Historical Park..... 43
Table 42. Known locations of the Mediterranean Gecko at San Antonio Missions National Historical Park..... 43
Table 43. Known locations of the Texas Spiny Lizard at San Antonio Missions National Historical Park..... 44
Table 44. Known locations of the Ground Skink at San Antonio Missions National Historical Park..... 44
Table 45. Known locations of the Western Diamondback Rattlesnake at San Antonio Missions National Historical Park..... 45
Table 46. Known locations of the Great Plains Rat Snake at San Antonio Missions National Historical Park. 45
Table 47. Known locations of the Texas Rat Snake at San Antonio Missions National Historical Park. 46
Table 48. Known locations of the Plains Blind Snake at San Antonio Missions National Historical Park. 46
Table 49. Known locations of the Western Coachwhip at San Antonio Missions National Historical Park. 46
Table 50. Known locations of Schott's Whipsnake at San Antonio Missions National Historical Park. 47
Table 51. Known locations of the Diamondback Water Snake at San Antonio Missions National Historical Park. 47
Table 52. Known locations of the Texas Patch-nosed Snake at San Antonio Missions National Historical Park. 48
Table 53. Known locations of the Checkered Garter Snake at San Antonio Missions National Historical Park. 48
Table 54. Known locations of the Rough Earth Snake at San Antonio Missions National Historical Park. 49
Table 55. Checklist of Reptiles and Amphibians at Palo Alto Battlefield National Historic Site..... 54
Table 56. Species with Special Conservation Status That Occur or that May Occur at Palo Alto Battlefield National Historic Site..... 55
Table 57. Known locations of the Coastal Plain Toad at Palo Alto Battlefield National Historic Site. 55
Table 58. Known locations of the Great Plains Narrowmouth Toad at Palo Alto Battlefield National Historic Site. 56
Table 59. Known locations of the Rio Grande Leopard Frog at Palo Alto Battlefield National Historic Site. 56

Table 60. Known locations of Couch's Spadefoot at Palo Alto Battlefield National Historic Site. 56
Table 61. Known locations of the Texas Tortoise at Palo Alto Battlefield National Historic Site. 57
Table 62. Known locations of the Yellow Mud Turtle at Palo Alto Battlefield National Historic Site. 57
Table 63. Known locations of the Texas Spotted Whiptail at Palo Alto Battlefield National Historic Site. 57
Table 64. Known locations of the Texas Horned Lizard at Palo Alto Battlefield National Historic Site. 58
Table 65. Known locations of the Texas Spiny Lizard at Palo Alto Battlefield National Historic Site. 58
Table 66. Known locations of the Rose-bellied Lizard at Palo Alto Battlefield National Historic Site. 59
Table 67. Known locations of the Mexican Racer at Palo Alto Battlefield National Historic Site. 59
Table 68. Known locations of the Western Diamondback Rattlesnake at Palo Alto Battlefield National Historic Site. 59
Table 69. Known locations of the Great Plains Rat Snake at Palo Alto Battlefield National Historic Site. 60
Table 70. Known locations of the Western Coachwhip at Palo Alto Battlefield National Historic Site. 60
Table71. Known locations of Ruthven's Whipsnake at Palo Alto Battlefield National Historic Site. 61
Table 72. Known locations of the Texas Patch-nosed Snake at Palo Alto Battlefield National Historic Site. 61
Table 73. Known locations of the Plains Black-headed Snake at Palo Alto Battlefield National Historic Site. 61

LIST OF FIGURES

Figure 1. Locations of Padre Island National Seashore, San Antonio Missions National Historical Park, and Palo Alto Battlefield National Historic Site..... 1
Figure 2. Vicinity Map for Padre Island National Seashore..... 3
Figure 3. Origin and development of the Texas Coastline..... 5
Figure 4. Vicinity Map for San Antonio Missions National Historical Park..... 6
Figure 5. Vicinity Map of Palo Alto Battlefield National Historic Site. 8
Figure 6a. Major Trapping and Other Sampling Sites during Herpetological Inventory of Padre Island National Seashore 2002-2003 (northernmost section)..... 71
Figure 6b Major Trapping and Other Sampling Sites during Herpetological Inventory of Padre Island National Seashore 2002-2003 (middle section)..... 72
Figure 6c Major Trapping and Other Sampling Sites during Herpetological Inventory of Padre Island National Seashore 2002-2003 (southernmost section)..... 73
Figure 7. Major Trapping and other Sampling Sites during Herpetological Inventory of Palo Alto Battlefield National Historic Site – 2002-2003..... 74
Figure 8a. Major Trapping and Other Sampling Sites during Herpetological Inventory of San Antonio Missions National Historical Park – 2002-2003 (Bexar County section)..... 75
Figure 8b. Major Trapping and Other Sampling Sites during Herpetological Inventory of San Antonio Missions National Historical Park – 2002-2003 (Rancho de las Cabras)..... 76
Figure 9. Woodhouse's Toad: Photo Taken during 2002-2003 Herpetological Inventory of Padre Island National Seashore..... 77
Figure 10. A Narrowmouth Toad: Photo Taken during 2002-2003 Herpetological Inventory of Padre Island National Seashore..... 77
Figure 11. Green Tree Frog: Photo Taken during 2002-2003 Herpetological Inventory of Padre Island National Seashore..... 78
Figure 12. Spotted Chorus Frog: Photo Taken during 2002-2003 Herpetological Inventory of Padre Island National Seashore..... 79
Figure 13. Hurter's Spadefoot: Photo Taken during 2002-2003 Herpetological Inventory of Padre Island National Seashore..... 79
Figure 14. Rio Grande Leopard Frog: Photo Taken during 2002-2003 Herpetological Inventory of Padre Island National Seashore..... 80
Figure 15. Red-eared Slider: Photo Taken during 2002-2003 Herpetological Inventory of Padre Island National Seashore..... 80
Figure 16. American Alligator: A Reptile Detected during 2002-2003 Herpetological Inventory of Padre Island National Seashore (this photo not from PAIS)..... 81
Figure 17a. Six-lined Racerunner: Photo Taken during 2002-2003 Herpetological Inventory of Padre Island National Seashore..... 81
Figure 17b. Six-lined Racerunner: Photo Taken during 2002-2003 Herpetological Inventory of Padre Island National Seashore..... 82
Figure 18. Great Plains Skink: Photo Taken during 2002-2003 Herpetological Inventory of Padre Island National Seashore..... 82
Figure 19. Mediterranean Gecko: Photo Taken during 2002-2003 Herpetological Inventory of Padre Island National Seashore..... 83
Figure 20a. Keeled Earless Lizard: Photo Taken during 2002-2003 Herpetological Inventory of Padre Island National Seashore..... 83
Figure 20b. Keeled Earless Lizard: Photo Taken during 2002-2003 Herpetological Inventory of Padre Island National Seashore..... 84
Figure 21. Western Slender Glass Lizard: Photo Taken during 2002-2003 Herpetological Inventory of Padre Island National Seashore..... 84
Figure 22a. Ground Skink: Photo Taken during 2002-2003 Herpetological Inventory of Padre Island National Seashore..... 85
Figure 22b. Ground Skink: Photo Taken during 2002-2003 Herpetological Inventory of San Antonio Missions Historical Park..... 85
Figure 23. Texas Scarlet Snake: Photo Taken during 2002-2003 Herpetological Inventory of Padre Island National Seashore..... 86

Figure 24. Mexican Racer: Photo Taken during 2002-2003 Herpetological Inventory of Palo Alto Battlefield National Historic Site..... 86
Figure 25. Western Diamondback Rattlesnake: Photo Taken by a Visitor during 2002-2003 Herpetological Inventory of Padre Island National Seashore..... 87
Figure 26. Texas Indigo Snake: Photo Taken during 2002-2003 Herpetological Inventory of Palo Alto Battlefield National Historic Site..... 87
Figure 27. Great Plains Rat Snake: Photo Taken during 2002-2003 Herpetological Inventory of Padre Island National Seashore..... 88
Figure 28. Eastern Hognose Snake: Photo Taken during 2002-2003 Herpetological Inventory of Padre Island National Seashore..... 88
Figure 29. Mexican Milk Snake: Photo Taken during 2002-2003 Herpetological Inventory of Padre Island National Seashore..... 89
Figure 30. Western Coachwhip: Photo Taken during 2002-2003 Herpetological Inventory of Padre Island National Seashore..... 89
Figure 31. Diamondback Water Snake: Photo Taken during 2002-2003 Herpetological Inventory of Padre Island National Seashore..... 90
Figure 32. Massasauga: Photo Taken during 2002-2003 Herpetological Inventory of Padre Island National Seashore..... 90
Figure 33. Flathead Snake: Photo Taken during 2002-2003 Herpetological Inventory of Padre Island National Seashore..... 91
Figure 34. Checkered Garter Snake: Photo Taken during 2002-2003 Herpetological Inventory of Padre Island National Seashore..... 91
Figure 35. Gulf Coast Ribbon Snake: Photo Taken during 2002-2003 Herpetological Inventory of Padre Island National Seashore..... 92
Figure 36. Blanchard's Cricket Frog: Photo Taken during 2002-2003 Herpetological Inventory of San Antonio Missions National Historical Park..... 92
Figure 37. Coastal Plain Toad: Photo Taken during 2002-2003 Herpetological Inventory of Palo Alto Battlefield National Historic Site..... 93
Figure 38. Great Plains Narrowmouth Toad: Photo Taken during 2002-2003 Herpetological Inventory of San Antonio Missions National Historical Park..... 93
Figure 39. Couch's Spadefoot: Photo Taken during 2002-2003 Herpetological Inventory of Palo Alto Battlefield National Historic Site..... 94
Figure 40. Rio Grande Chirping Frog: Photo Taken during 2002-2003 Herpetological Inventory of San Antonio Missions National Historical Park..... 94
Figure 41. Common Snapping Turtle: Photo Taken during 2002-2003 Herpetological Inventory of San Antonio Missions National Historical Park..... 95
Figure 42. Texas Tortoise: Photo Taken during 2002-2003 Herpetological Inventory of San Antonio Missions National Historical Park..... 95
Figure 43. Texas River Cooter: Photo Taken during 2002-2003 Herpetological Inventory of San Antonio Missions National Historical Park..... 96
Figure 44. Green Anole: Photo Taken during 2002-2003 Herpetological Inventory of San Antonio Missions National Historical Park..... 96
Figure 45. Texas Spotted Whiptail: Photo Taken during 2002-2003 Herpetological Inventory of San Antonio Missions National Historical Park..... 97
Figure 46. Texas Horned Lizard: Photo Taken during 2002-2003 Herpetological Inventory of San Antonio Missions National Historical Park..... 97
Figure 47. Rose-bellied Lizard: Photo Taken during 2002-2003 Herpetological Inventory of San Antonio Missions National Historical Park..... 98
Figure 48. Texas Spiny Lizard: Photo Taken during 2002-2003 Herpetological Inventory of Palo Alto Battlefield National Historic Site..... 98
Figure 49. Texas Rat Snake: Photo Taken during 2002-2003 Herpetological Inventory of San Antonio Missions National Historical Park..... 99
Figure 50. Desert King Snake: Photo Taken during 2002-2003 Herpetological Inventory of San Antonio Missions National Historical Park..... 99
Figure 51. Plains Blind Snake: Photo Taken during 2002-2003 Herpetological Inventory of San Antonio Missions National Historical Park..... 100
Figure 52. Schott's Whipsnake: Photo Taken during 2002-2003 Herpetological Inventory of San Antonio Missions National Historical Park..... 100
Figure 53. Texas Long-nosed Snake: Photo Taken during 2002-2003 Herpetological Inventory of San Antonio Missions National Historical Park..... 101

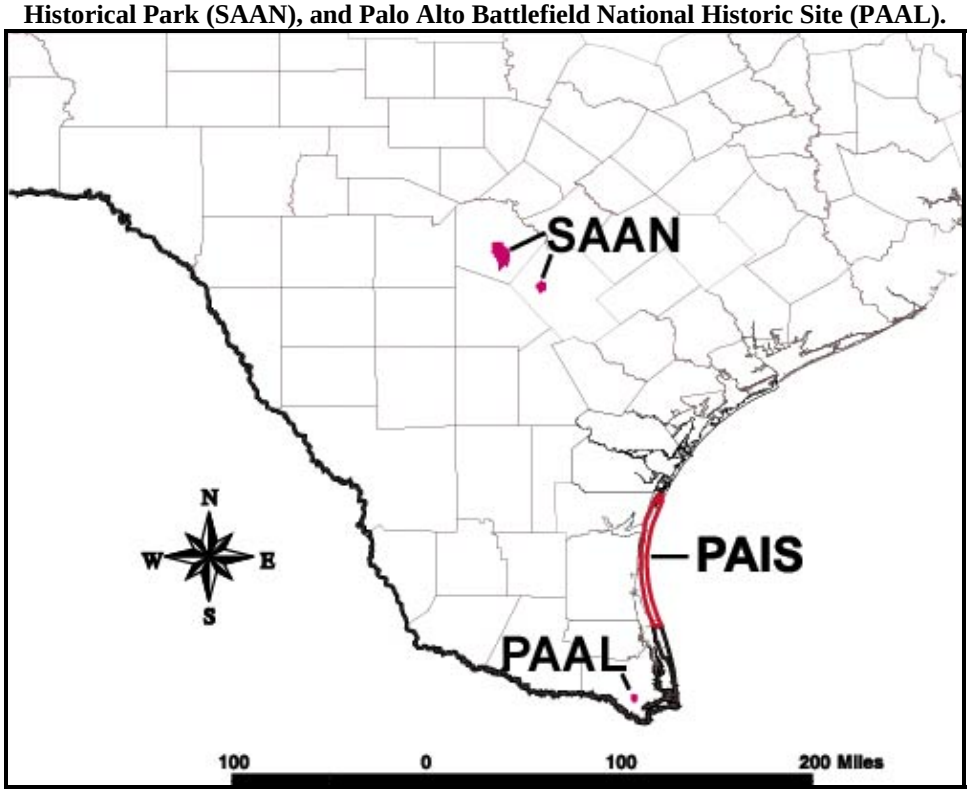
Figure 54. Texas Patch-nosed Snake: Photo Taken during 2002-2003 Herpetological Inventory of San Antonio Missions National Historical Park.....… 101
Figure 55. Texas Brown Snake: Photo Taken during 2002-2003 Herpetological Inventory of San Antonio Missions Historical Park.....….....… 102
Figure 56. Mexican Tree Frog: Photo Taken during 2002-2003 Herpetological Inventory of Palo Alto Battlefield National Historic Site.....….. 102
Figure 57. Ruthven's Whipsnake: Photo Taken during 2002-2003 Herpetological Inventory of Palo Alto Battlefield National Historic Site.....…..... 103
Figure 58. Bull Snake: Photo Taken during 2002-2003 Herpetological Inventory of Palo Alto Battlefield National Historic Site.....….....… 103
Figure 59. Taylor's Ground Snake: Photo Taken during 2002-2003 Herpetological Inventory of Palo Alto Battlefield National Historic Site.....… 104
Figure 60. Plains Black-headed Snake: Photo Taken during 2002-2003 Herpetological Inventory of Palo Alto Battlefield National Historic Site.....…..... 104

INTRODUCTION

NATIONAL PARK SERVICE INVENTORY AND MONITORING PROGRAM

The National Park Service (NPS) Inventory and Monitoring (I&M) Program seeks to obtain baseline inventories of biotic and abiotic natural resource elements represented within each National Park Service unit. The inventories have 12 components and include such features as occurrence and distribution of vertebrate and invertebrate animals, soils, hydrology, and geology. Padre Island National Seashore (PAIS), Palo Alto Battlefield National Historic Site (PAAL), and San Antonio Missions National Historical Park (SAAN) are all included as part of the Gulf Coast Inventory and Monitoring Network (GULN) (Figure 1). Under a cooperative agreement, the NPS has contracted the Texas Conservation Data Center (TxCDC) of The Nature Conservancy to conduct baseline herpetofaunal inventories for PAIS, PAAL, and SAAN, as well as a vascular plant species inventory for SAAN. This report addresses the herpetofaunal inventories, and a separate report addresses the plant inventory at SAAN.

Figure 1. Locations of Padre Island National Seashore (PAIS), San Antonio Missions National Historical Park (SAAN), and Palo Alto Battlefield National Historic Site (PAAL).



THE COOPERATIVE AGREEMENT

The TxCDC and the NPS GULN entered a Cooperative Agreement (CA) to provide the framework for cooperation on inventories for the three parks. The CA states that the inventories should include the following:

- Documentation through existing, verifiable data and targeted field investigations the presence of at least 90 percent of the species of herpetofauna (PAIS, PAAL, SAAN) and vegetation (SAAN) currently estimated to occur within each Park.

- Documentation of the distribution and relative abundance of species of special concern, such as Threatened and Endangered species, exotics, and other species of special management interest that occur within each park's boundary.

- Baseline information needed to develop a general monitoring strategy and design tailored to each Park's specific threats and resource issues.

DOCUMENTATION STANDARDS, DATA QUALITY, TAXONOMY

Annotated checklists of all herpetofaunal species inventoried at each park are included in this report. The checklist utilizes standardized nomenclature and taxonomy for all species. As specified by the cooperative agreement, taxonomy used when entering data into the ANCS+ database is based on the Integrated Taxonomic Information System (ITIS). However, in some cases, the ITIS taxonomy does not reflect recent taxonomic revisions; therefore, for this report and in consultation with NPS, we have attempted to use the most current accepted taxonomy. Crother, et al. (2003) was a primary source for many recent changes.

This report does not follow a single system for reporting units of measure. The metric system (meters) was used to design survey routes and to describe species locations, but some historical information was originally presented in English system units. To ensure preservation of historical data, those measurements are reported as they were originally recorded and we report our measurements as we recorded them. Long distance measurements and descriptions have been reported in miles.

All species data have been entered into the NPSpecies database. All information gathered regarding species inventoried, including information obtained from museum collections is included as part of a geographic information system (GIS) database. A Microsoft Excel spreadsheet, which includes precise coordinates for each species record, was created from the GIS database. We have also provided metadata that is compliant with Federal Geographic Data Committee (FGDC) requirements for all spatial data created during this project.

Specimens collected during this project have been preserved, labeled, and entered into the ANCS+ system according to NPS standards. Specimens from PAIS and PAAL have been deposited in the NPS collection at Texas A&M Kingsville. Specimens collected from SAAN have been deposited into the Texas Cooperative Wildlife Collection at Texas A&M University.

DESCRIPTION OF PADRE ISLAND NATIONAL SEASHORE

Padre Island extends from the Packery Channel/Corpus Christi Pass area on the north to the Brazos Santiago Pass near Brownsville (Figure 2) (Brazos Santiago not shown). It is part of a barrier island chain that extends discontinuously along almost the entire Texas coast. The northern part of Padre Island, now commonly referred to as North Padre Island, extends about 77 miles, from the Packery Channel to the Mansfield Channel.. The barrier island south of the Mansfield Channel is referred to as South Padre Island. The barrier island north of Corpus Christi Pass is Mustang Island. The southernmost 69 miles of North Padre Island, 90% of the island north of the Mansfield Channel, comprises the 135,000-acre Padre Island National Seashore.

Figure 2. Vicinity Map for Padre Island National Seashore.

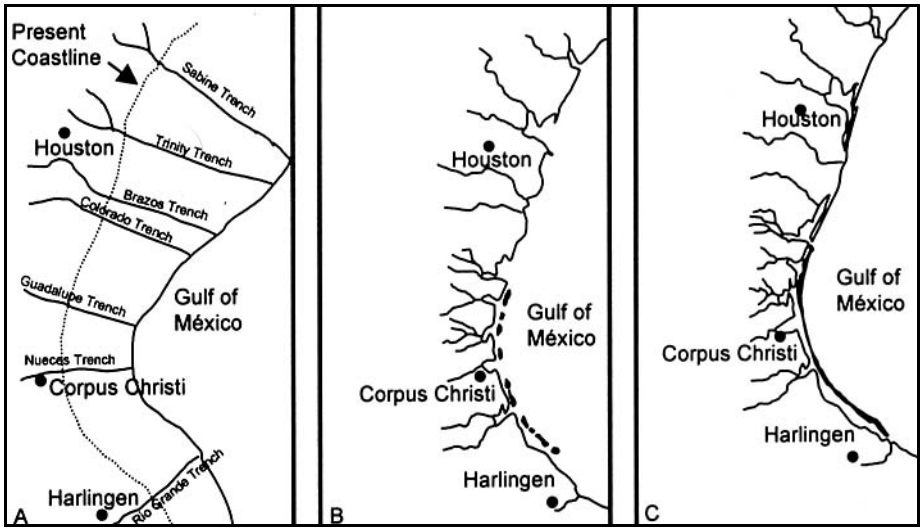
The Laguna Madre is one of only five hypersaline ecosystems in the world (Javor, 1989) and lies between the mainland and Padre Island. The barrier islands and the Laguna Madre are primarily products of the Pleistocene and Recent (Holocene and Modern) geologic epochs (Tunnell, 2002). About 18,000 years before present (ybp), toward the end of the final glaciation period (Wisconsin), sea level was 91 to 137 meters lower than it is today, and the shoreline was about 80 kilometers east of its present location (Brown, et al., 1976). As glacial ice melted, sea level slowly rose, and by the end of the Holocene (about 5,000 to 4,500 ybp) sea level had risen to about 4.6 meters above where it is today (Tunnell, 2002). Around that time, sand bars and shoals began to form parallel with the coast, and by 2,500 ybp those sand bars and shoals had coalesced to form Padre and the other barrier islands much as they appear today (LeBlanc and Hodgson, 1959), though the barrier islands and the Laguna Madre continue to slowly change. Baffin Bay is believed to have become hypersaline prior to the Laguna Madre, somewhere around 5,000 to 4,500 ybp (Behrens, 1974), and the Land Cut, a land bridge between Mansfield and Baffin Bay (Figure 2) that connected Padre Island to the mainland before the dredging of the Gulf Instracoastal Waterway (GIW), was probably formed only a few hundred years ago (Watson, 1989; Morton and Garner, 1993).

Prior to channelization of the intermittent tidal inlets at Mansfield and Brazos Santiago and dredging the GIW, the normal salinity content of the Laguna Madre was generally two to three times greater than oceanic salinity (Copeland and Jones, 1965; Copeland, 1967; Hildebrand, 1969), but historically salinity content has varied widely, from 0.5-30 ppt (parts per thousand) during wet hurricanes, to 295 ppt during extended drought (Copeland, 1967). During times of drought, salinity in the Upper Laguna Madre has reached levels that are toxic to most organisms. By examining five years of salinity data, Copeland (1967) demonstrated that increasing salinity appeared to be highly correlated to decreasing species richness of Laguna Madre fishes: At 51 ppt, 29 species of fish were encountered; at 95 ppt, there were eight species, and at 110 ppt only five species were present. When salinities remained between 110 and 120 ppt for almost one year, only sheepshead minnow and tidewater silverside remained. When salinity reached 140 ppt, the only animal species remaining was brine shrimp. At 295 ppt, sodium chloride was precipitating and no plant or animal organisms were detected.

While the channels at Mansfield and Brazos Santiago have reduced salinity levels in the lower Laguna Madre considerably, there are no tidal inlets north of Mansfield, and only the GIW provides a source of less saline water through the Land Cut; therefore salinities remain much higher in the northernmost regions of the Laguna Madre, adjacent to North Padre Island, and frequently reach into the mid-100 ppt (Copeland and Jones, 1965; Copeland, 1967; Hildebrand, 1969). During the extended drought of the 1950s, when no fish or plant species survived in the extreme hypersalinity of the Upper Laguna Madre, an intense fishery thrived in the Lower Laguna Madre (Hildebrand, 1958).

The Laguna Madre and the manmade channels present a substantial ecological barrier to the movement of reptiles and amphibians among the barrier islands and between the mainland and the barrier islands. Even at the Land Cut, before the creation of the GIW, miles of wind tidal flats presented a near impenetrable barrier to migration for most reptiles and amphibians. Historically, the natural tidal passes at the north and south ends of the island (and several in between) were often closed (Tunnell, 2002), allowing movement of fauna and therefore some gene flow between the thinly connected islands; however, the recent creation of channels and intensive habitat destruction on each end of the island have created formidable barriers to migration or gene flow for most reptiles and all amphibians. The results of this study appear to indicate that these ecological barriers may have contributed to some noteworthy differences in species composition between the herpetofauna found on Padre Island and that found just across the Laguna on the mainland.

Figure 3. Origin and development of the Texas Coastline: A) Late Pleistocene falling sea level stage about 18,000 ybp; B) Early Modern sea level stage with barrier islands forming about 4,500 ybp; C) Present standing sea level stage (From Le Blanc and Hodgson 1959)



Average rainfall for Corpus Christi, at the north end of Padre Island, is 70.6 cm (27.8 in) with approximately one third of that rainfall coming during October (Tunnell, 2002). Precipitation is highly variable between years—in Corpus Christi, annual rainfall since 1900 has ranged from 13.7 cm (5.4 in) in 1917 to 127.6 cm (50.3 in) in 1992. The air temperature in Nueces County ranges from average winter lows of 8.3^{o}C (46.9^{o}F) to average summer highs of 33.3^{o}C (91.9 ^{o}F) (Brown, et al., 1976).

Species richness of the Texas barrier islands is low compared to the barrier islands of the Atlantic Coast of the United States (Judd, 2002). On South Padre Island the low species richness is largely attributable to an almost complete lack of a tree or shrub zone over most of the island (Judd et al, 1977), though in the northern part of PAIS there are several small oak mottes as well as numerous scattered willow thickets. North Padre Island has the greatest species richness of all the barrier islands from Matagorda to South Padre with 456 species of plants (Nelson et al., 2000).

Between the Gulf of Mexico beach and the Laguna Madre tidal flats several distinct topographical and vegetation zones are apparent. Weise and White (1980) described the topographical profile of North Padre Island:

> 1) A forebeach zone which is unvegetated; 2) a backbeach zone with a belt of sea purslane (*Sesuvium portulacastrum*) nearest the Gulf and a more landward area dominated by sea-oats (*Chasmanthium latifolium*); 3) fore island dunes supporting fiddleleaf morning glory (*Ipomoea imperati*) and sea-oats; 4) a vegetated barrier flat and back island dunes; and 5) back-island sand flats and wind-tidal flats which are essentially bare, but support a narrow zone of halophytic vegetation bordering the vegetated flats. The "vegetated barrier flats" consist of two distinct habitat types, particularly on the north end of PAIS: 1) low-lying areas that may be underwater for much of the year (particularly August-October), dominated by wetland vegetation; and 2) somewhat higher, sandier areas dominated by grassland vegetation.

DESCRIPTION OF SAN ANTONIO MISSIONS NATIONAL HISTORICAL PARK

Carr (2004a, 2004b) presents a detailed description of San Antonio Missions Historical Park in his report on the plant species inventory conducted under the same cooperative agreement as the present study. His description is paraphrased here. SAAN consists of discontinuous small tracts along a six-mile stretch of the San Antonio River, on the southern side of San Antonio in south central Bexar County, Texas. The park is focused around four eighteenth-century Spanish missions: Mission San José y San Miguel de Aguayo (built during the 1720's), Mission Nuestra Señora de la Purísma Concepción de Acuña (built early 1730's), Mission San Juan Capistrano (early 1730's), and Mission San Francisco de la Espada (early 1730's) (Torres, undated). In addition to the grounds of these four missions, the park includes considerable acreage of picnic grounds, abandoned cropland, homeless camps, and urban wastelands. A separate unit of SAAN is the Rancho de las Cabras, located along the San Antonio River considerably south of the urban park. It occupies about 99 acres along the southwest bank of the river just south of Floresville in west-central Wilson County, Texas (Figure 4). That site is closed to the public except during occasional guided tours.

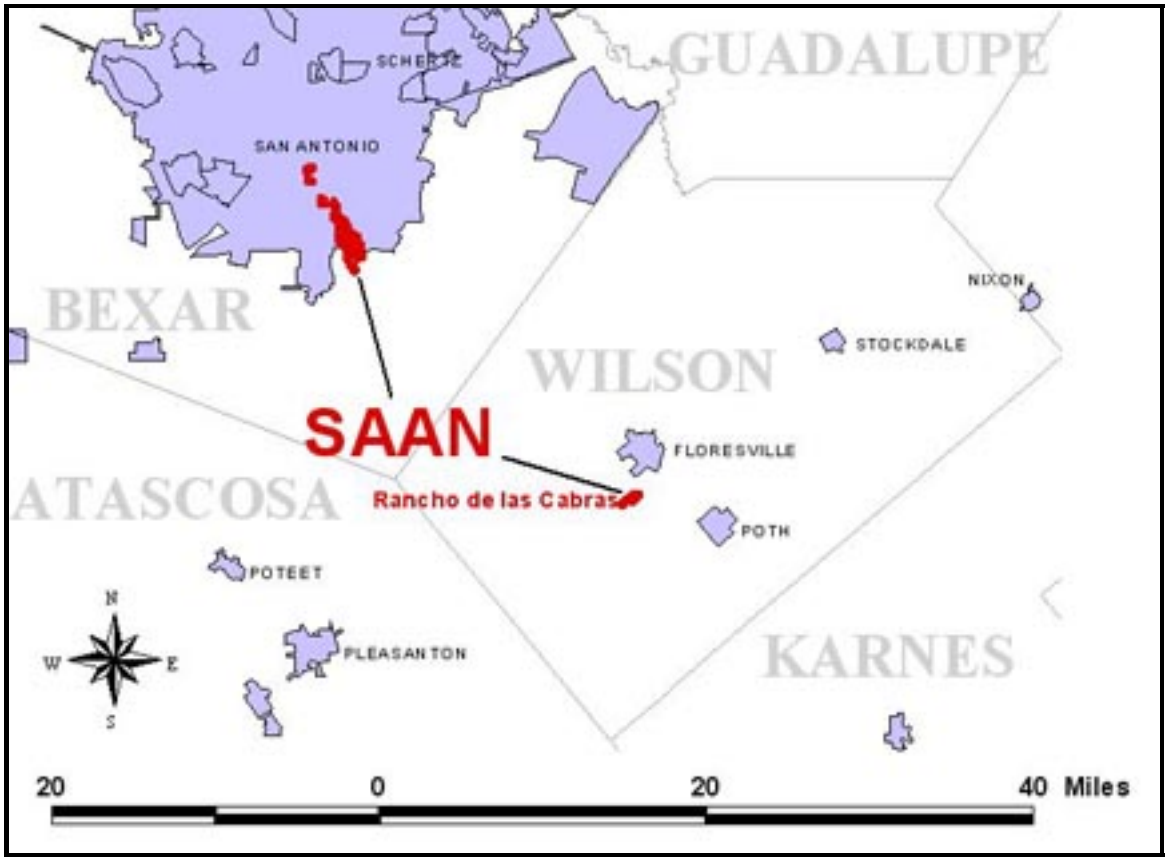


Figure 4. Vicinity Map for San Antonio Missions National Historical Park (SAAN).

SAAN is located almost entirely on alluvium of the historic and contemporary floodplains of the San Antonio River, southeast of the Edwards Plateau. No limestone outcrops occur within the park. Surface geology just beyond the river floodplain consists of mudstones, clays, and sandstones, but outcrops of these rocks are scarce within the park proper. Gravels and other outwash alluvium from Quaternary streams draining the Edwards Plateau lie on a few higher spots along the edge of the floodplain (Brown, et al., 1983).

Topography of the Bexar County section is generally level except within the immediate vicinity of old river channels. The current channel has been highly modified for flood control and is maintained by the San Antonio River Authority; it is not part of the park. Elevation ranges from about 500 feet above mean sea level along an old river channel river near Mission Espada to about 600 feet on the grounds of Mission Concepción, the northernmost

of the missions.

The mean air temperature in Bexar County over all seasons (1943-1980) is 20.6°C (69.1°F) with a mean daily maximum of 26.7°C (80°F) to a mean daily minimum of 14.4°C (58°F) (Natural Fibers Information Center, 1987). On most summer days, temperatures exceed 32.2°C (90°F), and in the winter, temperatures fall below freezing on an average of 23 days. Annual precipitation is highly variable but averages 73.9 cm (29.1 in). Winds prevail from the southeast March through September and from the north October through February (Natural Fibers Information Center, 1987).

For the purposes of this survey, three macrohabitats were recognized: Old Field, Upland Woodland, and Riparian Woodland. Each is described in greater detail by Carr (2004a,b).

"Oldfield" refers to various agricultural fields on deep alluvial soils of essentially level river terraces. Most have probably been in some sort of cultivation or another for most of the last 200 years, but are currently utilized as exotic hay meadow rather than cropland. Some have not been harvested in several years and are now invaded by woody species.

"Upland Woodland" occupies calcareous clay loam on alluvial terraces along the San Antonio River, i.e., the same sites that support Old Field macrohabitat when recently plowed and Riparian Woodland macrohabitat when ignored for forty or fifty years. The category of Upland Woodland macrohabitat applies to transitional vegetation dominated by huisache and mesquite shrubs and small trees, as happens when the area's old fields are not harvested or mown for a few years. To some eyes, the abundance of these two thorny legumes and other characteristic shrubs makes the vegetation resemble South Texas brush (Tamaulipan thornscrub). But Carr (2004a) explains why these areas should not be characterized as thornscrub vegetation.

"Riparian Woodland" occupies deep, calcareous loamy clays on alluvial terraces and banks along old channels of the San Antonio River and its tributaries, such as Piedras (Sixmile) Creek. It usually occurs as a narrow strip paralleling streams. Most riparian woodland sites are flooded at least briefly during and following heavy rains. Vegetation is a deciduous forest or woodland with a closed or nearly closed canopy.

This survey also investigated the herpetofauna in human dominated habitats, such as lawns, gardens, near buildings and walls, in certain "waste places," and within the *acequias* (canals) and the old river channel associated with the Espada Dam.

DESCRIPTION OF PALO ALTO BATTLEFIELD NATIONAL HISTORIC SITE

The Palo Alto Battlefield is located in Cameron County at the southern tip of Texas, on the flat delta of the Rio Grande. It is located only eleven miles from the southern tip of the Laguna Madre to the east and only eight miles from the nearest bend in the Rio Grande to the southeast (Figure 5). Because of its salty soils, the battlefield site has, to some degree, escaped the intensive agricultural uses that have occurred so extensively in most of the Lower Rio Grande Valley (LRGV). Historically, the area was used mainly for grazing cattle (Farmer, 1992).

The LRGV is part of the Tamaulipan Biotic Province. The climate is semi-arid and sub-tropical. In Cameron County, the average winter low air temparature is 8.9 ^{o}C (48.0^{o}F) and the average summer high is 36.1^{o}C (95.0^{o}F) with an average annual mean in the Brownsville area of 23.1^{o}C (73.6^{o}F) (Tunnell, 2002). The average annual rainfall in Brownsville is 68.2 cm (26.9 in) but precipitation totals between years can fluctuate sharply. About two-thirds of the rainfall comes from May through October. Winds are generally southeasterly from March through November with short-lived but strong northerly winds from December through February (Farmer, 1992).

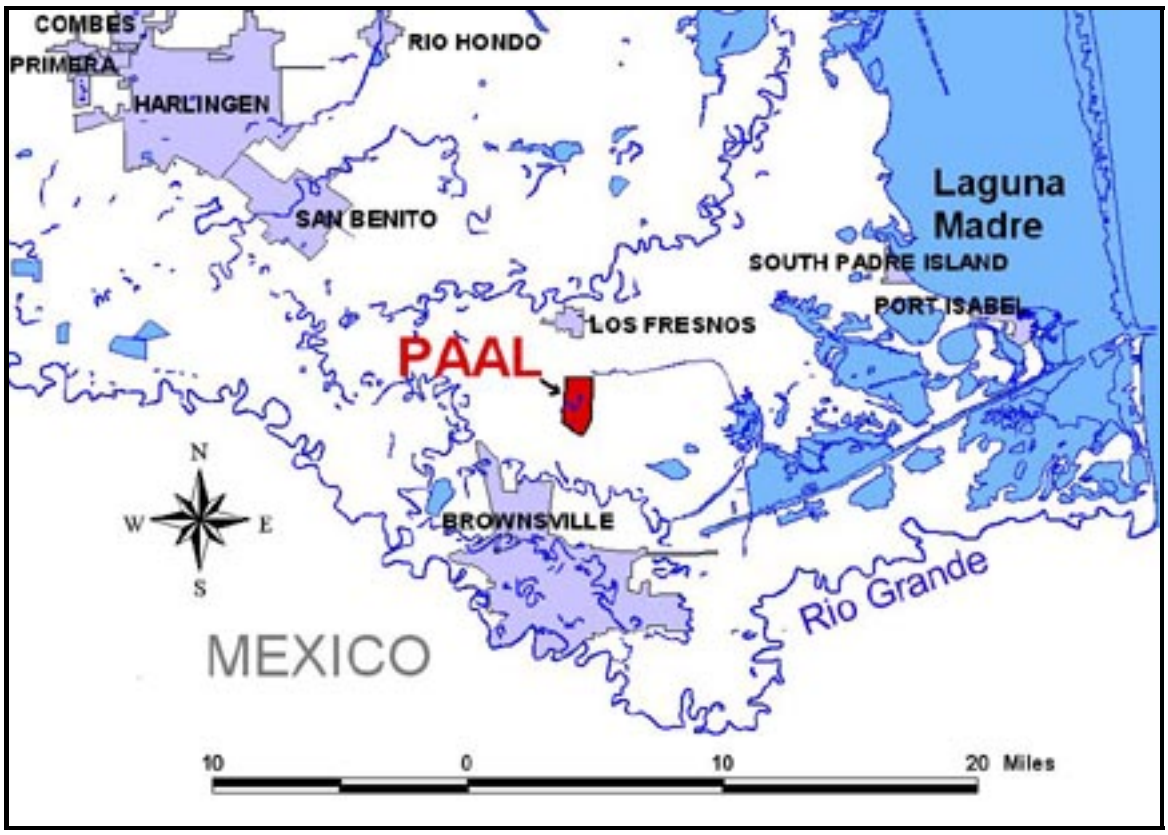


Figure 5. Vicinity Map of Palo Alto Battlefield National Historic Site (PAAL).

The Rio Grande delta plain on which the battlefield lies was built after sea level rose approximately 7000 years ago (Richard and Richardson, 1993). At least three major deltas have formed since that time. The oldest, Los Cuates, was formed 5000-7000 years ago. Palo Alto is located within the intermediate sub-delta (Del Tigre). The resacas (from the Spanish word "*resacar*", meaning, "to take back"), are mainly distributory channels on the delta (Richard and Richardson, 1993).

Soils at PAAL are either clay or clay loam. All are saline and have generally poor drainage. Because this poor drainage led to widespread flooding in the past, drainage ditches have been constructed throughout the county, thus increasing runoff rates. A drainage ditch at the northern boundary of the battlefield site may be a primary

reason that the resacas at PAAL have held little if any water for many years. This in turn may have led to the absence of many aquatic and semi-aquatic species of animals that probably occupied the site historically.

Generally, there are two vegetation zones within the battlefield, brushland and salt prairie. Brushland covers about 23% of the park (Farmer, 1992). Based on the UGGS (1998b) vegetation classification scheme (further discussed below), we differentiated brushland into two components that are mainly relicts of past land management practices (Richard and Richardson, 1993): 1) mesquital and 2) Tamaulipan thornscrub. Much of PAAL lies on land that was once cleared of Tamaulipan brush and is now in various stages of regrowth. The remaining mesquital and the more dense Tamaulipan thornscrub at PAAL are characterized by an overstory dominated by mesquite (*Prosopis glandulosa*), granjeno (*Celtis pallida*), Texas ebony (*Pithecellobium flexicaule*), and anaqua (*Ehretia anacua*). The understory is characterized by lotebush (*Zizyphus obtusifolia*), snake-eyes (*Phaulothamnus spinescens*), colima (*Zanthoxylum fagara*), brasil (*Condalia hookeri*), and prickly pear (*Opuntia lindheimeri*). The native grass *Sporobolus wrightii* was present but sparse. Grazing has apparently removed other grasses from the site (Farmer, 1992).

We differentiated the salt prairie into three components: coastal prairie, borrichia prairie, and sacatal. The coastal prairie is a transition zone and contains many of the plant taxa found in the brushland but at lower density. It is further characterized by the presence of more salt tolerant plants such as *Suaeda* sp., sea ox-eye (*Borrichia frutescens*), *Atriplex* sp., *Sesuvium verrucosum*, seaside heliotrope (*Heliotropium curassavicum*) and sea lavender (*Limonium nashii*), as well as abundant patches of prickly pear. The borrichia prairie is found mainly in the beds of old resacas and is heavily dominated by sea ox-eye. The sacatal contains almost pure stands of *Spartina spartinae*.

METHODS

LITERATURE REVIEW AND MUSEUM SEARCH

A thorough search for literature relevant to herpetofauna at the three parks was conducted. Additionally, museum databases of a number of Texas and prominent national collections were examined. Databases of the following museums and collections were obtained and/or examined (museum codes used in this document in parentheses): the Padre Island National Seashore collection (NPS), the Texas Natural History Collections of the Texas Memorial Museum at the University of Texas, Austin (TNHC); the Texas Cooperative Wildlife Collection at Texas A&M University, College Station (TCWC); the University of Texas at Arlington collection (UTA); the Louisiana State University museum (LSUMZ); and the American Museum of Natural History in New York City. Collections without digital databases available that were examined included the University of Texas – Pan American, Texas A&M University at Corpus Christi, the University of Texas at Brownsville, and Texas A & M University at Kingsville (TAMUK). From the literature and museum records, we were able to develop a comprehensive and accurate initial species search list.

HABITAT DELINEATION AND SELECTION OF SAMPLE SITES

PAIS

Previous to this study, the United State Geological Survey (USGS) had created Geographic Information System (GIS) data themes that classified vegetation cover at PAIS (USGS, 1998a) and at PAAL (USGS, 1998b). *ArcView* version 3.2 GIS software, along with *Sample*, version 3.02 extension, were used to randomly select (by habitat) 17 sampling sites at PAIS (Table 1; Figures 6a, b, c) and three sites at PAAL based on the USGS data themes (Table 2). At PAIS, the classifications representing habitat that might be used by reptiles and amphibians are grasslands, wetlands, sparse vegetation, and dunes. The habitat types that were sampled are also generally correlated to those topographic and vegetation zones described by Weiss and White (1980). Habitats that were not as intensely sampled at PAIS included beaches, tidal flats, and washover channels, all areas where the subject fauna are not normally found.

Table 1. Location of Major Sampling Efforts—PAIS
('WL-GL' is a habitat mixture of wetland and grassland.)

Sample Site #	Vegetation/Habitat	Easting	Northing
1	Grassland	667382.14	3039265.43
2	Wetland	667839.29	3037371.85
3	Sparse	669305.44	3037657.05
4	WL-GL	667328.95	3033677.31
5	WL-GL	665374.62	3030679.98
6	WL-GL	662233.00	3019252.44
7	Sparse	660679.41	2998907.96
8	Wetland	660088.81	2997299.56
9	Grassland	660016.87	2996134.97
10	Grassland	661477.93	2978276.56
11	Sparse	661658.69	2977428.69
12	Wetland	661697.64	2975713.19
13	Wetland	664476.77	2961740.41
14	Grassland	666247.21	2954917.08
15	Dune	667216.54	2951061.72
16	Sparse	669610.42	2944209.30
17	Grassland	671384.47	2939604.81

PAAL

The Palo Alto Battlefield site was formerly a mixture of fields and pastures. The USGS classification identified both natural areas and areas that could only be classed as old fields in various stages of succession. This study limited selection of sites for intense sampling effort to areas that could be identified as natural habitat. As discussed above, the landscape at PAAL can be broadly classified as either brushland or salt prairie. The USGS scheme classified brushland as mesquital and Tamaulipan thornscrub, but the distinction between these habitats at PAAL may be largely due to past land management practices (Farmer, 1992); therefore we sampled at a randomly chosen site along an ecotone between mesquital and Tamaulipan thornscrub. The salt prairie at PAAL was classified into three types by the USGS scheme: coastal prairie, borrichia prairie, and sacatal. Random sites were selected within coastal prairie and borrichia prairie, but we decided not to install drift fences in the sacatal due to the difficulty of digging in the dense stands of *Spartina spartinae*—the sacatal was sampled by visual encounter surveys. Additionally, trap site selection was limited at PAAL because NPS resource managers instructed that roads that reach the eastern side of the property not be used. Given this restriction and time constraints, three sites were randomly selected for sampling on the western side of the property (Table 2; Figure 7).

Table 2. Locations of Major Sampling Efforts—PAAL

Sample Site #	Vegetation/Habitat	Easting	Northing
1	Borrichia Prairie	652166.20	2879340.53
2	Coastal Prairie/Sacatal	652333.81	2879022.92
3	Tamaulipan Thornscrub / Mesquital	652580.97	2879775.17

SAAN

At SAAN, given the limited size and urban nature of the survey area, along with numerous other logistical considerations, it was impractical to choose survey points randomly. There were few places that fulfilled habitat requirements that were at the same time removed from public view, within areas of sufficient contiguous habitat, and reachable on a consistent basis under harsh weather conditions. Therefore, sites were chosen in direct consultation with NPS personnel (Table 3; Figures 8a, b). Three sites were chosen for survey within the mission complexes in San Antonio, and three sites were chosen at the Rancho de las Cabras. Natural habitats have been so altered at SAAN that it is impossible to clearly understand the nature of historical habitats, so areas were classed based on present-day composition with consideration for successional states. For example, one of the sites chosen (site 2) within the main mission complex in San Antonio was grassland but was also an old field and probably historically consisted of riparian woodland. One of the sites chosen at the Rancho de las Cabras was an open upland area that was vaguely similar to grassland, but was also on the edge of a bluff overlooking a tributary of the San Antonio River and might therefore also be considered somewhat riparian. That location was also the site of an old gravel pit that occasionally retained a pool of water. With our sampling locations, we strove to represent the following broad habitat categories: Riparian Woodland, Upland Woodland, and Old Field (Grassland).

Table 3. Locations of Major Sampling Efforts—SAAN

Sample Site #	Vegetation/Habitat	Easting	Northing
1	Upland Woodland	580933.45	3219057.19
2	Grassland/Oldfield	581166.58	3218836.60
3	Riparian Woodland	581283.19	3219076.49
4 (GR1)	Upland Woodland	552889.11	3243852.22
5 (GR2)	Grassland/Riparian	553043.72	3244398.76
6 (GR3)	Riparian Woodland	552635.90	3245899.15

TRAPPING

Several types of traps were utilized in surveys for this study. A small, funnel-type minnow trap baited with sardines and sometimes with chicken livers was used to trap for obligate aquatic amphibians (sirens and tadpoles) although other species would sometimes enter the funnels. For turtles, hoop traps baited with sardines were used. At PAIS, trapping with hoop traps for turtles and with funnel traps for aquatic amphibians was conducted at all permanent and semi-permanent bodies of water during a one week period in summer 2003. At SAAN, similar trapping was conducted during two three-day periods, also during summer 2003. There was no water in which to conduct such sampling at PAAL.

To trap most species of reptiles and amphibians two variations of drift fence arrays were used. The first type of trapping array consisted of a three-armed drift fence-pitfall array. Each arm of the array was approximately 7 meters long. A 19-liter (5-gallon) bucket was placed at the ends of each array and one bucket was placed at the midway point along each fence so that each array contained seven pitfalls. The second type of trapping array consisted of a 4'x 4'x 18" box constructed with a plywood top and bottom, hardware cloth wrapped around the sides, and funnel entrances fashioned of hardware cloth . This array also included pitfall traps composed of five-gallon buckets at the end of each fence.

A water dish, damp sponges, and cover objects were placed inside of each box to prevent mortality of animals due to dehydration or exposure. The lids of the five gallon buckets used for pitfalls were propped up on the bucket handles to provide shade. Wet sponges and other cover objects were also placed in the pitfalls.

All traps—drift-fence arrays, turtle traps, minnow traps—were checked daily. Animals were identified; most were photographed and then released, except for those that were retained as specimens.

VISUAL ENCOUNTER SURVEYS

At PAIS, visual encounter surveys (VES) were conducted at the same randomly chosen sites where traps were placed. VES were conducted by walking one-km transects (east-west and north-south) through each trap site. At the end of each transect the observer would move 100 meters to the left, turn around and walk back toward and past the trap site, repeating that procedure after reaching the end of the next transect and returning to the trap site, so that a total of four kilometers was surveyed. The observer would move from the transect line to explore locations that might provide cover for reptiles or amphibians. A potato hoe was used to lift heavy, overlain grass and to move cover objects. At PAAL and particularly at SAAN, where most of the grounds could be surveyed by VES, the various sites were systematically surveyed to cover all habitat types. Many VES were also conducted opportunistically and during habitat analyses.

COVERBOARDS

Coverboards consisted of a 4' X 4' X ¼" piece of plywood. Coverboards were placed adjacent to trap sites at PAAL and SAAN, but because of logistical limitations at PAIS, few coverboards were utilized there. At SAAN, coverboards placed in the summer of 2002 in a strip of old field grassland, east of the main gate at the Rancho de las Cabras, were missing when we returned to check them in the spring of 2003. Initially coverboards were not disturbed for a minimum of two months, after which they were checked bi-weekly.

AUDITORY SURVEYS

The scope of work for the project (SOW) called for conducting auditory surveys at fixed points mainly from April to June. However, in 2002, very little rain fell at any of the three parks prior to the end of June and in 2003 there was a considerable amount of rainfall after June; therefore, many auditory surveys were conducted opportunistically from July to October. A simple index developed by the Wisconsin Frog and Toad Survey (Mossman, et al., 1998) was used to quantify the number of calling frogs and toads:

0 = no frogs, of a given species, can be heard calling;
1 = individual calls, not overlapping;
2 = calls are overlapping; but individuals are still distinguishable;
3 = numerous frogs can be heard; chorus is constant and overlapping.

At PAIS, auditory surveys were conducted bi-weekly at predetermined times and opportunistically during rainfall when possible. During most of the time allotted for the inventory at PAAL there was no standing water within the park and therefore no auditory surveys were conducted at those times. At SAAN, the only permanent water in the vicinity was in the San Antonio River (which is outside the park) and the acequias and some small intermittent creeks. Therefore, auditory surveys at PAAL and SAAN were mainly opportunistic.

The pre-scheduled auditory surveys were conducted by driving to a predetermined spot near a permanent or semi-permanent water body, and then listening and recording calls for 10 minutes. A data sheet was filled out at the time of the survey, and later the audio files were further analyzed to confirm field identifications and check for other species that might have been unnoticed when the data were collected. Additionally, early in the project, an effort was made to visually observe each species and to collect one specimen of each. During opportunistic surveys, the 10-minute regime was followed at the pre-determined sites, but listening was also done while driving on roads and stopping wherever frogs were heard, then attempting to observe and/or capture them as needed.

ROAD SURVEYS

Road surveys were conducted at PAIS only. On nights that frog surveys were conducted, records were kept of reptiles and amphibians seen crossing roads or dead on roads (DOR). Although the SOW described a method of quantifying reptiles and amphibians observed on roads, the number of reptiles and amphibians observed by this method was so few that this type of quantification is rendered meaningless. Therefore, these data are presented in raw form only and are included in Appendix 1.

COLLECTION AND PRESERVATION OF SPECIMENS

The SOW specifies that one voucher specimen of each species detected will be taken. In the second year of the inventory we requested and received permission to verify large snakes and turtles by photograph. Specimens were euthanized by freezing, fixed in 10% formalin, and stored in 70% ethanol. All reptiles and amphibians found dead on the road or that died in traps were collected; therefore, for some species, there is more than one specimen.

RESULTS

Format for Presentation of Results

In the "Species Details and Discussion" section, each species that has been confirmed within the parks is discussed and to varying degrees described. Following each discussion is a table that includes confirmed general locations, the type of record, and a specimen catalogue number if applicable. Where exact UTM coordinate information is known, that is also presented. Where several animals of one species have been recorded in the same general location, the records in the table are combined, though the total number of individuals is noted in both the text and table. (More detail on those records may be available in the appendices and in the database files included with the final deliverables for this project). For species for which only one or two records of any kind have been found, all of the information is included in the text and no table is included. For one extremely common species at PAIS, the keeled earless lizard (*Holbrookia propinqua*), rather than including a table that would span several pages in the description section for that species, that information is contained only in the appendices.

The tables below illustrate the complete results of the inventories for each park. These include all species determined to be at least "possibly present" on the respective parks. Most species on the checklists were directly collected or observed during this inventory, but in some cases, species are included based on museum or literature records and in a few cases based on credible anecdotal accounts. Each table includes separate accounts for various types of records so that results of the current field work can be compared to other types of records. Additionally, other inventories were previously conducted at PAAL and PAIS (Rabalais, 1975; Richard and Richardson, 1993) and information from those studies is included for comparison to the present work. The results of an unpublished manuscript on the reptiles and amphibians of Mustang and Padre Islands (Rabalais and Baker, 1980) are also included. Designed in this way, the checklist tables represent both our initial search lists for each park, and provide a complete accounting of all species that are currently, potentially, or were historically present, as well as updating the status of some species that were erroneously included in previous checklists.

Determining Frequency of Occurrence

Frequency of occurrence (FO) categories were determined thus: Common, >25 observations and/or > 10 vouchers; Fairly Common, 10-25 observations and/or 5-10 vouchers; Uncommon, 3-10 observations and/or 2-5 vouchers; Rare, < 3 observations and/or < 3 vouchers; Rare or Accidental, 1 voucher; Possible, verified records from near the park but no vouchers and few if any anecdotal records from within the park; Unlikely, no verifiable records from within the park or near the park but anecdotal records from within the park; and Not Present, no evidence that the species occurs in the park and there is little habitat in the park for that species (though the species may have appeared on a previous checklist). We also used one other category, "Probable", that is mainly only relevant for SAAN and PAAL: For species listed as "Probable", numerous museum and anecdotal records exist in the immediate vicinity of the parks, but in many cases, no verifiable records could be found that specifically mention the park as the collection or observation location. For PAIS, only specimens verified from North or South Padre or Mustang Islands were considered when determining the frequency of occurrence. Usually "vouchers" are museum specimens, but vouchers could also consist of photographs or auditory tapes or files.

Note that this method of determining the frequency of occurrence for species has some drawbacks. For instance, there are only two known occurrences of the flathead snake (*Tantilla gracilis*) within PAIS; therefore this classification scheme classifies the species as "Rare" when in reality that species is probably just "secretive" and fossorial and is much more common than the number of known occurrences would indicate. In contrast, a species like the western diamondback rattlesnake (*Crotalus atrox*) is quite conspicuous and often reported when seen—it might actually be less common than its classification as "Fairly Common" based on the 10 confirmed sightings and specimens (that we were able to find) from North Padre Island since 1965 might indicate. Some amphibians that are virtually undetectable during times of below average precipitation might also be incorrectly

classified using this methodology. Some turtles and semi-aquatic snakes classified as “Possible” or “Rare” at PAAL were actually absent during this study, due to drought, but were present during previous inventories and might actually be quite common during extended times of average to above average rainfall.

RESULTS FOR PADRE ISLAND NATIONAL SEASHORE

Table 4 is a checklist of PAIS reptiles and amphibians—it includes species that currently occur, species that may be present, and species that have at one time been thought to be present at PAIS. This list includes 48 species. Thirty of those species were confirmed by this inventory to occur currently at PAIS and are listed as “Common,” “Fairly Common,” “Uncommon,” “Rare,” or “Rare or Accidental.” All but three of the confirmations consisted of direct observations during this inventory. The three species not directly observed were confirmed by museum vouchers. Another eight species are listed as “Possible” or “Unlikely,” mainly based on Rabalais (1975), Rabalais and Baker (1980), and other anecdotal accounts. Seven additional species are included in the list, also based mainly on Rabalais (1975, 1980) and other anecdotal accounts, but no evidence was found that those seven species occur or have occurred within PAIS and they have been classified “Not Present.” One other species is listed as “Accidental” based on Rabalais (1975). One species pair and one sub-species pair, in the genera *Gastrophryne* and *Sistrurus*, are probably not distinct species/subspecies but are single interbreeding populations with highly variable individuals that may represent intergrades. This is discussed in greater detail in the “Species Details and Discussion” section for PAIS.

There are four species with special conservation status that occur within PAIS (Table 5) though two of those species, the southern earless lizard (*Holbrookia lacerata subcaudalis*) and the Texas indigo snake (*Drymarchon corais erebennus*), are known from only one record each in the park and may not be currently extant there. The keeled earless lizard (*H. propinqua*), while uncommon in parts of its range, is extremely common at PAIS. The Texas scarlet snake (*Cemophora coccinea lineri*) is very rare and secretive throughout its range and was found within the park for the first time during this inventory. The American alligator (*Alligator mississippiensis*) is threatened only by similarity of appearance to other rare crocodilians and is an introduced species at PAIS. A number of species of rare and endangered sea turtles occur in the Gulf of Mexico adjacent to PAIS. However, because PAIS is engaged in an extensive and comprehensive sea turtle monitoring program that has been ongoing for many years, sea turtles were not included in this inventory.

There are 535 individual entries in the database created based on reptile and amphibian observations of all types (Appendix 1) at PAIS. Multiple observations (noted in parentheses) at one location only constitute one entry in this data set, (e.g. 23 observations of the keeled earless lizard at trap site number 15 are recorded as a single entry). Museum collections contributed 105 records to the total. Trapping was by far the most productive sampling method used: 256 individuals of 16 species were caught in traps within PAIS (Appendix 2). Visual encounter surveys were performed but were much less effective than trapping (Appendix 3). No species were recorded during pre-planned visual encounter surveys that were not recorded also by trapping. However, one species (the Texas glossy snake, *Arizona elegans arenicola*) was found on the way to a trap site but was never caught in a trap, and two species of frogs were detected during auditory surveys that were not caught in traps. Many records were gathered when specimens were picked up as road-kills, or brought to us by park staff, or otherwise casually observed during the course of other activities (Appendix 4). Auditory surveys were a very effective means of locating anuran species on PAIS (Appendix 5). All frog species that were documented were initially noted by auditory methods. In most cases of auditory detection, following the call ultimately enabled specimen collection. Forty-four specimens of seventeen species, almost half of which were road-kills, were collected as voucher specimens (Appendix 6) at PAIS.

The north portion of North Padre Island, from the boundary of the park to the city limits of Corpus Christi, is a relatively contiguous stretch of habitat similar to that in the park with no significant ecological barriers to the park land. It is therefore extremely likely that any species occurring in that three-mile stretch would also occur on similar habitats within the boundaries of the park. Thus, records for reptiles and amphibians from North Padre Island, but outside of PAIS, are also included in the GIS database and in the tables that follow the short discussions for each species.

Table 4. Checklist of Reptiles and Amphibians of Padre Island National Seashore. Species detected for the first time at PAIS during this inventory designated by "*".

AMPHIBIANS				
Common Name	**Scientific Name**	**Freq. of Occurrence 2002-03 Inventory**	**Rabalais 1975; Rabalais and Baker, 1980**	**In Literature or Collections**
AMPHIBIANS				
Rio Grande Leopard Frog	*Rana berlandieri*	Common	Fairly Common	Yes
Green Tree Frog	*Hyla cinerea*	Common	Uncommon	Yes
Hurter's Spadefoot Toad	*Scaphiopus hurterii*	Common	Uncommon	Yes
Spotted Chorus Frog*	*Pseudacris clarkii*	Rare*	Possible	No
Coastal Plain Toad	*Bufo nebulifer*	Unlikely	Possible	No
Texas Toad	*Bufo speciosus*	Unlikely	Possible	No
Woodhouse's Toad*	*Bufo woodhousii*	Common*	No	No
Couch's Spadefoot Toad	*Scaphiopus couchii*	Possible	Possible[2]	Yes
Great Plains Narrow-mouthed Toad*[1]	*Gastrophryne olivacea*	Rare*[1]	Possible	No
Eastern Narrow-mouthed Toad*[1]	*Gastrophryne carolinensis*	Rare*[1]	No	No
REPTILES				
Fresh-Water and Terrestrial Turtles				
Red-Eared Slider	*Trachemys scripta elegans*	Common	Common	Yes
Yellow Mud Turtle	*Kinosternon f. flavescens*	Possible	Uncommon[2]	Yes
Texas Tortoise	*Gopherus berlandieri*	Not Present	Uncommon[2]	No
Common Snapping Turtle	*Chelydra s. serpentina*	Accidental	Accidental[2]	Yes
Ornate Box Turtle	*Terrapene o. ornata*	Not Present	Possible[2]	No
Texas Diamondback Terrapin	*Malaclemys terrapin littoralis*	Possible	Possible[2]	No
Lizards and Alligators				
American Alligator	*Alligator mississippiensis*	Rare/Introduced	Not Present	No
Keeled Earless Lizard	*Holbrookia p. propinqua*	Common	Common	Yes
Western Slender Glass Lizard	*Ophisaurus a. attenuatus*	Common	Common	Yes
Six-Lined Racerunner	*Aspidoscelis s. sexlineatus*	Common	Common	Yes
Texas Spotted Whiptail	*Aspidoscelis gularis*	Unlikely	Uncommon[2]	Yes[2]
Great Plains Skink	*Eumeces obsoletus*	Uncommon	Uncommon	Yes
Southern Earless Lizard	*Holbrookia lacerata subcaudalis*	Rare or Accidental	Uncommon	No
Mediterranean Gecko	*Hemidactylus turcicus*	Common/Introduced	Common	No
Green Anole	*Anolis carolinensis*	Not Present	Possible[2]	Yes[2]
Ground Skink	*Scincella lateralis*	Fairly Common	Possible	Yes
Texas Horned Lizard	*Phrynosoma cornutum*	Unlikely/Not Present	Possible	Yes
Texas Rose-bellied Lizard	*Sceloporus variabilis marmoratus*	Not Present	Possible[2]	No
Texas Spiny Lizard	*Sceloporus olivaceus*	Not Present	Possible[2]	No
Snakes				
Texas Glossy Snake	*Arizona elegans arenicola*	Uncommon	Fairly Common	Yes
Texas Scarlet Snake*	*Cemophora coccinea lineri*	Rare*	Not Present	No
Mexican Racer	*Coluber constrictor oaxaca*	Uncommon	Uncommon	Yes
Western Diamondback Rattlesnake	*Crotalus atrox*	Uncommon	Common	Yes
Texas Indigo Snake	*Drymarchon corais erebennus*	Rare or Accidental	Possible	Yes
Eastern Hognose Snake	*Heterodon platirhinos*	Fairly Common	Fairly Common	Yes
Mexican Milk Snake	*Lampropeltis triangulum annulata*	Common	Common	Yes
Plains Blind Snake	*Leptotyphlops d. dulcis*	Unlikely	Possible[2]	No
Western Coachwhip	*Masticophis flagellum testaceus*	Common	Common	Yes
Gulf Salt Marsh Snake	*Nerodia c. clarkii*	Possible	Possible	Yes[2]
Diamondback Water Snake	*Nerodia r. rhombifer*	Uncommon	Fairly Common	Yes
Great Plains Rat Snake*	*Pantherophis emoryi*	Rare*	Possible	No
Desert Massasauga[3]	*Sistrurus catenatus edwardsi*	Common	Possible	Yes
Western Massasauga[3]	*Sistrurus catenatus tergeminus*	Common	Common	Yes
Texas Brown Snake	*Storeria dekayi texana*	Possible	Possible	Yes[2]
Flathead Snake	*Tantilla gracilis*	Rare	Uncommon	No
Checkered Garter Snake	*Thamnophis m. marcianus*	Fairly Common	Common	Yes
Gulf Coast Ribbon Snake	*Thamnophis proximus orarius*	Common	Common	Yes
Lined Snake	*Tropidoclonion lineatum*	Rare or Accidental	Not Present	Yes
Rough Earth Snake	*Virginia striatula*	Not Present	Possible	No

1 This species is currently only identified as *Gastrophryne* sp. but exhibits characteristics of both *G. olivacea* and *G. carolinensis*

2. Only known from Rabalais (1975) and Rabalais and Baker (1980).

3. Highly variable specimens in Genus *Sistrurus*—probably not two distinct forms.

Table 5. Species with Special Conservation Status Known to Occur on Padre Island National Seashore. Global Rank (GR), State Rank (SR), Federal Status (FS) and State Status (SS). For explanation of codes see Appendix 7.

Common Name	Scientific Name	Frequency	GR	SR	FS	SS
Alligators and Lizards						
American Alligator	*Alligator mississippiensis*	Rare/Introduced	G5	S5	T(SA)	none
Southern Earless Lizard	*Holbrookia lacerata subcaudalis*	Rare or Accidental	G3G4	S3?	none	none
Keeled Earless Lizard	*Holbrookia p. propinqua*	Common	G3?	S3?	none	none
Snakes						
Texas Scarlet Snake	*Cemophora coccinea lineri*	Rare	G5T2	S2	none	T
Texas Indigo Snake	*Drymarchon corais erebennus*	Rare or Accidental	G4	S8	(PS)	T

SPECIES DETAILS AND DISCUSSION – PAIS

Frogs and Toads

Woodhouse's Toad (*Bufo w. woodhousii*)

Woodhouse's toad (Figure 9) was not previously included on the list of reptiles and amphibians thought to occur within PAIS. The species was not previously known from Kleberg or Nueces Counties. Woodhouse's toad was recorded calling at PAIS from February through July, usually during or after rains. It was also observed crossing roads on a number of occasions. It was observed mainly on the north end of the island but was also observed and photographed during a VES survey near trap 14, which was near the 50-mile marker. There are rare records for Woodhouse's toad from the three southernmost coastal Texas counties.

Table 6. Known locations of Woodhouse's Toad on North Padre Island.

Dates	Location	Easting	Northing	Type Record/Specimen number
5/19/2003	behind dunes at 0 mile marker	667602	3033579	observed – photo – 40 individuals
5/19/2003	behind dunes at 0 mile marker	667605	3033572	observed – photo – 40 individuals
5/19/2003	behind dunes at 0 mile marker	667593	3033569	observed – photo – 40 individuals
5/19/2003	behind dunes at 0 mile marker	667612	3033566	observed – photo – 40 individuals
5/19/2003	behind dunes at 0 mile marker	667622	3033565	observed – photo – 40 individuals
5/19/2003	behind dunes at 0 mile marker	667635	3033563	observed – photo – 40 individuals
5/19/2003	behind dunes at 0 mile marker	667629	3033573	observed – photo – 40 individuals
5/19/2003	behind dunes at 0 mile marker	667649	3033557	observed – photo – 40 individuals
5/19/2003	behind dunes at 0 mile marker	667622	3033558	observed – photo – 40 individuals
5/19/2003	behind dunes at 0 mile marker	667612	3033577	observed – photo – 40 individuals
5/19/2003	behind dunes at 0 mile marker	667602	3033552	observed – photo – 40 individuals
5/19/2003	behind dunes at 0 mile marker	667585	3033579	observed – photo – 40 individuals
2/11, 7/1/2002, 4/72/2003	ephemeral pond behind WWT	666848	3034391	heard - recording
7/1/2002, 7/4/2003	near BIB pond	668045	3039241	heard
7/15/2002	3.5 mile down Is.- W.~300	666358	3030909	audo recorded, spec. / PAIS-055
4/7/2003	BIB Rd-400 m W. of int Pkrd22	668298	3039035	heard
7/4/2003	BIB Road	667805	3039420	photo
6/5/2003	Visitor Center Parking Lot	668073	3034464	photo
7/15/2002	Outside gate to WWT facility	667612	3034345	photo
5/20/2003	125 m E. of Trap 14	666358	2954956	photo

A Narrowmouth Toad (*Gastrophryne* sp.)

There are no records for the Great Plains narrowmouth toad (*Gastrophryne olivacea*) or the eastern narrowmouth toad (*G. carolinensis*) on North or South Padre Islands, though there are numerous records for the Great Plains narrowmouth toad in Corpus Christi and Nueces County and specimens have been collected from the north end of Mustang Island in the city of Port Aransas (Rabalais and Baker, 1980). There are also no records for the eastern narrowmouth toad from Mustang or Padre Islands or for Nueces or San Patricio Counties to the north or for any counties to the south. This narrowmouth toad was initially detected when an audio files was made along Park Road 22, near the Corpus Christi city limit. A number of other experts were consulted, but none could make a definite identification of the call, though the call is clearly similar to that made by the

eastern narrowmouth toad. Then, in the summer of 2004, after the draft of this report had been submitted, the investigator made some better recordings of that call on Padre Island and two weeks later collected a number of tadpoles from the location along Park Road 22 and from a site on Mustang Island. Some tadpoles were preserved and several others allowed to transform (Figure 10). The tadpoles and the young adults were definitely identified as *Gastrophryne*, but the calls are not typical of *carolinensis* and are quite dissimilar to *olivacea*. The form may represent an intergrade between those species, or it may represent an undescribed species, but in any case, it is another new record for the county and for Padre Island.

Green Tree Frog (*Hyla cinerea*)

The green tree frog (Figure 11) is very common and widespread across the southeastern and southern United States. It was heard and observed more than any other species of frog at PAIS. Interestingly, Rabalais (1975) listed the green tree frog as "uncommon" within PAIS, but in the present study it was recorded at every location where there was permanent or semi-permanent water and was easily the most common amphibian encountered during this inventory. The green tree frog's appearance and some calls are vaguely similar to those of the squirrel tree frog (*H. squirella*) and large choruses of green tree frogs might mask the calls of squirrel tree frogs, but squirrel tree frogs have not been recorded within PAIS. The known distribution of the squirrel tree frog extends to about the northern boundary of PAIS.

Table 7. Known locations of the Green Tree Frog on North Padre Island.

Dates	Location	Easting	Northing	Type Record/Specimen number
various - 4/1/03-10/3/2003	all freshwater locations	667746	3034321	heard-recorded
various - 4/1/03-10/3/2003	all freshwater locations	667651	3034483	heard-recorded
various - 4/1/03-10/3/2003	all freshwater locations	666921	3034563	heard-recorded
various - 4/1/03-10/3/2003	all freshwater locations	666806	3034205	heard-recorded
various - 4/1/03-10/3/2003	all freshwater locations	667830	3034917	heard-recorded
various - 4/1/03-10/3/2003	all freshwater locations	667827	3035184	heard-recorded
various - 4/1/03-10/3/2003	all freshwater locations	667836	3036432	heard-recorded
various - 4/1/03-10/3/2003	all freshwater locations	668149	3036793	heard-recorded
various - 4/1/03-10/3/2003	all freshwater locations	668476	3037154	heard-recorded
various - 4/1/03-10/3/2003	all freshwater locations	668637	3036963	heard-recorded
various - 4/1/03-10/3/2003	all freshwater locations	668761	3037633	heard-recorded
various - 4/1/03-10/3/2003	all freshwater locations	668664	3037884	heard-recorded
various - 4/1/03-10/3/2003	all freshwater locations	668823	3037901	heard-recorded
various - 4/1/03-10/3/2003	all freshwater locations	668383	3039098	heard-recorded
various - 4/1/03-10/3/2003	all freshwater locations	668301	3039290	heard-recorded
various - 4/1/03-10/3/2003	all freshwater locations	668209	3039185	heard-recorded
various - 4/1/03-10/3/2003	all freshwater locations	667956	3039285	heard-recorded
various - 4/1/03-10/3/2003	all freshwater locations	668230	3039571	heard-recorded
7/16/2002	near gate to waste treat.	667611	3034483	collected specimen/ PAIS075
5/27/2003	far north part of park	671119	3046350	collected tads - released

Spotted Chorus Frog (*Pseudacris clarkii*)

The spotted chorus frog (Figure 12) is distributed from south-central Kansas through central Texas to the Rio Grande. The species is very much associated with grasslands. No other chorus frog (*Pseudacris*) is likely to occur on North Padre Island. Across its range, peak calling is typically in April and May but this is probably not true on Padre Island where it probably calls only when rainfall is sufficient to ensure successful breeding. The spotted chorus frog was not recorded within PAIS until after the date that had originally been planned as the end of fieldwork. Because of heavy rainfall in late September 2003 an opportunistic auditory survey was conducted. A chorus of spotted chorus frogs was heard just north of the park visitor center, about two hundred meters east of Park Road 22. One individual was captured and preserved. This frog was also heard calling on the outskirts of Corpus Christi (on Padre Island). Because we did not detect the spotted chorus frog during auditory or other surveys before September 2003, we must speculate that this frog may have an extremely limited range and small populations within PAIS. The species may have seen its population numbers reduced by the drought of the previous nine years. If rainfall continues as it did in 2003, then the spotted chorus frog may expand its seemingly limited range within PAIS. The spotted chorus frog was not previously known from PAIS and there were no museum records for Padre or Mustang Islands.

Table 8. Known locations of the Spotted Chorus Frog on North Padre Island.

Dates	Location	Easting	Northing	Type Record/Specimen number
9/24/2003	150 m N. of V.C. parking lot	668196	3035072	audio, photos; spec- PAIS-113
7/9/2003	100 m S. of Corpus City Limit	673554	3050343	recording of calling
9/24/2003	sea pines rd @ pk rd 22	675160	3052283	recording of calling

Hurter's Spadefoot (*Scaphiopus hurterii*)

Hurter's Spadefoot (Figure 13) is distributed from western Arkansas and eastern Oklahoma, down through the eastern half of Texas to the Rio Grande. It was trapped 34 times at four trap sites on the north end of the island. It was not trapped at the somewhat xeric, sparsely vegetated site of trap #3, and it was not trapped or otherwise observed on the drier, southern 65 miles of the island. Hurter's spadefoot was first heard calling abundantly in virtually every location where rainfall had created temporary pools when the drought broke in late June of 2002. We found one museum record from within the park for Hurter's spadefoot. This record was from "10 miles south of the Kleberg County line." Oddly enough, we did not record the call of Hurter's spadefoot in 2003, though we did not conduct surveys for part of the spring breeding season. Hurter's spadefoot is somewhat similar in appearance to Couch's spadefoot (*S. couchii*), which is known from counties adjacent to PAIS. The two species can be distinguished by calls that are quite different, and by the raised bump or "boss" between the eyes of Hurter's spadefoot. Couch's spadefoot apparently does not occur within PAIS.

There is some confusion over the correct taxonomy for this species. Formerly *S. holbrookii hurterii*, Collins (1997) elevated it to full species status, but Conant and Collins (1998) did not follow that taxonomy. Dixon (2000) uses the full species designation but spells the specific epitaph "hurteri". Here is followed the taxonomy of Collins and Taggart (2002) by using "*Scaphiopus hurterii*".

Table 9. Known locations of the Hurter's Spadefoot Toad on North Padre Island.

Dates	Location	Easting	Northing	Type Record/Specimen number
6/28/2002 - 7/15/02	all ephemeral freshwater	667971	3035268	Recording
5/7/2002--5/30/2002 (9)	Trap 4	667340	3033675	Trapped (9)/ PAIS-004,005,031
6/28/2002--7/15/2002	all ephemeral freshwater	667984	3035536	Audio and spec/ PAIS-051(2)
6/28/2002--7/15/2002	all ephemeral freshwater	668345	3036892	Calling Frog - Recording
6/28/2002--7/15/2002	all ephemeral freshwater	668651	3037346	Calling Frog - Recording
6/28/2002--7/15/2002	all ephemeral freshwater	668922	3038760	Calling Frog - Recording
6/28/2002--7/15/2002	all ephemeral freshwater	668509	3039021	Calling Frog - Recording
6/28/2002--7/15/2002	all ephemeral freshwater	668711	3038974	Calling Frog - Recording
6/28/2002--7/15/2002	all ephemeral freshwater	669026	3039353	Calling Frog - Recording
6/28/2002--7/15/2002	all ephemeral freshwater	669243	3039740	Calling Frog - Recording
6/28/2002--7/15/2002	all ephemeral freshwater	669432	3039567	Calling Frog - Recording
5/4/2002--6/7/2002	Trap 1	667390	3039247	Trapped (18)- photos
6/28/2002--7/15/2002	all ephemeral freshwater	669749	3040322	Calling Frog - Recording
6/28/2002--7/15/2002	all ephemeral freshwater	670139	3040611	Calling Frog - Recording
5/4/2002--6/3/2002	Trap 2	667833	3037360	Trapped (3)-photos
6/28/2002--7/15/2002	all ephemeral freshwater	667639	3034138	Calling Frog - Recording
5/4/2002--5/18/2002	Trap 5	665393	3030680	trapped (4) - Photos
8/30/2002	south of trap 1	667382	3039097	observed
8/30/2002	south of trap 1	667380	3039077	observed
8/30/2002	south of trap 1	667380	3039052	observed
1981	BIB washout	667465	3039427	museum spec-NPS2218
1981	BIB washout	667519	3039450	museum spec-NPS2214
1983	Ranger Station	668387	3037120	museum spec-TAMUK-5259
1983	Ranger Station	668400	3037144	museum spec.-TAMUK-5261
1965	10 mi. S. Kleberg Co Line	668035	3036778	museum spec.-NPS-455
1965	1 mi. S. Bob Hall Pier	674899	3050831	museum spec-NPS-452

Rio Grande Leopard Frog (*Rana berlandieri*)

The Rio Grande leopard frog (Figure 14) is distributed throughout southwestern and western Texas and northern Mexico. The Rio Grande leopard frog can usually be distinguished from the southern leopard frog (*R. sphenocephala*) by a dorsolateral ridge that is inset medially at the groin. The ranges of the two species apparently overlap – the southern leopard frog is known from as far south as Kleberg County and the Rio

Grande leopard frog is known from as far north as Calhoun County. Therefore, we were watchful for the occurrence of either frog within PAIS. While physical differences might sometimes be difficult to distinguish between the two frogs, their calls are quite different. Audio files were created of Rio Grande leopard frogs calling in almost all of the locations that were regularly visited in the northern part of the park. The southern leopard frog was not recorded. Several Rio Grande leopard frogs were observed killed on Park Road 22 and one was trapped at site #14 near the 50-mile marker.

Table 10. Known locations of the Rio Grande Leopard Frog on North Padre Island.

Dates	Location	Easting	Northing	Type Record/Specimen number
unknown	.5 mi. S. of Ranger Station	667971	3036519	Museum Record / NPS-2125
3/1, 7/1/2002	Bird Island Basin Pond	667384	3039254	heard - recorded
2/15, 7/4, 7/8, 9/24/2003	Bird Island Basin Pond	667390	3039282	heard - recorded
7/9/2003	100 m. S. of City Limit Sign	674871	3051628	heard - recorded
7/8, 7/9/2003	Behind waste water treat.	666843	3034217	heard-recorded
7/8/2003	betw. Corpus & PAIS bound.	673082	3049367	heard-recorded
7/8/2003	betw. Corpus & PAIS bound	673308	3049487	heard-recorded
7/8/2003	betw. Corpus & PAIS bound	673261	3049818	heard-recorded
7/8/2003	betw. Corpus & PAIS bound	673617	3050285	heard-recorded
9/24/2003	1 km NE of Ent Sta.	670140	3040707	heard - recorded
7/4/2003	just south of ent station	669641	3040327	DOR – Spec/ PAIS-109
7/4/2003	BIB Rd @ Pk Rd 22	668637	3039009	observed
7/4/2003	near gate to WWT plant	667582	3034261	observed
7/4/2003	Road to Bird Island Basin	668401	3039179	observed
7/4/2003	Road to Bird Island Basin	668178	3039279	observed
7/8/2003	200 m. N. of Entrance Sta.	669519	3040229	observed
7/21/2002	Trap 14	666226	2954886	trapped-specimen / PAIS-025
7/8/2003	~2.5 mi. S. of Kleberg Co. Lin	672552	3048098	heard-recorded

Turtles

Red-eared Slider (*Trachemys scripta elegans*)

The red-eared slider (Figure 15) was seen many times around permanent ponds in the northern part of the park, and there were three specimens in the NPS collections. This was the only freshwater turtle species confirmed for PAIS. We caught 24 red-eared sliders in hoop traps in the three permanent ponds present near the northern end of the park.

Table 11. Known locations of the Red-eared Slider on North Padre Island.

Dates	Location	Easting	Northing	Type Record/Specimen number
5/1/1978	1 mi. N. Ranger Station	668813	3038491	mus. spec / NPS 1910
5/1/1978	1 mi. N. Ranger Station	668801	3038516	mus. spec. / NPS-1911
2/22/1981	Sewage Lagoon	667186	3034229	mus. spec. / NPS-2201
7/3/2002	near visitor center on road	667947	3035043	observation
5/6/2002	~1 mi S. Ranger Sta.	667982	3035629	observation
6/28/2002	~1/2 mi S. Ranger Sta.	667991	3036579	observation
7/14/2002	BIB Rd near permanent pond	668150	3039274	observation
6/1/2002	on beach near end of Pk Rd 22	667789	3033283	observation
5/19/2002	Waste Water Treatment pond	667222	3034178	observation
5/22--5/26/2003	Trap T1	667229	3034191	trapped-photos
5/22--5/26/2003	Trap T2	668029	3036620	trapped-photos

Alligators and Lizards

American Alligator (*Alligator mississippiensis*)

The American Alligator is native to the southeastern United States from eastern and coastal Texas to the southern Florida peninsula. American Alligator (Figure 16) natural history is a particular area of expertise of this investigator, having coordinated the alligator monitoring and management program for the state of Mississippi for several years. Because particular questions have been posed to the investigator concerning the status of the

American Alligator at PAIS, a detailed description and assessment is offered here:

In order to thrive, alligators require extensive marshy habitat with access to deep water, but an individual alligator may survive for many years in man-made ponds or reservoirs outside of its natural range. Alligators are commonly associated with fresh to slightly brackish marshes, river systems, swamps, and vegetated ponds and lakes (Joanen and McNease 1987). Both male and female alligators seek open water during breeding, March-May, but following courtship females move into secluded vegetated areas where they construct nests, while mature and juvenile males remain in open water areas and rarely venture into nesting areas (Joanen and McNease 1972).

Joanen and McNease (1970, 1972, 1974), in a multiyear telemetry study, found the minimum home range size for a male alligator was 2158 acres, and that home range size of male alligators is much larger than that of females (Table 12). Male home ranges decrease somewhat during courtship, while female home ranges increase at that time. From hatchling until the age of two or three years, alligators of both sexes stay around the nesting site in a family group or "pod" (Chabreck 1965). Clearly, the amount of habitat used by an alligator in a natural environment is much greater than the total (marginal) habitat available within PAIS for all alligators.

Table 12. Home range sizes of alligators observed during three telemetry studies in Louisiana (Joanen and McNease 1970, 1972, 1974).

Age/gender	n	Variation	Avg. Minimum Home Range (ac)
Mature Male	4	452-12,560	2157.7
Immature Male	11	60.6-1493.8	564.9
Mature Female	4	6.4 – 41.0	21.0
Immature Female	15	29.7-1523.5	438.6

Alligators are mainly associated with fresh water but also use brackish water fairly extensively. Alligator nesting activity decreases as marsh salinity increases, but nests have been recorded in marshes with salinity levels up to 90 ppt (parts per thousand) (Joanen, 1969). Joanen didn't study survivorship of young alligators in highly saline environments, but I suspect it was quite low, probably near zero. Prior to the channelization of the tidal inlets at Mansfield and Brazos Santiago, the Laguna Madre generally had salinities two to three times greater than oceanic salinities. Salinities reaching into the mid-100's were frequently recorded (Copeland and Jones, 1965; Copeland, 1967; Hildebrand, 1969) and extreme salinities up to 295 ppt have been recorded during times of drought (Copeland and Jones, 1965), therefore the Laguna Madre has historically provided an extremely inhospitable environment for alligator reproduction. The brackish inland marshes that typify coastal alligator habitat throughout their range in the southern and southeastern United States is virtually absent from inland areas of Kleberg, Kenedy, and Willacy Counties and completely absent from the barrier islands. Before the creation of ponds on the barrier islands, there would have been no habitat for alligators during times of drought, therefore there is no biological or historical basis for hypothesizing that the American Alligator was native to the barrier islands.

Dixon (2000) shows no alligator records for Kleberg, Kenedy, or Willacy Counties. Dixon may have missed or discounted some anecdotal accounts or literature records for introduced alligators, but those counties have probably not provided significant natural habitat for alligators in recent geological history. Conant and Collins (1998) speculate that, even in Cameron County, where the resacas along the Rio Grande and the Atascosa Wildlife Refuge (F. B. Judd, pers. comm.), do provide some habitat, reproducing populations arrived there via introductions. Former PAIS naturalist, Nancy Rabalais, referred to occurrences of alligators on Mustang and Padre Islands as "accidental" (Rabalais and Baker, 1980). No expert consulted as part of the present study believes that alligators are "native" to North or South Padre Island or the adjacent counties (F. B. Judd, pers. comm.; A Chaney, pers. comm.).

In summary, the American Alligator is not native to Padre Island, and Padre Island contains no natural habitat for alligators. Individual alligators may survive on Padre Island for indefinite periods of time because they are able to utilize man-made ponds for food and shelter, but a natural ecological basis for a reproducing population is absent.

Some years ago, an alligator was released into a pond near the PAIS waste water treatment facility and has survived and apparently thrived there. That individual is occasionally seen in the area, and its length was estimated at 10 feet in the summer of 2002. Comments from an NPS staff member subsequent to this field study indicate that at least one other alligator was introduced to the island, but that individual was not observed by this investigator. It is difficult to speculate on the effects those individuals may be having on the natural flora and fauna, but in the opinion of the investigator, if reproduction should occur the effects could be considerable for the small and isolated aquatic ecosystems of PAIS, which did not evolve in the presence of one of North America's most prodigious predators.

Six-lined and Yellow-headed Racerunner (*Aspidoscelis sexlineatus sexlineatus* and *A. s. stephensae*)

Racerunners (Figures 17a, b) are common and abundant within PAIS. They were trapped 15 times and were observed many more times during VES surveys and while driving "back island" roads. They were trapped in every habitat type and were the only species other than the keeled earless lizard trapped in the sparsely vegetated "dune" habitat. A subspecies of the six-lined racerunner, the yellow-headed racerunner, was only recently described (Trauth, 1992). The yellow-headed racerunner is different from other subspecies, the six-lined and prairie racerunner (*A. s. viridis*), by being smaller and having a yellow coloration on the face. It also differs from the prairie racerunner by the absence of a vertebral stripe.

As can be seen from the figures and other photgraphs submitted with this report, several specimens clearly exhibit a bright yellow face that extends from the snout to the nape. The snout to vent length is less than 70 mm for all of the specimens collected in this study. By those measures, the specimens were similar to what Trauth (1992) describes as the yellow-headed racerunner. However, a number of observed specimens appeared to be larger than 70 mm, and specimens that exhibited bright yellow faces when alive have lost that coloration when preserved; thus there is little evidence that they do not fit within the range of variation of the subspecies *sexlineatus*. Therefore, for the purpose of this study, these specimens are identified as *A. s. sexlineatus*, though the matter deserves further study. Also, of taxonomic note: the subspecific name was spelled "stephensi" in the original description (Trauth, 1992) but was later corrected to "stephensae" (Trauth, 1995).

Table 13. Known locations of the Six-lined Racerunner on North Padre Island.

Dates	Location	Easting	Northing	Type Record/Specimen number
8/27/1966	3 mi. S. of Bob Hall Pier	673454	3047764	Specimen/TCWC-22771
8/27/1966	3 mi. S. of Bob Hall Pier	673511	3047843	Specimen/TCWC-22772
5/14/1965	Old Dunn Ranch	669278	3038543	Specimen/NPS-440
11/25/1938	23 mi. S. Port Aransas	673884	3049356	Specimen/TCWC-151
4/24/2002	near trap site 7	660741	2998890	observation
6/20/2002	~200 m SE of trap 14	666343	2954749	observation
7/25/2002	~200 m SE of trap 14	666370	2954755	observation
5/20/2003	~50 m E of Trap 10	661532	2978276	observation
8/4/2002	~30 m W. of Trap 7	660633	2998912	observation
5/26/2002	~100 m W of Trap 11	661536	2977430	observation
5/9/2002	~5 mi down is. - near backside	663061	3027870	observation
5/25/2002	~150 N. Trap 13	664475	2961954	observation
5/25/2002	~ 150 m. E. Trap 13	664354	2961735	observation
5/25/2002	~350 m S. of Trap 13	664481	2961468	observation
5/26/2002	400 m east of trap 15	667700	2951078	observation
5/26/2002	500 m east of trap 15	667617	2951047	observation
5/13--6/15/2002	road to trap 6	662503	3020524	observation
5/13--6/15/2002	road to trap 6	662869	3020584	observation
5/13--6/15/2002	road to trap 6	663150	3020574	observation
5/13--6/15/2002	road to trap 6	663447	3021207	observation
5/13--6/15/2002	road to trap 6	663685	3021620	observation
6/13, 6/22/2002	Trap 1	667364	3039250	2 trapped
5/5/02	Trap 2	667853	3037352	1 trapped - 1 specimen
5/11, 5/16, 6/6/2002	Trap 5	665354	3030667	3 trapped - 1 specimen
5/13/2002	Trap 6	662237	3019245	1 trapped
5/27/2002	Trap 7	660669	2998882	1 trapped
6/14/2002	Trap 8	660105	2997282	1 trapped

Dates	Location	Easting	Northing	Type Record/Specimen number
5/29 -- 6/22/2002	Trap 9	660020	2996126	6 trapped
7/22, 8/1, 10/9/2002	Trap 10	661484	2978269	8 trapped - 1 specimen
6/17 -- 10/9/2002	Trap 11	661654	2977422	6 trapped
6/20, 6/22/2002	Trap 12	661702	2975707	2 trapped
6/22 -- 7/31/2002	Trap 13	664472	2961734	10 trapped 1 specimen
10/6/2002	Trap 15	667212	2951057	1 trapped
7/20, 7/30, 7/31/2002	Trap 17	671390	2939599	3 trapped
6/2/2002	Trap 3	669299	3037654	1 trapped
1968	18 mi. S. of Bob Hall Pier	665293	3026057	mus spec TAMUK-1505
1969	4 mi. S. of Bob Hall Pier	672834	3046448	mus spec - TAMUK-2518
1979	N. of Mansfield Jetty	671518	2939431	mus spec. - TAMUK-4782
8/27/1966	3 mi. S. of Bob Hall Pier	673454	3047764	Specimen-TCWC-22771

Great Plains Skink (*Eumeces obsoletus*)

The Great Plains skink (Figure 18) is relatively common in grassland habitat across the southern Midwestern United States. It is the largest skink in our area. It might be confused with a couple of other similar species except that its scales intersect obliquely rather than occurring in parallel rows. This species was observed at five different locations from north of the Ranger Station to 35 miles down the island. Generally, the Great Plains skink was found in more xeric grassland locations, but it was trapped on one occasion in "wetland" habitat at trap #8.

Table 14. Known locations of the Great Plains Skink on North Padre Island.

Dates	Location	Easting	Northing	Type Record/Specimen number
1966	Balli Park	675798	3052740	specimen / NPS-441
6/27/2002	Trap 3	669290	3037637	trapped-photos
6/7, 6/27/2002	Trap 7	660701	2998930	trapped (2) - Spec (2) DIT (1)
6/15/2002	Trap 8	660067	2997264	trapped 1
5/31, 6/22, 6/23/2002	Trap 9	660047	2996139	trapped 4, Spec (1) DIT
6/23, 8/1/2002	Trap 10	661474	2978269	Trapped 2
7/30/2002	Trap 17	671381	2939600	Trapped 1
1969	1/2 mi. S. Bob Hall Pier	674962	3050820	Museum Rec. /TAMUK-2515
1966	Balli Park	675798	3052740	specimen / NPS-441

Mediterranean Gecko (*Hemidactylus turcicus*)

The Mediterranean gecko (Figure 19) is an introduced species that is common on buildings along the Gulf Coast and as far north as Oklahoma City, Oklahoma and Tupelo, Mississippi. That range appears to be steadily expanding. It can be observed on almost any warm night on the walls of the PAIS Ranger Station, main headquarters, and other buildings. Park personnel also report numerous sightings of the Mediterranean gecko on the walls of the visitor center and surrounding buildings.

Table 15. Known locations of the Mediterranean Gecko on North Padre Island.

unknown	Ranger Station buildings	668327	3037080	Museum / NPS-2140
unknown	Ranger Station buildings	668368	3037070	Museum / NPS-2228
6/30/02 and other dates	Ranger Station by main door	668421	3037023	observed-photos
6/30/02 and other dates	barn in back of Ranger Station	668440	3037002	observed
6/30/02 and other dates	barn in back of Ranger Station	668407	3036993	observed
unknown	visitor center	668077	3034618	observed by Park staff

Keeled Earless Lizard (*Holbrookia p. propinqua*)

The keeled earless lizard (Figure 20a,b) has a limited distribution in southern Texas and coastal northern Mexico. For this reason it is listed by NatureServe and the Natural Heritage Programs as a vulnerable species with a G3?/S3 ranking (see Appendix 7 for an explanation of ranks). However, it is locally common, and probably the most common reptile within PAIS. It was trapped 93 times and casually observed innumerable times. It was also recorded during VES virtually every time a transect ran through appropriate habitat. There are 249 entries for the species in the GIS database for this inventory, including 28 museum records. Many of those records are for multiple specimens, including one record from Texas A & M University at Kingsville which was for 55 individuals. A number of other museum specimens probably came from within PAIS but the location information in the museum catalogues was not specific enough to warrant inclusion in this inventory. The keeled earless lizard is most common in the semi-vegetated fore dunes adjacent to the beaches, and in sparsely vegetated dune areas scattered throughout the island. At trap #16, the only trap placed within the sparsely vegetated dune habitat, the keeled earless lizard was trapped 21 times. It was the only species captured at that trap site except for a single six-lined racerunner. Because the data table for *H. propinqua* contains so many records, it is not included here, but is included in Appendix 1.

Southern Earless Lizard (*Holbrookia lacerata subcaudalis*)

This species is tentatively discussed as a "confirmed" species because it is purportedly represented by a museum specimen (TAMUK-1879), but that specimen was among those sent to the American Museum of Natural History and the AMNH has been unable to find the specimen as of the time this report was completed, therefore the identification has not been verified. The specimen in question was collected at the site of the "Old Dunn Ranch." This site is about 27 miles down the island, a few hundred meters from the Laguna Madre. One of the randomly chosen sample sites (#9), which had a drift fence array and where VES surveys were conducted, was about 2 miles north of the Dunn Ranch ruins, but the southern earless lizard was not detected there. Only two museum records were found in the collections examined for the South Texas coastal counties, one was the type specimen from Nueces County, near Bishop (TNHC-20000) and the other was the Dunn Ranch specimen. The Dunn Ranch specimen is the only specimen of that species from the south Texas barrier islands. The southern earless lizard is not otherwise known to occur on sandy soils. Vermersch (1992) comments that it appears to avoid the sandy soils inhabited by *H. propinqua*.

Western Slender Glass Lizard (*Ophisaurus attenuatus attenuatus*)

Glass lizards (Figure 21) are unique among lizards because they are legless. They are called "glass" lizards because of the tendency of the lower part of the body to break off when grabbed by a predator. The western slender glass lizard is distributed from Illinois to western Kansas, south to the eastern half of Texas down to the Rio Grande. It is the only glass lizard within its range. Glass lizards were trapped 14 times in eight different traps, but none was taken from farther south than trap #12. They were also observed on several other occasions. It was trapped in grassland, wetland, wetland/grassland, and sparsely vegetated habitat; all but the observations from trap #7 were from a relatively moist area.

Table 16. Known locations of the Western Slender Glass Lizard on North Padre Island.

Dates	Location	Easting	Northing	Type Record/Specimen number
unknown	Dunn Ranch Site	669435	3038952	museum spec. / NPS-442
unknown	Near Ranger Station	668468	3037285	museum spec. / NPS-1814
7/24/1984	Bird Island Basin	667427	3039577	museum spec. / NPS-2605
8/1/2002	1 m N. of Trap 4	667311	3033709	observation
8/2/2002	350 m E. of Trap 5	665021	3030675	observation
8/28/2002	100 m S. of trap 6	662226	3019118	observation
6/27/2002	willow thicket near BIB	667147	3039017	observation
6/27/2002	Dunn Ranch Site	669366	3038610	observation
5/4/2002	Trap 1	667375	3039268	trapped - photos
5/13, 6/23, 6/24/2002	Trap 2	667865	3037396	trapped - photos
5/26, 6/19/2002	Trap 4	667336	3033678	trapped -specimen / PAIS-021
6/1/2002	Trap 5	665425	3030687	trapped - photos
5/17, 6/19/2002	Trap 6	662244	3019235	trapped - photos
6/7/2002	Trap 7	660716	2998913	trapped - photos

Dates	Location	Easting	Northing	Type Record/Specimen number
6/21/2002	Trap 9	660031	2996134	trapped - photos
6/20/2002	Trap 12	661702	2975724	trapped - photos
6/14/2003	~200 m south of ent station	669075	3039474	DOR - specimen / PAIS-100
6/8/2002	Back Is. Rd. ~22 mi marker	659703	2998651	DOR - specimen / PAIS-38
1971	3 mi. S. of ent. to Back Rd.	660809	2999439	mus. spec. / TAMUK-2308
1965	3.5 mi. S. of Bob Hall Pier	673203	3047163	mus. spec. / TAMUK-341
1978	7.5 mi S. Nueces Co. Park	670047	3042205	mus. spec. / TAMUK-4545
1985	Campground Rd	668198	3035271	mus. spec. / TAMUK-5525

Ground Skink (*Scincella lateralis*)

The ground skink (Figure 22) was trapped at seven locations from trap #1 to trap #11. Generally these were locations with greater moisture; with the exception that the ground skink trapped in trap #11 was in a drier, sparsely vegetated habitat. It is unusual to find this species under those conditions. One specimen on the list below is currently identified in the NPS collection (NPS-2025) as a southern prairie skink, but that identification was incorrect.

Table 17. Known locations of the Ground Skink on North Padre Island.

Dates	Location	Easting	Northing	Type Record/Specimen number
10/14/1968	Ranger Station	668396	3037066	Museum Spec. / NPS-1149
5/12, /24, 6/23/2002	Trap 1	667395	3039271	trapped - some photos
5/10, 5/24, 4/31/2002	Trap 2	667840	3037363	trapped - some photos
5/5, 5/13, 5/30, 6/20002 (2)	Trap 4	667344	3033669	trapped-spec / PAIS-060
5/8, 5/13, 5/30, 6/20/02	Trap 5	665377	3030673	trapped - some photos
5/14, 5/24, 5/31/2002	Trap 6	662240	3019254	trapped - some photos
6/25/2002	Trap 8	660078	2997311	trapped - some photos
6/22, 6/25/2002	Trap 11	661648	2977434	trapped - some photos
1984	Bird Island Basin	667196	3039497	mus. spec./ TAMUK-5514 (15?)
1978	Yarborough Pass	661147	3010460	mus. spec. / TAMUK-4477
11/16/1979	Novillo Line Camp	669365	3038707	Museum Record / NPS-2025

Snakes

Texas Glossy Snake (*Arizona elegans arenicola*)

Mainly known from the southern quarter of the state, the Texas glossy snake is nocturnal and somewhat fossorial. Texas glossy snake populations are thought to have declined considerably over the past few decades (Werler and Dixon 2000). The Texas glossy snake looks superficially similar to the Great Plains rat snake, but the Texas glossy snake has a plain white, rather than pigmented, underside of the tail and is generally smaller than the rat snake. The Texas glossy snake was observed on one occasion. One was captured during a visual encounter night survey about 3.5 miles down the island. Museum records for the Texas glossy snake were located for Padre Island, north of the park, but no museum specimens were found from the park. Unfortunately, the snake we caught escaped before it could be photographed. Because the Texas glossy snake was not trapped, we estimate that it is uncommon to rare within PAIS.

Table 18. Known locations of the Texas Glossy Snake on North Padre Island.

Dates	Location	Easting	Northing	Type Record/Specimen number
8/2/2002	1 km west on road at 3.5 mi	665277	3028834	Obs - captured but escap
8/26/1966	3 mi. S. Bob Hall Pier	673562	3047902	Specimen / TCWC -22800
8/26/1966	3 mi. S. Bob Hall Pier	673341	3047840	Specimen / TCWC-22801
03/17/1976	N. Padre Is. - Nueces Co.	675428	3052097	Specimen / TCWC-52051
1965	Nueces County Park	675444	3052222	Museum Spec. / NPS-335
1965	100 yd. S. of Packery Channel	676258	3053941	Museum Spec.- / NPS-474
1963	10 mi. S. Bob Hall Pier	669534	3038590	Mus Spec. / TAMUK-512
1968	22 mi. S. Bob Hall Pier	663780	3020303	Mus. Spec. / TAMUK-1515

Texas Scarlet Snake (*Cemophora coccinea lineri*)

The Texas scarlet snake (Figure 23) was not described until 1966 (Williams, et al., 1966) and there are probably

less than a dozen museum specimens in existence. Werler and Dixon (2000) shows only seven locations. It was not previously known from PAIS or from anywhere on Padre Island. The taxon is listed as "threatened" by the state of Texas. One specimen of *C. c. lineri* was captured in trap #10, near the 35-mile marker, in "grassland" habitat. The specimen was photographed and released. Scarlet snakes are largely fossorial and therefore difficult to sample; their life history is thus poorly known. Most are turned up accidentally during excavations. They are thought to feed mainly on the eggs and young of other reptiles.

Mexican Racer (*Coluber constrictor oaxaca*)

The Mexican racer (Figure 24) is one of the most common and conspicuous snakes across most of its range. As the name implies, it is a fast and mobile snake and will therefore be one of the snakes most commonly seen crossing roads or killed on roads. It is one of the most easily trapped snakes and was trapped several times during our concurrent inventory at PAAL. We located four museum specimens of the Mexican racer from PAIS and one road-killed specimen was collected on the island, outside of PAIS on Park Road 22, 11 km from the entrance station but only 1.2 km north of the northern park boundary. This specimen was somewhat atypical of *C. c. oaxaca*, however – it had 9 supralabial scales on one side of its face and 6 on the other. It had 15 rows of dorsal scales throughout its body. It might represent an intergrade between the Mexican racer and the yellow-bellied racer (*C. c. flaviventris*), particularly given that populations of other typically northeastern species are found on the island. Dr. Allan H. Chaney also identified a specimen from PAIS as *C. c. flaviventris* (TAMUK-5890). A park employee on turtle patrol reported seeing a Mexican racer on the beach near mile marker 10 but it is uncertain how credible this report is. The Mexican racer is apparently present but fairly uncommon within PAIS.

Table 19. Known locations of the Mexican Racer on North Padre Island.

Dates	Location	Easting	Northing	Type Record/Specimen number
7/4/2003	~ 11 km N. of ent. sta. PINS	672685	3048224	DOR – Specimen PAIS-110
5/20/2003	~2 mi down isl. in foredunes	666897	3030835	obs - Nicky Hayes – ID uncertain
1980	DOR – PAIS Rd (?)	unknown	unknown	mus. rec. TAMUK-4824
1987	PINS	unknown	unknown	flaviventris-mus rec. TAMUK-5890
1980	PINS	unknown	unknown	mus rec. – TAMUK 5184

Western Diamondback Rattlesnake (*Crotalus atrox*)

The western diamondback rattlesnake (Figure 25) is confirmed for PAIS by numerous reliable anecdotal records and by photos supplied to us by Phil Slattery of the NPS staff at PAIS. However, we did not find museum records from within the boundaries of PAIS and we did not trap or observe the snake during the course of this inventory, even though they are generally quite easily trapped when present (note trap records for PAAL and SAAN). Anecdotal records for rattlesnakes on North Padre Island and for PAIS are common, though some are more credible than others. We recorded several credible anecdotal records—from Dan Ginter, a biologist working on a grassland bird project at the park, and from Phil Slattery, an interpretation specialist for the park. Ginter reported observing a diamondback near the five-mile mark, about 1-km east from the Laguna Madre. Slattery reported seeing diamondbacks on several occasions around the visitor center, and according to Slattery and other PAIS workers, visitors frequently report seeing the snake near the recreational vehicle camping area (P. Slattery, pers. comm.). Additionally, we located several museum specimens taken just north of the seashore boundaries, though most of those records are very old. If any of the PAIS staff should find a road-killed diamondback, they should retain a specimen so the species can be more clearly documented for PAIS. Unlike other species we have documented that are probably more common than our small number of records would indicate, the opposite is probably true for diamondbacks, which are large, conspicuous snakes that are usually reported whenever seen. The lack of museum records or road-kills during this inventory and our failure to trap them appears to indicate that they are not as common on the island as all the chatter about them might indicate, and that populations may be fairly localized around the known collection/observation areas. This should probably be a species of conservation concern for PAIS.

Table 20. Known locations of the Western Diamondback Rattlesnake on North Padre Island.

Dates	Location	Easting	Northing	Type Record/Specimen number
unknown	N. of PINS	672800	3048452	Mus. Rec./ NPS-261
1965	Balli Park	675842	3053028	Mus. Rec. / NPS-450
1965	Balli Park	675862	3053153	Mus. Rec. / NPS-451
1983	1 mi. N. of PINS	672929	3048703	Mus. Rec. / NPS-2601
3/10/2002	~5-mi mkl~3 km W. of beach	662752	3027145	observation-Dan Ginter
unknown	near boardwalk behind VC	668123	3034539	photo by Phil Slattery
Jan 2003	5 miles down near beach	664166	3021659	observation- Dan Ginter
Jan 2003	8 miles down near beach	665556	3026729	observation- Dan Ginter
May 2003	turlte patrol cabin-38 mi mker	662321	2972243	obs by various turtle patrollers
2/22/2004	near beach at Mansf. Channel	671618	2939991	photo by Charles Gollar

Texas Indigo Snake (*Drymarchon corais erebennus*)

There is one museum specimen from PAIS for the Texas indigo snake (Figure 26). That record is a museum specimen collected in 1985 by Donna Shaver about one mile north of the Malaquite Visitor Center. It seems odd that this is the only record for this large, conspicuous snake on either Padre or Mustang Island. The specimen was part of the Texas A&M at Kingsville (TAMUK) collection. When specimens were examined from that collection, the collection was in a state of disarray and the specimen was not found. During the course of this study, the TAMUK collection was moved to the American Museum of Natural History (AMNH) in New York. Communications with Dr. Linda Ford, associate curator at AMNH, indicated that it would be some time before they could organize the TAMUK collection and integrate it into their collection. A written appeal was made for confirmation of the identity of the indigo snake, but the request has not been fulfilled as of this report's completion. It is unlikely that the indigo snake record is an erroneous identification, but it is apparently quite rare if not accidental on North Padre Island. Texas A&M Kingsville zoologist, Dr. Allan Chaney concurred with an assessment of the Texas Indigo Snake as "accidental" for Padre Island (A. Chaney, pers. comm.).

Great Plains Rat Snake (*Pantherophis emoryi*)

The Great Plains rat snake (Figure 27) is a common snake across its range in southern Texas, though only three specimens were trapped during this inventory – two in trap #4 and one in trap #5. These traps were both in semi-wet grassland habitats. No other observations of this snake were made and there are no museum records for this species for North Padre or Mustang Islands. This snake becomes nocturnal during summer and is known to seek the shade and moisture of gardens in suburban areas, leading to speculation that the species might become less common as one proceeds from north to south on the island and moisture becomes reduced. It is typically an easy snake to trap and observe when present, therefore it is probably somewhat uncommon on the island.

The taxonomy for this rat snake group has been changing rapidly. The southern form, described as the "southern plains rat snake" (*Elaphe guttata meahllmorum*) by Smith, et al. (1994), and later referred to as "southwestern rat snake" by Vaughan, et al. (1996), was then synonomized with the great plains rat snake (*E. emoryi*) based on a molecular study by Burbrink (2002). Since that time another molecular study has proposed revalidating the genus *Pantherophis* for the whole North American rat snake group (Utiger, et al., 2002). While the most recently proposed change is not well supported by the literature at this time, the change makes sense to this investigator—it has long been known that the genus *Pantherophis* is polyphyletic, and that all the New World forms associated with it are closer to *Lampropeltis* and *Pituophis* than to any Old World *Elaphe*. Therefore, this report adopts the use of *Pantherophis* but it will be no surprise if the taxonomy changes again before long.

Table 21. Known locations of the Great Plains Rat Snake on North Padre Island.

Dates	Location	Easting	Northing	Type Record/Specimen number
6/7/2002	Trap 4	667317	3033648	Trapped-photos
5/15, 6/6/2002	Trap 5 (2)	665355	3030703	trapped photos
5/16/2002	Pk. Rd. 22 ~100 m from beach	667719	3033871	DOR-spec PAIS-071

Eastern Hognose Snake (*Heterodon platirhinos*)

Across its range, the eastern hognose snake (Figure 28) comes in a variety of colors. As with many of the other reptiles and amphibians observed on Padre Island, the two eastern hognose snakes observed were generally a lighter color than those found inland. North Padre Island lies where the ranges of the eastern hognose and Mexican hognose come together. The eastern hognose snake has a less upturned nose, and, unlike the Mexican hognose snake, the underside of its tail is usually lighter than its belly. No Mexican hognose snakes were found within PAIS but they could be present. The fact that we only had two observations for hognose snakes within PAIS may be more a result of their fossorial nature than of their rarity.

Hognose snakes are well known for their impressive defense response to discourage predators: when first encountered hognose snakes flatten their heads, emit a convincing hissing sound, and will even lunge at the potential predator as if striking, but they don't even open their mouths when feigning the strike. They are actually quite harmless and will rarely bite. If the intimidating behavior fails, their next line of defense is to play dead just as impressively. Hognose snakes feed mainly on toads but will occasionally take frogs other than toads.

Table 22. Known locations of the Eastern Hognose Snake on North Padre Island.

Dates	Location	Easting	Northing	Type Record/Specimen number
1965	1 mi. S. county line on beach	674754	3049939	Museum Specimen / NPS-324
6/14/2003	200 m. south of entrance sta.	669174	3039633	DOR / PAIS-099
6/17/2002	near visitor center	668068	3034363	collected specimen / PAIS-067
7/25, 10/4/2002	Trap 10	661470	2978282	trapped-photos-released
1989	Ranger Station	668433	3037059	Museum Spec, / TAMUK-5826

Mexican Milk Snake (*Lampropeltis triangulum annulata*)

The Mexican milk snake (Figure 29) is distributed throughout southern Texas and into northern and central Mexico. A few specimens of milk snakes from along the Texas coast as far south as Mustang Island have been identified as the Louisiana milk snake (*L. t. amaura*). The physical distinction between many races of milk snakes is often indistinct, and where ranges of the various races overlap, as they may do in Nueces or Kleberg County, the two usually carry some genes of both races (Werler and Dixon, 2000). Therefore, based more on geography than anything else, the milk snakes observed within PAIS are here identified as *L. t. annulata*. The species is harmless and rarely bites. The Mexican milk snake was trapped once each in traps #4 and #5, was observed crossing the Bird Island Basin Road near trap #1 on one occasion, and was observed during a VES around trap #1. All of these locations are in wet grasslands, or on a transition between wetlands and grasslands. There are a number of museum specimens from Mustang and Padre Islands including three in the NPS collection.

Table 23. Known locations of the Mexican Milk Snake on North Padre Island.

Dates	Location	Easting	Northing	Type Record/Specimen number
8/30/2002	20 m south of trap 1	667377	3039221	observed
6/7/2003	Bird Island Basin Road	667215	3039298	captured - photos
6/13/2002	Trap 4	667365	3033655	DIT-specimen / PAIS-020
6/10/2002	Trap 5	665411	3030700	collected spec. / PAIS-040
1969	1 mi. N. of Ranger Station	668824	3038620	mus. rec. / NPS-1175
1975	near N. entrance sign	670031	3042151	mus. rec. / NPS-1777
1975	3 mile south of Bob Hall Pier	672577	3047914	mus. rec. / NPS-1778
1978	1 mi. S. grasslands on PINS	669792	3040601	mus. rec. / TAMUK-4489
1985	1 mi. S. of Ranger Station	667945	3035594	mus. rec. / TAMUK-5819
1987	2 mi. S. Ranger Station	667678	3033913	mus. rec. / TAMUK-5747
1975	3 mi. S. Ranger Station	667064	3032312	mus. rec. / TAMUK-3788
unknown	N. of Entrance Station	669812	3040710	mus. rec. / TAMUK-5652
1985	Pk Rd. 22 PAIS	668747	3038367	mus. rec. / TAMUK-5509
1985	1 mi.. S. of Ranger Station	667929	3035569	mus. rec. / TAMUK-5224

Western Coachwhip (*Masticophis flagellum testaceus*)

The western coachwhip (Figure 30) is distributed over the western three-quarters of Texas, the adjacent southern Midwestern U.S., and northern to central coastal Mexico. It was the snake most commonly trapped and observed in this study. It was trapped 21 times in seven traps in all habitat types except "dunes," from trap #1 near Bird Island Basin to trap #17, near the Mansfield Channel. We also found 10 museum records for PAIS. Coachwhips are long, thin, fast-moving snakes. They are known to be rather aggressive, but the snakes encountered within PAIS rarely attempted to bite. The North Padre Island coachwhips are a much lighter color than their inland counterparts.

Table 24. Known locations of the Western Coachwhip on North Padre Island.

Dates	Location	Easting	Northing	Type Record/Specimen number
4/15/2002	1 mile N. of ent. station	669846	3041792	DOR
5/7/2002	.5 mile N. of entr. station	669720	3041287	DOR
5/6, 5/8, 5/23, 10/1/200	Trap 1	667371	3039185	specimen 5/6 - PAIS-073
5/6(2), 6/20, 9/17	Trap 4	667329	3033704	trapped 4
5/11, 6/8, 6/18/2002	Trap 5	665374	3030676	trapped 3
6/20(2), 10/4/2002	Trap 10	661484	2978292	trapped 3
7/26, 7/31, 10/9/2002	Trap 13	664495	2961761	trapped 3
7/20, 7/26, 10/2, 10/4/2	Trap 14	666273	2954944	trapped 4
5/6, 7/18/2002	Trap 17	671409	2939621	trapped 2
8/27/1966	3 mi. S. of Bob Hall Pier	672584	3047799	Mus. Rec TCWC-22806
1965	10 mi. S. of county line	668178	3037483	Mus. Rec - NPS-325
1965	Dunn Ranch Site	669234	3038860	Mus. Rec - NPS-327
1965	Dunn Ranch Site	669317	3038838	Mus. Rec - NPS-328
1975	Ranger Station	668350	3037005	Mus. Rec - NPS-1781
1980	Manhold E. of view tower	668527	3036927	Mus Rec. - NPS-2179
11/26/1938	23 mi. S. of Port Aransas	673095	3048976	Mus. Rec. - TCWC-482
1969	13 mi. S. Bob Hall Pier	667544	3032890	Mus. Rec. - TAMUK-1936
1969	Dunn Ranch	669437	3038508	Mus. Rec. - TAMUK-1881
1983	PINS N. Boundary	669978	3042085	Mus. Rec. - TAMUK-5353

Diamondback Water Snake (*Nerodia rhombifer rhombifer*)

Diamondback water snakes (Figure 31) were observed on a number of occasions at the permanent pond along the road to Bird Island Basin. This is the only place this snake was observed. One was also trapped in this pond with a funnel trap. The species is dependent upon permanent water so it is probably only found on the north end of the island near ponds which offer permanent fresh water. It is mostly nocturnal during the summer or during times of drought.

Table 25. Known locations of the Diamondback Water Snake on North Padre Island.

Dates	Location	Easting	Northing	Type Record/Specimen number
1975	400 yds SW of Ranger Sta.	667987	3036695	museum rec. / NPS-1901
1981	1 mile N. of Visitor Center	667978	3036587	museum rec./ NPS-2200
4/1/2002	Bird Island Basin Rd. Pond	668095	3039304	observation
4/1/2002	Bird Island Basin Rd. Pond	668078	3039333	observation
4/1/2002	Bird Island Basin Rd. Pond	668087	3039270	observation
4/1/2002	Bird Island Basin Rd. Pond	668048	3039308	trapped 1 - photos - released
1987	1/2 mi. N. Ranger Station	668740	3037837	mus. rec. / TAMUK-5850

Massasauga (*Sistrurus catenatus*)

The massasauga (Figure 32) is distributed in a discontinuous narrow band from the Great Lakes though Kansas, Oklahoma, into central Texas to the Rio Grande Valley and into southern New Mexico. The species is differentiated into three subspecies. The eastern massasauga (*S. c. catenatus*) occurs in the states just south of the Great Lakes. The western massasauga (*S. c. tergeminus*) occurs from Kansas through Central Texas and in a few counties along the Texas Gulf Coast. The desert massasauga (*S. c. edwardsi*) is found in several disjunct populations in western and southern Texas, southern New Mexico, and southeastern Arizona. There are also small, isolated populations in northern Mexico. According to Dixon (2000), the western massasauga is found in north central Texas and in a few counties along the upper Texas coast. However, a number of specimens from North Padre Island in the various databases examined in this study were assigned to the subspecies *S. c. tergeminus*. The initial reaction to these findings was that these were labeling errors, or possibly they represented taxonomy that had changed over the years, because many of the collections were made in the 1960's. Because the literature (Dixon, 2000; Werler and Dixon, 2000; Conant and Collins, 1998) clearly indicates only the desert massasauga occurring as far south as the area of this study, all of the specimens caught or picked up road-killed were initially assigned to *S. c. edwardsi*. However, after examining the specimens more closely in preparation for this report, it became evident that the specimens we were observing on Padre Island were more characteristic of *S. c. tergeminus* than of *S. c. edwardsi*. Conant and Collins (1998) state that the western massasauga intergrades with the desert massasauga along the Texas coast. According to Werler and Dixon (2000), the desert massasauga has "a pale, nearly unmarked belly." This clearly does not describe any of the specimens we collected, which more closely fit Werler and Dixon's (2000) description of the western massasauga, having "a moderate amount of dark pigmentation distributed along the snake's outer belly." Also according to Werler and Dixon (2000), Dixon (2000), and Conant and Collins (1998), the western massasauga usually has 25 dorsal scale rows at midbody. One of our specimens did have 25 rows; another had 24. The dorsal blotches of our specimens appeared to be surrounded by a band of black pigment, characteristic of the desert massasauga but there also seemed to be a fine band of white pigment surrounding that band, which is more characteristic of the western massasauga.

Overall, the specimens examined closely in our study seemed more typical of the western massasauga than of the desert massasauga; however, we did not closely examine enough specimens to confirm positively that the population occurring on North Padre Island should be identified as *tergeminus*. A multivariate analysis of museum specimen characteristics might be revealing. It is probably not accurate to list both subspecies as present on the Seashore, as the PAIS Internet web site does currently. It would be most accurate to simply refer to them as the massasauga (*S. catenatus*) unless and until further study is carried out to clarify the issue.

One thing is clear about the massasauga in South Texas—other than the North Padre Island population, *they are extremely rare in the region*. Werler and Dixon (2000) do not show any records for inland Nueces County, only one record for inland Kleberg County, none for Willacy County, and four for Kenedy County, with fewer than 20 records for all of south Texas. The population at PAIS is clearly an isolated and distinct population segment of massasauga and it should be afforded the highest conservation status by PAIS managers.

Although museum records indicate that it is not common at all on the mainland, the massasauga is apparently somewhat common within PAIS. We captured one massasauga (trap #4), found one during a VES (near trap site #4), and found another killed on a road (Park Rd. 22, near the entrance station). We found 11 museum specimens from within the park or from very near the park and heard numerous credible anecdotal accounts. Like many other species, the massasauga appears to be somewhat less common or absent in the dryer southern part of the island.

Table 26. Known locations of the Massasauga on North Padre Island.

Dates	Location	Easting	Northing	Type Record/Specimen number
7/1968	20 mi. S. Corpus Christi	663631	3021613	LSUMZ-23269
8/27/1966	3 mi. S. of Bob Hall Pier	672881	3047178	TCWC-22811
10/15/1968	Rang. Sta. (old Caffey Barr)	668461	3036893	NPS-1150
5/28/1975	Near Nueces Co. Line	674885	3051726	NPS-1779
1984	Bird Island Basin	667302	3039474	NPS-2602
1984	Ranger Station	668469	3037014	NPS-2603
5/1/02	near Trap 4	667380	3033739	PAIS-009
6/15/2002	Pk Rd. 22 near ent. station	669482	3040078	DOR / PAIS-036
6/14/2002	Road to trap 6	662528	3020247	DOR
6/1/2002	Trap 1	667463	3039244	trapped - photos
6/22/2002	Trap 4	667391	3033684	trapped - photos
no date	1 mi S. Ranger Station	667921	3035452	museum rec. / TAMUK-5524
1968	18 mi. S Bob Hall Pier	665435	3026212	museum rec. / TAMUK-1503
1968	5 mi. S. Bob Hall Pier	672688	3045949	museum rec. / TAMUK-1725
1969	Ranger Station	668394	3037018	museum rec. / TAMUK-114
no date	Caffey Bombing Target	N/A	N/A	museum rec./ NPS-231

Flathead Snake (*Tantilla gracilis*)

The flathead snake (Figure 33) is a small (record length 9-7/8 in.) worm-like, secretive snake that is usually found under cover objects or underground. The flathead snake is distributed from southern Missouri and southeastern Kansas south through the eastern two thirds of Texas to the Rio Grande. Of all the similar members of the genus, two of which occur in the PAIS counties or adjacent counties, this is the only one lacking a black cap. It was trapped in two traps in wetland habitat and one wet grassland trap. We did not record any other field observations for this species but found one record from the NPS museum collection, a specimen taken from the vicinity of the ranger station.

Table 27. Known locations of the Flathead Snake on North Padre Island.

Dates	Location	Easting	Northing	Type Record/Specimen number
9/3/1985	Rang. Sta-behind Carp. Shop	668422	3036903	Mus. Record / NPS-2613
5/24/2002	Trap 2	667853	3037393	trapped - photos - released
5/12/2002	Trap 5	665409	3030707	trapped-specimen/ PAIS-010
6/15/02	Trap 8	660094	2997316	trapped-released
1983	Ranger Station	668453	3036996	mus. rec. / TAMUK-5262

Checkered Garter Snake (*Thamnophis marcianus marcianus*)

The checkered garter snake (Figure 34) is found from extreme southern Arizona and New Mexico and adjacent northern Mexico through most of Texas except extreme eastern Texas. An isolated population is also found in extreme southern California. The species is widespread and common over most of its range. Its populations are probably limited on North Padre Island by the availability of permanent water. It was captured once in trap #1, which is in habitat classified as “grassland,” but is a wetter example of such habitat. There was one museum record for the checkered garter snake within the park – that location was described as “between the ranger station and Bird Island Basin.” There are a number of other locations recorded for the checkered garter snake from Mustang Island. Given the limited occurrence of the checkered garter snake within PAIS, and because a good quality specimen was held in the NPS collection, we declined to preserve the single specimen we trapped.

Table 28. Known locations of the Checkered Garter Snake on North Padre Island.

Dates	Location	Easting	Northing	Type Record/Specimen number
7/5/1962	5 mi. S. Bob Hall Pier	671939	3046025	Mus. Record / TCWC-18997
1975	1 mi. S. of Bob Hall Pier	674825	3050881	Museum Record / NPS-1780
1984	Betw. Rang. Sta. and BIB	668753	3038006	Museum Rec./ NPS2604
1978	3 mi. N. of Visitor Center	669328	3039864	Museum Rec./ NPS-1896
unknown	BIB Rd.	668460	3039016	Museum Rec-/ NPS-2606
7/3/2003	BIB Rd. just past pond	667175	3039232	observation- very decomposed
5/3/2002	Near Trap 1	667355	3039201	observed
7/4/2003	BIB Rd. ~1 km W Pk Rd 22	667931	3039388	DOR / PAIS-112

Gulf Coast Ribbon Snake (*Thamnophis proximus orarius*)

The Gulf Coast ribbon snake (Figure 35), a subspecies of the western ribbon snake, is found along the Gulf Coast from Louisiana to Northern Mexico. Like their close relatives, the garter snakes, ribbon snakes are usually found in close proximity to permanent or semi-permanent water. This snake appears to be quite common on the northern, wetter part of the island. It was trapped three times in trap #4 and once in trap #5 during one short period in the summer of 2002. Six individuals were found road-killed near the Visitor Center during the course of the study. Only one specimen from within the park was found in museum collections, though a number of specimens found from Mustang Island, Corpus Christi and other nearby locations demonstrate that the species may be locally common.

Table 29. Known locations of the Gulf Coast Ribbon Snake on North Padre Island.

Dates	Location	Easting	Northing	Type Record/Specimen number
7/4/2003	1 km N. of Entrance Station	669767	3041038	DOR / PAIS-111
7/4/2002	PR 22 - in front of Ranger Sta	668336	3037170	DOR / PAIS-029
7/18/2002	In front of Visitor Center	667951	3034921	DOR / PAIS-027
5/18/02	BIB Rd. ~600 m from PR 22	668357	3039201	DOR / PAIS-028
7/25/2002	~600 m SW of V.C. on PR 22	667590	3034193	DOR / PAIS-018
7/30/2002	~1 km NNW of VC	667922	3035648	DOR / PAIS-045
9/24/2002	BIB Rd. ~700 m from PR 22	668244	3039243	DOR / PAIS-030
5/10, 5/30, 6/2/2002	Trap 4	667348	3033686	trapped - released
5/15/2002	Trap 5	665395	3030715	trapped - released
1978	3 mi. N. of Visitor Center	669135	3039555	museum record / NPS-1896
1985	1 mi. N. Ranger Station	668821	3038678	museum record / TAMUK-5527
7/4/2002	30 m. North of Ent. Sta.	669478	3040104	DOR / PAIS-120

Lined Snake (*Tropidoclonion lineatum*)

There is a single museum record from the Texas A&M University at Kingsville collection (TAMUK-4892) for the lined snake, from South Bird Island. This appears to be an unusual record, and may or may not be questionable. The lined snake is not only unknown from the South Texas barrier islands, it is not known from Kleberg County or from any adjacent counties. Searches did not locate this specimen in the TAMUK collection, which has since been transferred to the AMNH collection. Dr. Allan H. Chaney recalls the specimen and he assured us that the identification was correct. A request to AMNH for a confirmation was made, but cataloging of the TAMUK collection there is incomplete. We did not survey South Bird Island in this study.

OTHER POTENTIAL SPECIES—PAIS

The following paragraphs discuss species not recorded in the park, but known from the counties in which the park lies or which, for some other reason, have been previously assumed to occur in the park. Most of the species listed below are also listed on the PAIS Internet web site as species “confirmed” to occur in the park. It is recommended that the list be revised based on this investigation.

Sirens and Newts

We were hopeful that the rare and endangered **black-spotted newt** (*Notophthalmus meridionalis*) and the **Rio Grande siren** (*Siren texana*) might occur within PAIS, but there are no records for those species on the South Texas barrier islands and we were not able to trap or net them. Regular periods of extreme drought and high salinity on Padre Island probably present unsuitable conditions for the persistence of either of these species.

Frogs and Toads

There are no records for the **Coastal Plain Toad** for North Padre or Mustang Island, though there are many records from just across the causeway in Flour Bluff and Corpus Christi. There are a few anecdotal records for the coastal plain toad within the park, but the results of our field work appear to indicate that those anecdotes were probably misidentifications. There were 196 museum specimens for the **Texas toad** (*Bufo speciosus*) in the collections examined for Nueces County alone, including 10 for Mustang Island. However, all of the Mustang Island specimens appeared to be from the north end of that island (just south of Port Aransas) and several

specimens were over 50 years old (the most recent was taken in 1967). The Texas toad probably does not occur within PAIS. There were no records for **Couch's spadefoot** for Mustang, North Padre, or South Padre Islands in the collections examined for this study. In those collections, there were records for Couch's spadefoot from Nueces County but not for the Corpus Christi area, and there were no records for Kleberg County except for a mention by Rabalais and Baker (1980) of a specimen that was collected on North Padre Island along Park Road 22 near the Corpus Christi city limit—it is on the basis of that reference that Couch's spadefoot is listed as "possible" for PAIS, but we were unable to locate the specimen to which Rabalais and Baker (1980) referred or to determine where it was deposited. Kleberg County is thought to be the southernmost county in the range of the **squirrel tree frog** (*Hyla squirella*). In a few of the audio files there are some calls that sounded vaguely similar to those of squirrel tree frogs, but it is more likely those were atypical green tree frog calls. It does not seem impossible that the squirrel tree frog might occur on North Padre Island but there is no evidence that it does.

Turtles

In the museum collections examined, there are several records for the **yellow mud turtle** (*Kinosternon flavescens*) on Mustang Island, but none for Padre Island. While we did not trap or observe yellow mud turtles on North Padre Island, some habitat there appears to be marginally suitable; therefore it is possible that the yellow mud turtle will occur there, though our failure to catch them in hoop traps would appear to discount that possibility. Rabalais and Baker (1980) report anecdotal records of yellow mud turtle sightings on North Padre Island, and on that basis the species is listed as "possible". There are a few questionable records for the **Texas tortoise** (*Gopherus berlandieri*) on Mustang and South Padre Island, but the barrier islands do not appear to provide suitable habitat for the species, and it seems quite unlikely that the Texas tortoise occurs within PAIS. Dr. Frank Judd reports that he once found a Texas tortoise on South Padre Island, but he believes a visitor brought it there and released it (F.B. Judd, pers. comm.). Likewise, Rabalais and Baker (1980) report that a Texas tortoise was observed on Mustang Island but that its carapace had been painted, indicating that it was probably an introduced animal, probably a released or escaped "pet." Kleberg County is out of the known range of the **common snapping turtle** (*Chelydra serpentina*), and it almost certainly does not occur within PAIS, though Rabalais (1975) recorded one as "accidental" to the island. The **ornate box turtle** (*Terrapene ornata*) is known from all of the counties which include PAIS, but we found no museum records for any of the South Texas barrier islands—it probably does not occur within PAIS. While **Texas diamondback terrapins** (*Malaclemys terrapin littoralis*) have often been observed within 15-20 miles to the north of PAIS in Nueces Bay, they have not been observed in Kleberg County—it may not be able to tolerate the extreme hypersalinity of the Upper Laguna Madre during times of extended drought.

Lizards

In the wild, the **green anole** (*Anolis carolinensis*) is generally an arboreal woodland species; however, it is best known as an urban dweller found on windowsills and in gardens. One would not expect to find it in barrier island dunes, grasslands, or wetlands. If it occurs anyplace within PAIS, it would most likely be around buildings on the north end of the island, but even that habitat would be quite marginal for this shade and moisture-loving species. We did not observe green anoles nor find museum records for the barrier islands, but Rabalais and Baker (1980) states that the species had been observed near the "headquarters". The **Texas spotted whiptail** (*Aspidoscelis gularis*) generally occurs on "hard-packed" rather than sandy soils. Specimens for the South Texas barrier islands were not found in the museum collections and the species does not appear to be very common even on the mainland in this part of its range. Rabalais (1975) lists the Texas spotted whiptail as "uncommon" for PAIS, but the basis for that listing could not be confirmed, even through anecdotal accounts of experts who have spent many years studying the flora and fauna of the island (F.B. Judd, pers. comm.; A. Chaney). Therefore the species is considered "unlikely" on the island, pending evidence to the contrary. There was one record for a **horned lizard** (*Phrynosoma cornutum*) in the collections examined for Padre Island but the location information is no more specific than that. That specimen was a dried skeleton collected in 1964, and does not confirm the species for PAIS. We found two specimens, one in the NPS collection, for Mustang Island, probably from the north part of that island. It is understandable that museum collections for this state-endangered species would be sparse for the past couple of decades, but the species is conspicuous when present, so it probably would be represented by old specimens if the species had ever been marginally common on Padre

Island. Also, harvester ants, the preferred food item of horned lizards, were not observed at PAIS in our study. Given that horned lizards have disappeared from many parts of their former range, it seems unlikely that horned lizards could be found in remote parts of PAIS, but that possibility can not be completely ruled out.

Likewise, the **rose-bellied lizard** (*Sceloporus variabilis marmoratus*), which was by far the most common reptile observed on the hard packed soils of the sacatals and *Borrichia* prairies at PAAL, would not find suitable habitat on the barrier islands and is almost certainly not found at PAIS. The **Texas spiny lizard** (*Sceloporus olivaceus*) is a fairly arboreal lizard usually found in woodlands or on woodland edges. It is not known from the barrier islands and does not occur within PAIS. The barrier islands would appear to provide only marginal habitat for the widespread generalist, the **southern prairie lizard** (*Sceloporus undulatus*). This lizard is not common in this part of its range and it is not known from the barrier islands—it apparently does not occur within PAIS. There is a specimen in the NPS collection (2025) labeled **southern prairie skink** (*Eumeces septentrionalis obtusirostris*). However, an examination of this specimen revealed that it was a ground skink (*Scincella lateralis*), which is common within PAIS. The southern prairie skink almost certainly does not occur within PAIS, which is several counties south of the known range of the species. The **four-lined skink** (*E. tetragrammus*), with some records from Nueces and Kleberg Counties, is somewhat more likely to occur within PAIS than the southern prairie skink, but there is no evidence that the four-lined skink occurs on the barrier islands either.

Snakes

There is one museum record in the collections examined for the **plains blind snake** (*Leptotyphlops d. dulcis*) in Nueces County, and two inland records for Kleberg County. There are no records from the barrier islands, and we did not observe the species during this inventory. The species is known to occasionally occur in arid regions with sandy soils (Werler and Dixon, 2000), though it might be excluded by the periodic extreme aridity of Padre Island. The species was listed as "possible" by Rabalais (1975) but was not discussed by Rabalais and Baker (1980). Because no evidence exists of its occurrence on the barrier islands, it is designated "unlikely" on our list. It seems that **bull snakes** (*Pituophis catenifer sayi*) could survive by burrowing and foraging on kangaroo rats and other small mammals and birds on the barrier islands, but there were no records for bull snakes from the South Texas barrier islands among the museum collections. Werler and Dixon (2000) show a record for the bull snake on Mustang Island but there is no evidence that the bull snake is present within PAIS. The **Texas rat snake** (*Pantherophis obsoleta*) is another arboreal species that utilizes birds and bird eggs as a major food source. It is one of the most common snakes in many parts of its range, but it is not known to occur in Kenedy or Willacy Counties. There are no records for the Texas rat snake from the barrier islands and it probably does not occur within PAIS. As its name implies, the **desert king snake** is an inhabitant of arid and semi-arid regions, but it is seldom found far from water (Werler and Dixon, 2000). There are no records for North or South Padre Islands although there are records for Mustang Island (Werler and Dixon, 2000; Rabalais and Baker, 1980). The harsh, treeless environment of the barrier islands probably does not provide the desert king snake with the moisture and cool hiding places that it prefers and therefore it is probably not present within PAIS. The **gulf salt marsh snake** (*Nerodia clarki clarki*) is another semi-aquatic reptile that might be excluded from the upper Laguna Madre due to periodic, toxic salinity levels. It is known from Nueces and Oso Bays, but there are no verifiable records from the Laguna Madre, though Rabalais and Baker (1980) report that the gulf salt marsh snake has been reported from South Bird Island, and on that basis it is listed as "possible" with considerable reservation. There is a record in the NPS collection (NPS-1118) for the **patch-nosed snake** (*Salvadora grahamiae lineata*) that has proven confusing—the record says "Facility Parking Lot; Padre Island National Seashore." Nueces was specified as the county. It turns out that the specimen was collected in the parking lot of the old PAIS headquarters (before the headquarters was located on the island) when it was located in the Flour Bluff area of Corpus Christi. Thus it is a mainland specimen, and there is no evidence that the patch-nosed snake occurs on the South Texas barrier islands. Two specimens (1058 & 1900) of the **Texas coral snake** (*Micrurus fulvius tener*) are also found in the NPS collection from Flour Bluff, but there are no barrier island records and the barrier islands probably do not provide habitat for this species. The NPS collection also contains a specimen of the **Texas brown snake** (*Storeria dekayi texana*), from Flour Bluff. There were no records for the Texas brown snake from the barrier islands in the collections examined, but Werler and Dixon (2000) found a record from Mustang Island. The species is included as "possible" on our list based on a report from Rabalais and Baker (1980) that the snake was collected near the Packery Channel in Corpus Christi, which is the very

northernmost point of Padre Island, but searches could not confirm that collection, and there is no evidence that it occurs within PAIS. The **marsh brown snake** (*S. d. limnetes*) is listed on the PAIS web site as a species occurring within PAIS, but this is probably incorrect. PAIS is several counties south of the known range for the marsh brown snake (Dixon, 2000), and North Padre Island does not contain appropriate habitat for the species. The **rough earth snake** (*Virginia striatula*) is usually found in damp woodlands and is known to avoid desert or semi-arid regions (Werler and Dixon, 2000). It is not known to occur in Kleberg or Willacy Counties (Dixon, 2000). There are inland records for the rough earth snake in Kenedy County, but it is doubtful that the rough earth snake occurs within PAIS. Records for **Taylor's ground snake** (*Sonora semiannulata taylori*) are scarce across its known range and there are no records for Kenedy or Willacy Counties. A few records come from western Kleberg County, but no records are known for the barrier island. While the ecology of this snake is not well known, North Padre Island does not provide habitat similar to what the species is known to use in other parts of its range; therefore it is probably not present within PAIS.

SUMMARY AND DISCUSSION—PAIS

This inventory confirmed 30 species of reptiles and amphibians for PAIS, including five species of frogs and toads, one turtle species, six species of lizards, and 15 species of snakes. A number of species that were on our initial species search list and are on the interpretive list that PAIS naturalists provide to visitors were not confirmed by our study. This is not unexpected, as both of those lists were partially composed of species known to occur within the counties in which PAIS lies. However, a variety of habitats found in inland portions of those counties are not found within PAIS or anywhere on the barrier islands; therefore, while some of these species might yet be documented for PAIS, most species not confirmed probably do not occur within PAIS.

Notable Finds

Of particular interest and significance in the PAIS inventory were the reptiles and amphibians confirmed during this inventory that had not been recorded for the island or in some cases for the counties. The rarest animal found within PAIS was the **Texas scarlet snake**, which was trapped on one occasion. There are only about 10 known records for the Texas scarlet snake throughout its range. The species is classified by the state as a threatened species. The **Great Plains rat snake** is one of the most common snakes in many parts of its wide range, but it was detected on Padre Island for the first time during this inventory and is apparently fairly rare there. **Woodhouse's toad** was not previously known from PAIS, from North or South Padre Islands, or from Kleberg, Nueces or San Patricio Counties. Almost as interesting as the presence of Woodhouse's toad on the island is the apparent absence of the **Coastal Plain Toad**, which, as the name implies, is found in abundance up and down the Gulf Coast and throughout southern Texas. Just across the causeway in Corpus Christi, we have recorded the Coastal Plain Toad on numerous occasions on nights that we also recorded Woodhouse's toad on North Padre Island. There were no previous museum or literature records for the **spotted chorus frog** on North Padre Island. The spotted chorus frog was heard (in abundance) on only one occasion at one location though it would not be surprising to see this species become quite abundant if PAIS experienced several years of average to above average rainfall. We also have apparently detected for the first time **a narrowmouth toad** on Padre Island. Padre Island is within the range of the **Great Plains narrowmouth toad**, which is quite common on the mainland, but the calls recorded of this frog on North Padre Island are more similar to, but not typical of the **eastern narrowmouth toad**, which is not known to occur in the counties that include Padre Island or in adjacent counties; the calls are quite dissimilar to those of the Great Plains narrowmouth toad. As this report was nearing completion, some larval specimens of that narrowmouth toad were collected from Padre Island, outside the northern boundary of PAIS, and from Mustang Island. The final identification of those specimens is pending.

Amphibians and Drought

The multi-year drought that the island had experienced prior to and early in this study may have had a significant impact on amphibian populations, but this is probably a temporary phenomenon. Because it is characteristic of North Padre Island to have widely varying precipitation from year to year, and there are several more severe droughts in the historical record, the species that persist there must employ survival mechanisms to endure long periods of subnormal precipitation. A lack of such a drought survival mechanism might explain the

apparent absence of certain amphibians that are known from the adjacent mainland such as the endangered **black-spotted newt** and **Rio Grande siren**.

Herpetofaunal Diversity and the Laguna Madre

PAIS offers a relative lack of diversity of vegetation and habitats and the Upper Laguna Madre presents a significant ecological barrier to movement between the island and the mainland. Therefore, it is not surprising that the diversity of herpetofauna on the island is somewhat lower than that of the mainland. The Upper Laguna Madre also presents a particularly harsh environment for aquatic or semi-aquatic reptiles that are known to utilize brackish water, such as the **gulf salt marsh snake**, the **Texas diamondback terrapin**, or the **American alligator,** and the Laguna's hypersalinity probably explains why these species occur as far south as Nueces County but do not occur naturally in counties further south. With the construction of the Gulf Intracoastal Waterway and the tidal inlets at Mansfield and Brazos Santiago, even the Upper Laguna Madre has become somewhat less saline than it had been historically. Soon, the Packery Channel, another tidal inlet, will be open near the north end of the Laguna Madre; that project will further reduce the salinity level. It seems possible that some aquatic and semi-aquatic reptiles that had historically rarely been observed in the Upper Laguna Madre might begin to occur there more frequently as salinity levels drop and the resulting alteration of the ecology of that part of the Laguna begins to occur.

Unusual Specimens

In addition to the biogeographical anomaly presented by the occurrence of **Woodhouse's toad**, and possibly by the **eastern narrowmouth toad**, several other species found within PAIS appear to be more closely related to populations occurring hundreds of miles to the north and east than they do to conspecifics just across the Laguna. Of particular note is the **massasauga** population that seems more similar to the western massasauga than it does to the desert massasauga known from the mainland portion of South Texas. Additionally, that species is quite rare in South Texas though fairly common on North Padre Island—there are almost as many species records for North Padre Island as there are in all of the rest of South Texas. The racer found on North Padre Island may also be more similar to the **yellow-bellied racer** than to the **Mexican racer** found on the mainland, or it may represent an intergrade between the two races. It is not clear if the yellow-headed subspecies of the **six-lined racerunner** occurs within PAIS, though most specimens observed and collected strongly exhibited **yellow-headed racerunner** characteristics.

Indefinite Confirmations

There are several species represented only by museum records that were contained in the Texas A & M University at Kingsville collection. These specimens were removed with the entire collection to the American Museum of Natural History during the period of our inventory. The records tentatively included in this report as confirmed by TAMUK museum records include the **Texas indigo snake**, the **southern earless lizard**, and the **lined snake**; to this date we have not been able to confirm them. Each of those records appears to be somewhat "suspicious" as they are all unique records for North Padre Island and the lined-snake record represents a significant range extension for the species.

Checklist Revisions

A number of species have been listed on various checklists for PAIS that probably do not occur there. Some species not confirmed during this inventory may yet be found on North Padre Island and within PAIS. However, several species that are sometimes said to occur there almost certainly do not. These include the **Texas tortoise**, the **ornate box turtle**, the **rose-bellied lizard**, the **Texas spiny lizard**, the **Texas rat snake**, and the **marsh brown snake**. There is an old museum specimen for the **horned lizard** for North Padre Island, but it is unlikely that it currently occurs there—the species is conspicuous and notable when present, but is completely missing from the museum and literature record for the last 50 years. Occasionally an animal that does not normally occur on the island might be washed from inland into the Laguna and find its way onto the island. These types of occurrences are usually referred to as "accidental." Two species in particular, the **bull snake** and the **indigo snake,** might occasionally occur on the island in this way, but the lack of records for these large and conspicuous snakes appears to indicate that there are no reproducing populations. Some species of turtles might also rarely be found on the island in this accidental manner.

RESULTS FOR SAN ANTONIO MISSIONS NATIONAL HISTORICAL PARK

Direct observations, museum collections, photographs, and a few anecdotes from park biologists, verified the presence of 36 reptile and amphibian species at SAAN (Table 30). Another 16 species are listed in Table 30 as "possible" or "probable" based on numerous museum and literature records from the vicinity of SAAN. One species, Cagle's map turtle (*Graptemys caglei*) is listed as "extirpated." The entire list includes 53 species: Twelve species of frogs and toads, nine species of turtles, nine species of lizards, and 23 species of snakes. The resulting data table (Appendix 8) of reptile and amphibian observations of all types within the park contains 212 entries.

While there are many museum records available for Bexar, Wilson, and Atascosa counties, there were no museum records that specifically listed NPS property as the collection location. Only a couple literature records mentioned sites in or near SAAN, therefore virtually all records confirmed for SAAN are for those species observed during the course of this study. Most observations were made by trapping specimens. Trapping provided 126 observations of 21 species of reptiles and amphibians (Appendix 9). Mammals were incidentally captured 52 times and released, and two birds were similarly trapped and released. VES was performed at SAAN but was much less effective than trapping and only one species was found during VES that was not captured in a trap (Appendix 10). Many records were gathered when specimens were picked up as road-kills, brought to us by park workers, or otherwise casually observed during the course of other activities (Appendix 11). Auditory surveys were an ineffective means of locating specimens at SAAN, as there were few areas of standing water near which to conduct auditory surveys (Appendix 12). We conducted auditory surveys, but only one species was recorded during those surveys that was not recorded by using other methods. Since only one species with special conservation status, the Texas tortoise (*Gopherus berlandieri*) (a state "threatened" species) is known to occur within SAAN, no table of species with special conservation status is presented here for SAAN. The horned lizard (*Phrynosoma cornutum*) *might occur* at SAAN and is also listed by the state as "threatened." Cagle's map turtle (*Graptemys caglei*) occurred within SAAN historically, but has probably been extirpated from the San Antonio River—it is also listed as "threatened" by the state and has federal "candidate" status. A total of forty-four specimens were collected from SAAN during this inventory (Appendix 13). Many of the specimens collected were found road-killed, and a number of others are frogs that became desiccated in pitfalls or were killed by fire ants.

Table 30. Checklist of Reptiles and Amphibians at San Antonio Missions National Historical Park. C=Common, FC=Fairly Common; U=Uncommon; R=Rare; NC=No Record; GR=Goat Ranch. New records for Wilson County based on this inventory are denoted by "*".

Common Name	**Scientific Name**	**Frequency per Obs. at SAAN**	**Literature/Museum Frequency Near SAAN**
Frogs and Toads			
Blanchard's Cricket Frog	*Acris crepitans blanchardi*	Common	Common
Eastern Green Toad	*Bufo d. debilis*	Possible	Rare
Coastal Plain Toad	*Bufo nebulifer*	Common	Common
Texas Toad	*Bufo speciosus*	Possible	Rare
Great Plains Narrowmouth Toad	*Gastrophryne olivacea*	Common	Common
Green Tree Frog	*Hyla cinerea*	Uncommon	Fairly Common
Spotted Chorus Frog	*Pseudacris clarkii*	Possible	Uncommon
Strecker's Chorus Frog	*Pseudacris streckeri*	Possible	Rare
Rio Grande Leopard Frog	*Rana berlandieri*	Possible	Rare
Bull Frog	*Rana catesbeiana*	Uncommon	Fairly Common
Rio Grande Chirping Frog	*Eleutherodactylus cystignathoides campi*	Uncommon	Rare
Couch's Spadefoot Toad*	*Scaphiopus couchii*	Rare	No Record
Turtles			
Guadalupe Spiny Softshell	*Apalone spinifera guadalupensis*	Common	Common
Common Snapping Turtle	*Chelydra serpentina*	Common	C-Bexar; NR-Wilson
Texas Tortoise	*Gopherus berlandieri*	Uncommon	Uncommon
Cagle's Map Turtle	*Graptemys caglei*	Extirpated	R-Bexar; NR-Wilson
Yellow Mud Turtle	*Kinosternon f. flavescens*	Probable	Fairly Common
Texas River Cooter*	*Pseudemys texana*	Common	C-Bexar; NR-Wilson
Common Musk Turtle	*Sternotherus odoratus*	Probable	Fairly Common
Ornate Box Turtle	*Terrapene ornata*	Possible	Rare
Red-eared Slider	*Trachemys scripta elegans*	Common	Common
Lizards			
Green Anole	*Anolis carolinensis*	Common	Common
Texas Spotted Whiptail	*Aspidoscelis gularis*	Fairly Common	Fairly Common
Short-lined Skink	*Eumeces tetragrammus brevilineatus*	Probable	Uncommon
Mediterranean Gecko	*Hemidactylus t. turcicus*	Fairly Common	Yes
Texas Horned Lizard	*Phrynosoma cornutum*	Rare	Fairly Common
Southern Prairie Lizard	*Sceloporus undulatus consobrinus*	Probable	FC-Bexar; R-Wilson
Rose-bellied Lizard	*Sceloporus variabilis marmoratus*	Rare	Fairly Common
Texas Spiny Lizard	*Sceloporus olivaceus*	Fairly Common	C-Bexar; R-Wilson
Ground Skink	*Scincella lateralis*	Fairly Common	Fairly Common
Snakes			
Broad-banded Copperhead	*Agkistrodon contortrix laticinctus*	Possible	UC-Bexar; R-Wilson
Western Cottonmouth	*Agkistrodon piscivorus leucostoma*	Rare	UC-Bexar; R-Wilson
Western Diamondback Rattlesnake	*Crotalus atrox*	Fairly Common	C-Bexar; R-Wilson
Desert King Snake	*Lampropeltis getula splendida*	Rare	FC-Bexar; UC–Wilson
Eastern Hognose Snake	*Heterodon platirhinos*	Possible	Rare
Plains Blind Snake*	*Leptotyphlops d. dulcis*	Common	C-Bexar; NR-Wilson
Western Coachwhip	*Masticophis flagellum testaceus*	Common	FC-Bexar; R-Wilson
Schott's Whipsnake*	*Masticophis s. schotti*	Fairly Common	C-Bexar; NR-Wilson
Texas Coral Snake	*Micrurus fulvius tener*	Rare	UC-Bexar; R-Wilson
Blotched Water Snake	*Nerodia erythrogaster*	Probable	Fairly Common
Diamondback Water Snake	*Nerodia rhombifer*	Fairly Common	C-Bexar; R-Wilson
Rough Green Snake	*Opheodrys aestivus*	Rare	FC-Bexar; R-Wilson
Great Plains Rat Snake	*Pantherophis emoryi*	Fairly Common	FC-Bexar; R-Wilson
Texas Rat Snake	*Pantherophis obsoleta*	Fairly Common	C-Bexar; R-Wilson
Graham's Crayfish Snake	*Regina grahamii*	Probable	Rare-Bexar; NR-Wilson
Texas Long-nosed Snake	*Rhinocheilus lecontei tessellatus*	Rare	Rare
Texas Patch-nosed Snake	*Salvadora grahamiae lineata*	Fairly Common	FC Bexar; R-Wilson
Texas Brown Snake	*Storeria dekayi texana*	Rare	FC-Bexar; R-Wilson
Flathead Snake	*Tantilla gracilis*	Probable	UC-Bexar; R-Wilson
Checkered Garter Snake	*Thamnophis marcianus*	Uncommon	C-Bexar; R-Wilson
Redstripe Ribbon Snake	*Thamnophis proximus rubrilineatus*	Rare	C-Bexar; R-Wilson
Lined Snake	*Tropidoclonion lineatum texanum*	Possible	FC-Bexar; NR-Wilson
Rough Earth Snake	*Virginia striatula*	Uncommon	C-Bexar; R-Wilson

SPECIES DETAILS AND DISCUSSION – SAAN

Frogs and Toads

Blanchard's Cricket Frog (*Acris crepitans blanchardi*)

Blanchard's cricket frog (Figure 36) is found over most of the mid-western U.S., north to South Dakota and east to Ohio. In Texas, this frog occurs over most of the central two thirds of the state to the Rio Grande. In southern Texas, it is usually found around running water. Blanchard's cricket frog was heard and seen with equal frequency wherever the San Antonio River crosses through NPS property. But it was not heard as often as seen along both the San Antonio River and Picosa Creek at the Rancho de las Cabras. Table 31 below combines records for numerous observations of this species at one location (number of individuals in parentheses); a complete listing is contained in the GIS database and in Appendix 8.

Table 31. Known locations of Blanchard's Cricket Frog at San Antonio Missions National Historical Park.

Dates	Location	Easting	Northing	Type of Record/Specimen #
06/21/2003 (at least 5)	near Picosa ck & SA river	581275.99	3219099.72	Observation (5)
09/26/2002 (at least 11)	Picosa crk near SA river	581289.10	3218988.88	Observation (11)
10/31/2002 (at least 5)	confluence SA River-Picosa ck	581291.48	3218980.54	Observation (5)
04/05/2003 (at least 17)	SA River S. of Picosa ck	581280.75	3218938.83	one spec. + photos (17) / SAAN-079
03/19/2002 (at least 4)	Picosa ck @ N boundary NPS	581330.28	3219326.44	Observation (4)
04/17/2003 (at least 4)	SA River - 1 km N. San Juan	552478.40	3245812.42	heard – recorded (4)
04/15/2003 (at least 6)	Picosa crk near SA river	581288.73	3218983.90	heard – recorded (6)

Coastal Plain Toad (*Bufo nebulifer*)

The Coastal Plain toad (Figure 37) is probably the most common and widespread amphibian found on SAAN property. It was trapped in every trap and observed or heard at a number of other locations. One observation included scores, or perhaps hundreds, of juvenile Coastal Plain Toads along a nearly dry creek bed about 1 km north of Mission San Juan. Table 32 below is a condensed version of what can be found in the GIS database and in Appendix 6.

Table 32. Known locations of the Coastal Plain Toad at San Antonio Missions National Historical Park.

Dates	Location	Easting	Northing	Type of Record/Specimen #
10/31/2002 (2)	W. of Picosa Ck- by trap GR3	581279.32	3219056.82	Observation (2)
6/3/2002 (at least 50)	1 km N. Mission San Juan	552587.35	3245830.95	photo/specimen DOR / SAAN-006
7/12/2003	100 m NNE of monument GR	581122.47	3218926.86	obs - photo
6/21/2003	E. of Picosa ck - near trap GR	581299.72	3219016.93	obs - photos
6/19/2003	W. Picosa ck - near GR3	581276.59	3219036.03	obs
9/22/02—6/27/2003 (6)	Trap GR1	580935.18	3219045.59	trap
9/22/02—6/27/2003 (7)	Trap GR2	581169.68	3218833.96	trap specimen DIT / SAAN-054, 065
9/22/02—6/27/2003 (4)	Trap GR3	581282.82	3219075.10	trap
4/11/2003	Trap 1	552879.69	3243856.62	trap
6/26/2003	Trap 2	553037.12	3244391.37	trap
9/22/02—6/27/2003 (4)	Trap 3	552641.83	3245892.11	trap one DIT / SAAN-056
7/13/2002 (at least 7)	1 km N. M. San Juan - SA river	552489.67	3245825.18	heard – recorded (7)

Great Plains Narrowmouth Toad (*Gastrophryne olivacea*)

In central and southern Texas, the Great Plains narrowmouth toad (Figure 38) occurs in a variety of habitats. It was trapped at all three of the San Antonio trap sites, but was somewhat surprisingly not trapped at trap site GR3, which was in riparian woodland at the Rancho. These toads tend to only call during rain. Because we were unable to conduct auditory surveys during rains, we never recorded their calls.

Table 33. Known locations of the Great Plains Narrowmouth Toad at San Antonio Missions National Historical Park.

Dates	Location	Easting	Northing	Type of Record/Specimen #
4/8/2003	SAAN - Trap 1	552893.35	3243849.55	DIT spec / SAAN-070
4/17/2003	SAAN - Trap 2	553058.38	3244407.84	trapped -some photos
9/26/03 (3)	SAAN - Trap 3	552635.97	3245892.97	trapped - some photos
9/22, 27/02(4); 6/21--26/03(4)	SAAN - Goat Ranch - GR-1	580942.92	3219058.36	DIT spec / SAAN-069, 083
4/4, 6/22/03	SAAN - Goat Ranch - GR-2	581167.01	3218836.36	trapped

Green Tree Frog (*Hyla cinerea*)

The green tree frog (Figure 11) is one of the most common and conspicuous frogs across its range—conspicuous because it can occasionally be vocal even in the daytime when it is not raining. That characteristic allowed confirmation of the species' presence within SAAN. One lone green tree frog called for a few seconds behind Mission Espada and another called near the confluence of the San Antonio River and Picosa Creek during a VES. The calling at the Rancho de las Cabras was not repeated long enough to obtain an audio recording. There are a number of museum records (TNHC-13800-13812) for *H. cinerea* for Mitchell Lake, which is about 3.5 miles southwest of Mission Espada.

Couch's Spadefoot (*Scaphiopus couchii*)

Couch's spadefoot (Figure 39) was not previously known from Wilson County. One was trapped in the mesquite upland trap (GR1) at the Rancho de las Cabras. There are a few specimens from the northern part of Bexar County, but the species requires ephemeral pools for breeding that appear to be uncommon within SAAN.

Rio Grande Chirping Frog (*Eleutherodactylus cystignathoides campi*)

The Rio Grande chirping frog (Figure 40) is native to northern Mexico and the two southernmost Texas counties. Populations have become established in a number of places outside their native range including Bexar County, though there were no specimens in the museum collections examined. There are numerous museum records from Bexar County for the cliff chirping frog (*S. marnockii*), but as the name implies, that species is mainly an inhabitant of the Balcones Escarpment and is probably not found at SAAN. This study found two specimens during VES surveys in the Labores de Espada and one badly damaged road-killed specimen about 800 m north of Mission San Juan. Hedges (1989) reviewed the phylogeny of *Eleutherodactylus* from the Caribbean and concluded that the Mexican genera *Syrrhophus* and *Tomodactylus* are paraphyletic, and he synonomized them with *Eleutherodactylus*. However, Dixon (2000), among others, questions that study because Hedges failed to examine behavior, morphology, or genetic characteristics. Dixon (2000) still refers this form to *Syrrhophus*.

Table 34. Known locations of the Rio Grande Chirping Frog at San Antonio Missions National Historical Park.

Dates	Location	Easting	Northing	Type of Record/Specimen #
6/2/2002	north part of labores espada	552381.87	3244779.34	photo/spec / SAAN-007
6/19/2003	by trap 1- 75m N. of 410	552888.23	3243852.32	obs. photo.
6/3/2002	Padre Dr., .8 km N. Mission rd	552535.44	3245806.01	DOR - discarded

Bullfrog (*Rana catesbeiana*)

A specimen of the bull frog (SAAN-062) was collected by David Ribble near sampling site GR2 at Rancho de las Cabras. This is an odd record. The bull frog normally inhabits near-permanent or semi-permanent ponds. One reason that the bullfrog needs permanent water is that bullfrog metamorphosis sometimes takes as long as two years. There would appear to be very little to no habitat for the species at the Rancho. Possibly this frog is from a population that is using overflow areas of the San Antonio River, or considering that this collection was made during a very dry period, perhaps this animal's home pond had dried up and it was passing through this area in search of water.

Turtles

Guadalupe Spiny Softshell (*Apalone spinifera guadalupensis*)

The Guadalupe spiny softshell is a very common inhabitant of the San Antonio River. The species was often observed floating in the San Antonio river near the Labores Espada. One softshell was found road-killed on a

bridge over the river near Mission San Juan but the specimen was badly damaged and decomposed so it was discarded. Softshells were not recorded at the Rancho de las Cabras but they are known to occur in that part of the San Antonio River.

Table 35. Known locations of the Guadalupe Spiny Softshell at San Antonio Missions National Historical Park.

Dates	Location	Easting	Northing	Type of Record/Specimen #
6/2/2002 (and other dates) (about 10)	near labores de espada	552575.26	3244873.08	observation
6/3/2002	near Mission San Juan	552572.99	3244845.76	DOR - decomposed

Common Snapping Turtle (*Chelydra serpentina*)

Common snapping turtles (Figure 41) are known from a variety of freshwater habitats, but they seem to prefer slower moving water with muddy bottoms and banks where individuals can bury themselves. Snapping turtles were observed basking along the San Antonio River north of Mission San Juan, and were trapped in creeks on either side of the river in the same area. We also found a literature record (Vermersch, 1992) for *C. serpentina* just north of Espada Dam. We did not record snapping turtles at the Rancho de las Cabras and in fact there are no records for this species from Wilson County.

Table 36. Known locations of the Common Snapping Turtle at San Antonio Missions National Historical Park.

Dates	Location	Easting	Northing	Type of Record/Specimen #
6/24/2003 (3)	creek N of Mission Rd	552313.50	3245515.39	trapped - photos – released
5/15/2003 (2)	pond 1 km N. of M. San Juan	552758.43	3245932.19	trapped - photos - released
6/3/2002	SA River 300 m W. Trap 3	552475.58	3245811.82	Observed

Texas Tortoise (*Gopherus berlandieri*)

Although listed as a state-endangered species, the Texas tortoise (Figure 42) can be locally common. One was observed by park personnel near Mission San Juan in 2004, and it is well represented in museum and literature (Vermersch, 1992) records from southern Bexar County. The Texas tortoise was observed once on the road just south of trap number GR1 at the Rancho de las Cabras and was observed twice on the rocky ridge above the San Antonio River between traps GR2 and GR3.

Table 37. Known locations of the Texas Tortoise at San Antonio Missions National Historical Park.

Dates	Location	Easting	Northing	Type of Record/Specimen #
5/13/2003	~100m S. of fence near GR1	580885.38	3219003.69	Observation - Photos
6/20/2003	betw. trap GR2 & GR3	581181.47	3218955.87	Observation - Photos
9/26/2003	betw. trap GR2 & GR3	581178.94	3218949.24	Observation - Photos
3/17/2004	S.E. of M. San Juan	552979.69	3244811.64	Observation – Greg Mitchell

Cagle's Map Turtle (*Graptemys caglei*)

Cagle's map turtle is endemic to the San Antonio/Guadalupe River system and is known from the San Antonio River where it passes through SAAN. Cagle's map turtle was not described until 1974 (Haynes and McKown, 1974), but may have already been extirpated from the entire San Antonio River system by the time it was described. It was last observed in the San Antonio River over 40 years ago near the Mission Road Bridge (Vermersch, 1992). Cagle's map turtle and other members of the genus use sand bars along rivers for nesting. The species was probably eliminated from that part of its range by the channelization of the San Antonio River.

Yellow Mud Turtle (*Kinosternon f. flavescens*)

This species is known to inhabit almost any water body within its range, including cattle tanks, ponds in semiarid grasslands or open woodlands, roadside puddles, sewer drains, irrigation ditches, sinkholes, seasonally dry ponds, lakes, reservoirs, slow-moving creeks and rivers, sloughs, and swamps (Vermersch, 1992) and it appears to tolerate major alterations of its natural habitat (Kofron and Schreiber, 1985). We found a number of museum records for the yellow mud turtle for Bexar and Wilson Counties that were collected from locations near SAAN, though none specifically mention SAAN property. Vermersch (1992) also shows records for this turtle in the immediate vicinity of SAAN. It almost certainly occurs behind the Espada Dam, and in other water bodies at SAAN, though it failed to enter our traps and we did not observe it.

Texas River Cooter (*Pseudemys texana*)

The Texas river cooter (Figure 43) is endemic to Texas, being restricted to the Colorado, Brazos, Guadalupe, and San Antonio River drainages. Within its range, it is often the most numerous turtle species found. We trapped two of these turtles on two occasions in the San Antonio River at the Rancho de las Cabras. We did not trap in the river in Bexar County (not SAAN jurisdiction) but undoubtedly results would have been similar there. Turtles not unlike river cooters were often observed basking in San Antonio, though most often it was not possible at a distance to distinguish river cooters from red-eared sliders (*Trachemys scripta*). Vermersch (1992) makes an interesting observation regarding the relative abundance of *P. texana* and *Trachemys scripta* in the San Antonio River: He states that during the 1960's, Texas river cooters were rare in the San Antonio River in Bexar County and were greatly outnumbered by red-eared sliders, but that currently (1992) the numeric relationship was reversed and river cooters were more numerous than sliders. Vermersch (1992) also states that the Texas river cooter appears to be much more common today at the old Espada Dam and at Brackenridge Park than it was 25 years ago. We trapped about an equal number of sliders and river cooters in the portion of the San Antonio River that runs through the Rancho. Our record for the Texas river cooter in Wilson County appears to be the first for the species from that county (Dixon, 2000). Unfortunately, this was not yet apparent at the time of the observation and no specimen was retained.

Table 38. Known locations of the Texas River Cooter at San Antonio Missions National Historical Park.

Dates	Location	Easting	Northing	Type of Record/Specimen #
5/15/2003	SA River @ Picosa ck	581285.39	3218927.59	trapped - PHOTOS
5/15/2003	SA River @ Picosa ck	581307.01	3218943.33	trapped - PHOTOS
6/21/2003	SA River, 200 m ENE Picosa ck	581467.97	3219023.94	trapped - PHOTOS
6/21/2003	SA River, 200 m ENE Picosa ck	581489.93	3219032.78	trapped - PHOTOS

Common Musk Turtle (*Sternotherus odoratus*)

This species is listed here as confirmed for SAAN because of a specific literature reference of Vermersch (1992). The record states: "This highly aquatic species is primarily nocturnal, although it has been observed by the author in the early morning at his Espada Dam study area on the San Antonio River." The common musk turtle is widely distributed from the coast of Maine and southern Ontario south to southern Florida and west to Wisconsin, Kansas, Oklahoma, and into eastern and central Texas. However, of the major Texas collections examined, there were no specimens for Bexar or Wilson Counties, so the species may not be very common at this extreme western edge of its large range.

Red-eared Slider (*Trachemys scripta elegans*)

In many parts of their wide range, red-eared sliders (Figure 15) are the most common turtle found. In the San Antonio River system in Bexar and Wilson Counties they are abundant, but may be somewhat less common than the Texas river cooter (Vermersch, 1992). As previously discussed in the section on the Texas river cooter, this numeric relationship may have reversed over the last few decades (Vermersch, 1992). We trapped red-eared sliders in the San Antonio River at the Rancho de las Cabras and observed them basking in the San Antonio River near Mission San Juan.

Table 39. Known locations of the Red-eared Slider at San Antonio Missions National Historical Park.

Dates	Location	Easting	Northing	Type of Record/Specimen #
6/21/2003 (5)	SA River, ~300m from Picosa ck	581482.29	3219035.61	Trapped – Photos (5)
6/3/2002	SA River ~1 km N. M. San Juan	552466.77	3245783.32	Observed basking
6/3/2002	SA River ~1 km N. M. San Juan	552464.74	3245752.38	Observed basking

Lizards

Green Anole (*Anolis carolinensis*)

The green anole (Figure 44) is common across most of the southern United States. San Antonio is near the western edge of its range. While sometimes found in more remote areas, this lizard is best known as an urban lizard, often seen on walls and windowsills. It is common in San Antonio and around the mission buildings, though it was not particularly a surprise that it was not recorded at Rancho de las Cabras. Green anoles were observed during several VES surveys and one was trapped in trap array #3.

Table 40. Known locations of the Green Anole at San Antonio Missions National Historical Park.

Dates	Location	Easting	Northing	Type of Record/Specimen #
3/19/2002	200 m east of Picosa creek	581460.52	3219061.76	observed
5/31/2002	behind mission espada wall	553356.10	3243415.39	observed-captured/released
5/31/2002	behind mission espada wall	553373.38	3243415.47	observed
5/31/2002	behind mission san Juan	552855.24	3244929.32	observed
6/02/2002	labores espada	552561.47	3244234.01	observed
4/17/2003	labores espada	552772.11	3243994.25	observed
4/6/2003	across rd from M. San Jose	550492.30	3248288.90	observed
9/27/2002	across rd from M. San Jose	552635.95	3245898.80	trapped – spec / SAAN-057

Texas Spotted Whiptail (*Aspidoscelis gularis*)

The Texas spotted whiptail (Figure 45) was observed and trapped on several occasions at two locations at the Rancho de las Cabras. While *A. gularis* is known from a variety of habitats, it is mainly thought of as an inhabitant of more open areas—old fields, edges, prairies, and open brush areas. Therefore, it was somewhat surprising that it was trapped twice in the riparian woodland at trap GR3 at the Rancho. It was not recorded within the Mission complexes but it could be expected in some of the more open areas or old fields in San Antonio.

Table 41. Known locations of the Texas Spotted Whiptail at San Antonio Missions National Historical Park.

Dates	Location	Easting	Northing	Type of Record/Specimen #
7/12/2002	on rocks by monument	581082.66	3218802.14	observed
4/17, 5/15/2003	Trap GR 2	581167.62	3218828.65	trapped twice/ SAAN-101
5/15, 6/22/2003	Trap GR 3	581283.78	3219076.92	trapped twice

Mediterranean Gecko (*Hemidactylus turcicus*)

The Mediterranean gecko (Figure 19) is an introduced species that is common along the Gulf Coast and as far north as Oklahoma City, Oklahoma and Tupelo, Mississippi. It is an urban inhabitant in the United States, and the range in this country appears to be steadily expanding. It was observed on walls in all of the Mission complexes. The Mediterranean gecko is very common in the urban setting of San Antonio, but it is no surprise that it was not recorded at the Rancho de las Cabras. It is probably not present there. Brett Carré of the SAAN staff had previously collected some specimens of *H. turcicus*, so we did not collect specimens.

Table 42. Known locations of the Mediterranean Gecko at San Antonio Missions National Historical Park.

Dates	Location	Easting	Northing	Type of Record/Specimen #
05/30/2002 & 06/21/2003	Mission San Juan	552876.15	3244909.85	Observation
05/30/2002 & 06/21/2003	Mission San Juan	552880.97	3244928.05	Observation
6/21/2003	Mission San Jose	550477.18	3248253.28	Observation
6/21/2003	Mission San Jose	550528.24	3248219.32	Observation
6/21/2003	Mission San Jose	550495.39	3248198.66	Observation
6/21/2003	Mission Concepción	549381.69	3251411.28	Observation
10/1/2002	~500 m ESE M. S.Juan-Pooley	553424.59	3244894.33	Specimen / SAAN-084
10/25/2002	Mission San Jose - Gristmill	550504.07	3248236.91	Specimen / SAAN-085

Texas Horned Lizard (*Phrynosoma cornutum*)

Many years ago, the Texas horned lizard (Figure 46) was widespread and common from Kansas to Northern Mexico, including eastern New Mexico and all but the easternmost portion of Texas (Conant and Collins, 1998). From numerous museum and literature records it is clear that it was also common in the area that includes the mission complexes in San Antonio and at the Rancho de las Cabras. The harvester ant (*Pogonomyrmx* sp.) is this lizard's preferred food item, though it will consume a number of other arthropods. Harvester ants are common in various parts of SAAN, but horned lizard populations across the range have become greatly reduced and the current status within SAAN is questionable. No horned lizards were trapped or otherwise observed during this inventory and there are not even recent anecdotes from SAAN in San Antonio. Brett Carré, a former biologist for SAAN, reported a fleeting glimpse of what he thought was a horned lizard at the Rancho and therefore the species is listed as possible for the park. Suitable habitat appears to exist at both the Rancho and around the missions in San Antonio—based on that observation and on the historical recorded occurrence of the horned

lizard in the area, it would seem quite probable there, but our failure to observe it, the lack of even anecdotal records, and the somewhat mysterious disappearance of the species from many parts of its former range lowers the possibility of its current occurrence at SAAN.

Rose-bellied Lizard (*Sceloporus variabilis marmoratus*)

The rose-bellied lizard (Figure 47) is an inhabitant of the Rio Grande Plains; southern Bexar County is at the northern edge of this range. There are many museum specimens available though none of them appeared to be from the southern part of Bexar County. This species was the most common lizard at PAAL, but was quite uncommon at locations within SAAN. We first recorded the species for SAAN when an individual was observed on top of trap #1, when the site was visited for the last time to remove the trap. That individual was taken as a specimen (SAAN-119).

Texas Spiny Lizard (*Sceloporus olivaceus*)

The Texas spiny lizard (Figure 48) is quite common across south and central Texas and appeared to be common at SAAN, both at the Rancho de las Cabras and on the Bexar County portion. It was trapped at every site except the upland mesquite woodland site (GR1) and was trapped most often in the wooded riparian site (GR3). Young Texas spiny lizards can be easily confused with fence lizards (*S. undulatus*), though spiny lizards have larger scales, with scale rows numbering less than 33, while fence lizards have scale rows numbering at least 35. Spiny lizards are quite arboreal but may often be observed on the ground.

Table 43. Known locations of the Texas Spiny Lizard at San Antonio Missions National Historical Park.

Dates	Location	Easting	Northing	Type of Record/Specimen #
6/22/2002	behind the acequia dam	552286.80	3244855.33	observation
9/27/02; 4/6, 5/15/2003	Trap 1	552890.17	3243861.95	Spec. DIT/ SAAN-080
4/11, 16, 6/20/2003	Trap 2	553061.02	3244407.08	trapped - 1 specimen-DIT
9/27/2002	Trap 3	552636.97	3245910.70	trapped - photos/ SAAN-063
9/22/2002	GR-2	581161.81	3218836.27	trapped - photos
4/11 -- 6/24/2003 (6)	GR-3	581283.33	3219077.41	trapped - photos
9/18/2002	~40 m W. Picosa - near GR-3	581236.24	3219075.67	Speci- acc. killed/ SAAN-050
4/17/2003	near trap 1	552920.49	3243830.96	observation

Ground Skink (*Scincella lateralis*)

Ground skinks (Figure 22) were common in wooded sites throughout the survey area. The species was observed, captured by hand, and photographed on a number of occasions, though it was only trapped once—at the riparian woodland site at the Rancho de las Cabras, trap GR3. In this area the ground skink might be confused with the four-lined skink (*Eumeces tetragrammus*) or short-lined skink (*E. brevilineatus*) though it is the smallest skink within its range and the only one with the lateral lines for which it is named.

Table 44. Known locations of the Ground Skink at San Antonio Missions National Historical Park.

Dates	Location	Easting	Northing	Type of Record/Specimen #
5/29/2002 (4)	north of Mission Rd.	552351.68	3245515.40	Observation
6/22/2002 (2)	labores espada	552598.27	3244037.56	Observation
6/03/2002 (2)	1 km N. of M. San Juan	552790.84	3245566.07	Observation
6/21/2003	300 m E. of Picosa creek	581539.64	3219113.37	Observation
6/21/2003	near GR-3	581266.30	3219000.53	Observation
5/15/2003	GR-3	581283.27	3219076.08	spec./photo / SAAN-091

Snakes

Western Cottonmouth (*Agkistrodon piscivorus leucostoma*)

The venomous cottonmouth (*Agkistrodon piscivorus leucostoma*) was observed crossing Ashley Road, near mission San Juan, by former SAAN biologist Brett Carré. It can find suitable habitat along the slow moving creeks and acequias in that area and along Picosa Creek at the Rancho de las Cabras. We did not observe or trap the snake. It is fairly well represented in the museum collections for Bexar County that were examined. Mitchell Lake, near Mission Espada, was the collection location for some specimens. Vermersch and Kuntz (1986) report that the snake was found in moderate numbers around Lake Mitchell historically but it may not be as common there as it once was.

Western Diamondback Rattlesnake (*Crotalus atrox*)

The western diamondback rattlesnake (Figure 25) is very common in this part of its range. However, it was surprising to find that it is quite common inside the city of San Antonio. Diamondbacks were trapped five times at trap site number one in the Labores de Espada and on one occasion, a rattlesnake was observed lying by the drift fence outside the trap. They were not trapped or observed at other sites in San Antonio. The Labores de Espada probably represents something of a refuge or "habitat island" for the species in the immediate area, because they tend to become locally extirpated where contact with humans occurs frequently. Diamondbacks were also trapped on a number of occasions at trap site GR1 at the Rancho de las Cabras and were observed on the rocky ridge above the San Antonio River there.

Table 45. Known locations of the Western Diamondback Rattlesnake at San Antonio Missions National Historical Park.

Dates	Location	Easting	Northing	Type of Record/Specimen #
4/05/2003	betw. traps GR-2 and GR-3	581186.60	3218961.47	Observation
9/23/02; 4/15, 6/24, 4/15/03	SAAN - Trap 1	552893.86	3243855.34	photos, spec / SAAN-049
9/27(2), 9/28/02; 4/14/03(2)	SAAN - Goat Ranch - GR-1	580941.36	3219053.34	Trapped-usually photo

Great Plains Rat Snake (*Pantherophis emoryi*)

The Great Plains rat snake (Figure 27) is probably one of the most common snakes in the San Antonio area and within the Missions complexes. We collected two specimens, one road-killed from Highway 97 at Picosa Creek near the Rancho de las Cabras, and one road-killed from Padre Drive, about 1 km north of Mission San Juan. The species was trapped twice at the Rancho de las Cabras and once on the Bexar County portion of the park.

The taxonomy for the rat snake group has been changing rapidly. The southern form, described as the "southern plains rat snake" (*Elaphe guttata meahllmorum*) by Smith, et al. (1994), was later referred to as "southwestern rat snake" by Vaughan, et al. (1996), and then was synonomized with the great plains rat snake (*E. emoryi*) based on a molecular study by Burbrink (2002). Since that time another molecular study has proposed revalidating the genus *Pantherophis* for the whole North American rat snake group (Utiger, et al., 2002). While the most recently proposed change is not well supported by the literature at this time, the change makes sense to this investigator—it has long been known that the genus *Pantherophis* is polyphyletic, and that all the New World forms associated with it are closer to *Lampropeltis* and *Pituophis* than to any Old World *Elaphe*, therefore, for the purpose of this report, I am adopting the use of *Pantherophis*, but don't be surprised if it changes again before long.

Table 46. Known locations of the Great Plains Rat Snake at San Antonio Missions National Historical Park.

Dates	Location	Easting	Northing	Type of Record/Specimen #
6/03/2002	1 km N. of Mission San Juan	552607.25	3245834.54	DOR? - Spec. / SAAN-011
7/14/2002	Hwy 97@Picosa Ck-DOR	579809.05	3219870.62	DOR - Spec. / SAAN-001
6/20/2003	right by trap GR3	581282.99	3219070.31	Obs
4/6/2003	GR1	580943.57	3219063.28	trapped - photo
6/20/2003	GR2	581165.73	3218843.33	trapped - photo
7/14/2003	Trap 1	552889.68	3243857.94	trapped - photo

Texas Rat Snake (*Pantherophis obsoleta*)

The Texas rat snake (Figure 49) is one of the most common snakes across its range. It tends to do well where contact with humans is frequent. It is very mobile and thus will often be found road-killed, though we did not find any such specimens during this inventory. The Texas rat snake is quite arboreal, therefore it will often be found in wooded areas—birds and bird eggs are major components of its broad diet of warm-blooded vertebrates. The Texas rat snake was trapped at trap sites #1, #2, and GR1.

Table 47. Known locations of the Texas Rat Snake at San Antonio Missions National Historical Park.

Dates	Location	Easting	Northing	Type of Record/Specimen #
9/26/2002	SAAN - GR1	580933.82	3219057.18	Trapped-photos
9/23/2002; 5/14, 5/15/2003	Trap 1	552888.88	3243849.90	Trapped-photos
9/23/02	Trap 2	553031.84	3244401.31	Trapped-photos

Desert King Snake (*Lampropeltis getula splendida*)

The desert king snake (Figure 50) was recorded once, when it was trapped in the upland mesquite woodland at the Rancho de las Cabras, in trap GR. The desert king snake may be uncommon in Wilson County—neither Vermersch and Kuntz (1986) nor Werler and Dixon (2000) show that it occurs there. But this study did locate one recent (4/9/99) museum record from Wilson County in the TCWC collection, located 1.5 miles south of Stockdale (TCWC-82527), so our record is not the first official record for Wilson County. Populations of this mild mannered snake, which feeds mainly on lizards and other snakes, may suffer to a degree because it is favored as a pet. There are a number of museum records from Bexar County for the desert king snake and it may occur within some of the more remote SAAN property in San Antonio.

Plains Blind Snake (*Leptotyphlops dulcis dulcis*)

The plains blind snake (Figure 51) is probably very common in and around San Antonio and the Rancho de las Cabras, but because it spends most of its time underground it is not often encountered. We captured blind snakes at four different trap sites, including trapping four individuals at one trap on one day. But without those being trapped, it likely would have gone undetected. These records for the plains blind snake in Wilson County are apparently the first documented records for that county (Werler and Dixon, 2000; Vermersch and Kuntz, 1986; Dixon, 2000).

Table 48. Known locations of the Plains Blind Snake at San Antonio Missions National Historical Park.

Dates	Location	Easting	Northing	Type of Record/Specimen #
9/27,28/02; 4/16, 6/24,26/2003	SAAN- Goat Ranch - GR1	580941.75	3219052.13	photo/spec / SAAN-118
5/15/2003	SAAN- Goat Ranch - GR2	581168.84	3218836.37	photo/spec / SAAN-090
6/24/2003	SAAN- Trap 2	553051.77	3244386.99	trapped - photo
4/8/2003	SAAN - Trap 3	552635.65	3245912.16	trapped - photo

Western Coachwhip (*Masticophis flagellum testaceus*)

The western coachwhip (Figure 30) is another common snake in and around Bexar and Wilson counties and across most of Texas. This species is known for its large size (record length is 80 inches) and speed. Most individuals are aggressive, striking violently when cornered or captured. The species was captured twice each at the old field at trap site #2 in San Antonio, south of Mission San Juan, and at the mesquite upland site at the Rancho de las Cabras.

Table 49. Known locations of the Western Coachwhip at San Antonio Missions National Historical Park.

Dates	Location	Easting	Northing	Type of Record/Specimen #
05122003	100 m S. of sign - Goat Ranch	580793.78	3219105.54	Observation
6/21,24/2003	SAAN - Trap 2	553048.96	3244408.61	trapped-photos
9/28/02, 6/26/03	SAAN - Goat Ranch - GR-1	580937.49	3219056.46	photo/spec / SAAN-072

Schott's Whipsnake (*Masticophis schotti schotti*)

Schott's whipsnake (Figure 52) is an inhabitant of the Rio Grande Plain, between the Rio Grande and the lower boundary of the Balcones Escarpment. Bexar County is the northernmost county within its range. Schott's whipsnake is a colorful and extremely fast moving snake. It is easily the most aggressive snake ever handled by

this investigator. The species was trapped in the upland woodland at trap site #1 in the Labores de Espada and in the old field at trap site #2. It was also picked up as a road kill on Villamain Road near trap site #2 and as a road kill on Highway 97, near where it crosses Picosa Creek near the Rancho de las Cabras. The Wilson county specimen, while an extremely poor specimen, is apparently the first documented record for *M. schotti* in Wilson County (Werler and Dixon, 2000; Vermersch and Kuntz, 1986; Dixon, 2000).

Table 50. Known locations of Schott's Whipsnake at San Antonio Missions National Historical Park.

Dates	Location	Easting	Northing	Type of Record/Specimen #
6/18/2002	Villamain Rd - 900 m N of 410	553355.74	3244578.70	DOR - SPECI/ SAAN-002
7/14/2002	Hwy 97 @ Picosa Creek DOR	579825.37	3219894.55	DOR - SPEC./ SAAN-065
9/26/2002; 6/24/2003	SAAN - Trap 1	552885.04	3243859.60	Trapped - photos
4/6/2003	SAAN - Trap 2	553057.15	3244393.20	Trapped - photos

Texas Coral Snake (*Micrurus fulvius tener*)

The Texas coral snake, well known for its bright colors and toxic venom, is a very secretive snake that may be somewhat more common than the limited number of sightings might indicate. It is generally found in heavily vegetated lowlands, which might have described the historical natural habitat on the grounds of what is now Mission San Juan, where one was killed by a mower on November 7, 2002 (SAAN-086). We did not otherwise observe the species during this inventory.

Blotched Water Snake (*Nerodia erythrogaster transversa*)

This species is here listed among "confirmed species" because of some detailed literature records that have been located. Author and herpetologist, Thomas Vermersch, states in his *Snakes of South Central Texas:* "Over a period of two years, author Thomas Vermersch has made several hundred observations of the blotched water snake in Espada Park on the San Antonio River…" (Vermersch and Kuntz, 1986). We briefly observed water snakes on a number of occasions around the San Antonio River that were either blotched water snakes or diamondback water snakes. Personnel at Mission San Juan reported a dead snake that was also probably one of those two species.

Diamondback Water Snake (*Nerodia rhombifer*)

The diamondback water snake (Figure 31) is found in a variety of freshwater habitats, but seems to prefer non-moving ponds or lakes. From museum records, it appears that both the diamondback and the blotched water snake are common around suitable habitat in Bexar and Wilson Counties (Vermersch and Kuntz, 1986). We did not observe or trap a diamondback water snake in San Antonio, but we did pick up one road-killed specimen on Highway 97 where it crosses Picosa Creek, and we observed one large individual along the San Antonio River at the Rancho de las Cabras. We briefly observed water snakes on a number of occasions around the San Antonio River that were either blotched water snakes or diamondback water snakes. Personnel at Mission San Juan reported a dead snake that was also probably one of those two species.

Table 51. Known locations of the Diamondback Water Snake at San Antonio Missions National Historical Park.

Dates	Location	Easting	Northing	Type of Record/Specimen #
6/21/2003	SA River,430 m. ENE Picosa ck	581673.60	3219142.23	obs only
7/14/2002	Hwy 97 @ Picosa ck.	579786.28	3219862.63	DOR - Specimen / SAAN-003
9/2/2002	Mission Rd. @ SA River-SAJU	552848.78	3245181.99	DOR - Specimen / SAAN-095
9/26/2002	Hwy 97 @ Picosa ck.	579811.59	3219888.42	DOR - Specimen / SAAN-048

Graham's Crayfish Snake (*Regina grahamii*)

An isolated population of Graham's crayfish snake is known from the center of San Antonio. Werler and Dixon (2000) show locations throughout the center of the city and mention a population segment in Brackenridge Park north of downtown San Antonio. Our study also found specimens in the TCWC collection from Lake Mitchell south of the city, less than three miles from Mission Espada; therefore, there is a good probability that this species occurs around the Espada Dam or in some of the slow moving creeks and acequias within SAAN

Rough Green Snake (*Opheodrys aestivus*)

This highly arboreal species is not easily trapped and we did not observe a rough green snake at SAAN, but it has been observed by park personnel at Mission San Juan. It is well represented from Bexar County in the museum collections that we examined and Vermersch and Kuntz (1986) show records in the vicinity of SAAN. Despite our failure to observe a rough green snake, it could be fairly common in wooded areas on the park such as the Labores Espada and in riparian areas in San Antonio and at the Rancho de las Cabras.

Texas Long-nosed Snake (*Rhinocheilus lecontei tessellatus*)

The Texas long-nosed snake (Figure 53) is a small, colorful snake that is vaguely similar in appearance to a Mexican milk snake (*Lampropeltis triangulum annulata*). It is a very docile snake, possessing a somewhat elongated rostrum that is not as pronounced as the name might suggest. The Texas long-nosed snake does not appear to be very common in Bexar and Wilson Counties. A search of major Texas collections found only one specimen from Bexar County, in the E. A Liner collection that is now curated by the American Museum of Natural History. We found no specimens from Wilson County though the literature indicates that some records do exist for both counties (Vermersch and Kuntz, 1986; Werler and Dixon, 2000; Dixon, 2000). Our search also found three specimens from Atascosa County. We trapped one long-nose snake in the mesquite upland trap (GR1) at the Rancho de las Cabras (SAAN-106).

Texas Patch-nosed Snake (*Salvadora grahamiae lineata*)

An orange vertebral stripe and enlarged rostral scale (from which it gets its name) distinguish the Texas patch-nosed snake (Figure 54). The stripe might cause one to initially confuse it with a ribbon or garter snake but those species do not possess the enlarged rostral scale, and they have keeled rather than smooth scales. There were a number of museum and literature records available for Bexar County though most of those were not from the southern part of the county. There were very few records for Wilson County. The Texas patch-nosed snake was trapped in the upland woodland (trap #1) in San Antonio and in the upland mesquite trap (GR1) at the Rancho de las Cabras. One specimen was taken and later another individual squeezed part way through a hole in the hardware cloth and died in the trap, so that also was collected.

Table 52. Known locations of the Texas Patch-nosed Snake at San Antonio Missions National Historical Park.

Dates	Location	Easting	Northing	Type of Record/Specimen #
4/17, 6/24/2003	SAAN - Goat Ranch - GR-1	580940.68	3219060.14	Trapped, Spec / SAAN-098
9/26/2002	SAAN - Trap 1	552893.48	3243858.49	Trapped, Spec / SAAN-047

Texas Brown Snake (*Storeria dekayi texana*)

It is difficult to say whether the Texas brown snake (Figure 55) is rare in this part of its range or if it is just so secretive and difficult to sample that it is under-represented in collections. This study did not find any specimens of *S. d. texana* in any of the collections examined. Vermersch and Kuntz (1986) found a few specimens for Bexar County but only literature records for Wilson and Atascosa Counties. Dixon (2000) indicates that he found at least one museum record for Wilson County. We collected one specimen (SAAN-041) during a visual encounter survey on a slope in riparian woodland near the San Antonio River. The site of this collection was about 20 m from trap site GR2.

Checkered Garter Snake (*Thamnophis marcianus*)

The checkered garter snake (Figure 34) is common in Bexar County and probably common in Wilson County, although documented Wilson County records are relatively few. The species is generally fairly closely associated with fresh water of some kind even though it can be found some distance away from water, as it was in the case of the two occurrences recorded during this inventory. The checkered garter snake was trapped in the upland woodland trap number one, only about 100 m from a small creek and at GR2 at the Rancho de las Cabras, which was beside a tributary to the nearby San Antonio River.

Table 53. Known locations of the Checkered Garter Snake at San Antonio Missions National Historical Park.

Dates	Location	Easting	Northing	Type of Record/Specimen #
5/15, 6/22/2003	SAAN -Trap GR-2	581166.42	3218837.31	Specimen/ SAAN-087
9/28/2002	SAAN - Trap 1	552889.78	3243851.99	Trapped - released

Redstripe Ribbon Snake (*Thamnophis proximus rubrilineatus*)

This redstripe ribbon snake, a subspecies of the wide-spread ribbon snake group, occurs commonly throughout central Texas. There are a number of museum records for the semi-aquatic species from San Antonio (some specimens are only labeled *T. proximus*), including one from Lake Mitchell, near Mission Espada. It was observed on the grounds of Mission San Juan in 1995, but was not observed during this inventory.

Rough Earth Snake (*Virginia striatula*)

The rough earth snake is another species that, because of its secretive and fossorial nature, may be more common than the relatively small number of documented records might indicate. This snake was trapped at the Rancho de las Cabras several times, and Brett Carré collected a road-killed specimen at the NPS headquarters in San Antonio.

Table 54. Known locations of the Rough Earth Snake at San Antonio Missions National Historical Park.

Dates	Location	Easting	Northing	Type of Record/Specimen #
9/22/2002	SAAN - Trap GR-1	580934.24	3219058.16	Trap - released
9/26,27,28/2002	SAAN - Trap GR-2	581164.03	3218833.41	Spec-photo-/ SAAN-061
9/18/2002	SA Hdqts	550400.05	3250179.00	Spec-photo / SAAN-093

OTHER POTENTIAL SPECIES--SAAN

Salamanders and Newts

SAAN lies near the edge of the range of the **small mouth salamander** (*Ambystoma texanum*) and it is probably very uncommon in Bexar and Wilson Counties. In the collections examined there was only one specimen (TCWC-15329) from Bexar, with no specific location data, collected in 1959, and none from Wilson County. If this species occurs at any place within SAAN it would be found in the river bottom behind Mission San Juan or along the San Antonio River at the Rancho de las Cabras. These areas were investigated on a number of occasions, but not during a wet period that would be necessary to find this species or other species of salamanders. There is an isolated record for the **barred tiger salamander** (*Ambystoma tigrinum mavortium*) in San Antonio—this may be an introduction and the species probably would not be found within SAAN. The **western slimy salamander** (*Plethodon albagula*) is an Edwards Plateau species known from the northern part of Bexar County, and would not be found within SAAN. There is a questionable record for the **black-spotted newt** (*Notophthalmus meridionalis*) from Bexar County (Dixon, 2000), but there is no potential habitat for this species within SAAN. There are a number of species of cave and spring associated salamanders that have been found in northern Bexar County that would not be found within SAAN.

Frogs and Toads

This inventory may have somewhat under-sampled frogs and toads at SAAN because rainfall did not occur at the times of scheduled auditory surveys, and some species do not call except during rainfall. However, there are few if any ephemeral pools or ponds without fish communities present, as are necessary for many species of amphibians to reproduce. Therefore, there were also no places to sample for larval amphibians. The occurrence of frogs and toads within SAAN is mainly coincidental to their occurrence on adjacent or nearby property where breeding habitat for amphibians does exist.

Dixon (2000) shows 19 species of frogs and toads known from Bexar County and 13 from Wilson County. There is a questionable record for the **Mexican tree frog** (*Smilisca baudinii*), far out of its range, in Bexar County, but there is no suitable habitat for this species within SAAN. Bexar and Wilson Counties are on the western edge of the range of **Hurter's spadefoot** (*Scaphiopus hurterii*). Numerous museum records for Wilson County were identified but none for Bexar. This species is almost never seen except during rains, and it depends on ephemeral grassland pools for breeding, a habitat that is limited within SAAN. It is doubtful that the species occurs within the Missions complexes in San Antonio. It may occur at or near to the Rancho, but it is probably restricted to the Carrizo Sands formation. There are records for the **eastern barking frog** (*Eleutherodactylus*

augusti latitans) from northern Bexar County but not from Wilson County. It occurs on limestone ledges and in shallow caves along the edge of the Edwards Plateau, and is very unlikely to occur within SAAN. As its name implies, the **cliff chirping frog** (*Eleutherodactylus marnockii*) in an inhabitant of the rocky ledges of the Balcones Escarpment—it would probably not be found within SAAN. **Cope's gray tree frog** (*Hyla chrysoscelis*) is known from both Wilson and Bexar Counties which are on the southwestern edge of its range, but it was not represented in any of the museum collections that we examined and there is no evidence that it occurs within SAAN. The **spotted chorus frog** (*Pseudacris clarkii*) can be very inactive until heavy and extended rainfall creates significant ephemeral breeding areas. Very little breeding habitat is available for it within SAAN, but because we found numerous museum records in Bexar and Wilson Counties, and small populations might find limited breeding sites within SAAN, it is listed as "possible" for the park. Similarly, **Strecker's chorus frog** (*Pseudacris streckeri*) is also listed as "possible" for SAAN based on specimens that have been collected nearby, close to Concepción Park, and at other locations in Bexar and Wilson Counties. The **eastern green toad** (*B. d. debilis*) is another species rarely seen except during or after heavy rains. We found a few museum records for the eastern green toad, though none were near SAAN. It could possibly occur within SAAN. The **Texas toad** (*B. speciosus*) prefers sandy soils and might not find suitable habitat within SAAN, but it could occur there. **Woodhouse's toad** (*B. woodhousii*), while very common in many parts of its range, does not appear to be common in Bexar or Wilson Counties and none of the collections we examined contained specimens for those counties. Like some other amphibians it might not find sufficient breeding habitat within SAAN. It is not included in the list of species for SAAN. Both the **southern leopard frog** (*Rana sphenocephala*) and **Rio Grande leopard frog** (*R. berlandieri*) are more likely to occur around water that contains fish or other predators than some other amphibian species. We did not detect Rio Grande leopard frogs within SAAN, but they seem likely to occur there. They could occur along some of the creeks, rivers, and acequias of SAAN. Many older museum records may not have adequately differentiated between the Rio Grande leopard frog and the southern leopard frog, which have ranges that overlap in Bexar County, and some old museum records for Bexar County are identified as the northern leopard frog which is now known not to occur in central Texas. Based on the museum records, we included the Rio Grande leopard frog on the list of possibilities for SAAN but did not include the southern leopard frog.

Turtles

Box turtles are often kept as pets and released outside of their native range, making it sometimes difficult to accurately define the boundaries of their natural range. The **three-toed box turtle** (*Terrapene carolina triungulis*) is known from only two records in Bexar County (Vermersch, 1992) which lies at the western edge of its range. If it is extant in Bexar County today, it is probably not found within SAAN. The **ornate box turtle** (*Terrapene ornata*) was once more common than the three-toed box turtle in Bexar County, but it now appears to be much less common than it was historically. It may be confined to some isolated population in the southern part of the county (Vermersch, 1992). Some attribute the decline in box turtle populations in Central Texas to the widespread use of DDT and other pesticides, particularly in the 1950s and 1960s (Vermersch, 1992). The ornate box turtle was almost certainly present within SAAN historically, and it has therefore included on the list of "possible" species, but there is no evidence that it presently occurs there.

Lizards

In Bexar County, the **Texas banded gecko** (*Coleonyx brevis*) is documented only from rocky limestone outcrops along the southeastern edge of the Edwards Plateau (Vermersch, 1992). Despite some anecdotal accounts for the Texas banded gecko on the walls of mission structures, we found no evidence that it occurs there, and it seems likely that those anecdotes arose from misidentifications of the Mediterranean gecko, which is common there. The Texas banded gecko is not likely to occur within SAAN. The **Texas earless lizard** (*Cophosaurus t. texanus*), the **eastern collared lizard** (*Crotaphytus c. colaris*), the **plateau earless lizard** (*Holbrookia l. lacerata*), and the **crevice spiny lizard** (*Sceloporus p. poinsettii*) are all inhabitants of the rocky limestone habitats of the southern Edwards Plateau in the northern part of Bexar County. They would not be found within SAAN. There was one old record of the **southern earless lizard** (*Holbrookia lacerata subcaudalis*) from Bexar County, but if that record was not an error, the species is no longer found in Bexar County (Vermersch, 1992). The **keeled earless lizard** (*Holbrookia p. propinqua*) is present in those portions of Bexar and Wilson Counties where the Carrizo Sands formation lies at the surface, but there is no such habitat for

the keeled earless lizard in SAAN. Several times in the study, the investigator thought he had caught a **southern prairie lizard** (*Sceloporus undulatus*), but each turned out to be a young Texas spiny lizard. It was a surprise to not collect a specimen of the southern prairie lizard, as it is common in Bexar and Atascosa Counties, though not as well known from Wilson County. Initial assumptions were that the southern prairie lizard would occur around some of the old fields and more open mesquite woodlands at SAAN. That may yet be true, but our study did not detect them. Only a very few, very old records exist for the **Great Plains skink** (*Eumeces obsoletus*) or the **southern prairie skink** (*E. septentrionalis obtusirostris*) in Bexar or Wilson Counties, and there were none in the collections examined. These two skink species, known to prefer well-drained sandy soils, probably do not occur within SAAN. The **short-lined skink** (*E. tetragrammus brevilineatus*) is somewhat more common than the previously mentioned skinks and might be found at SAAN, though we did not detect any. The **prairie-lined racerunner** is another species that prefers deep sandy soils and is known from the Carrizo Sands formation in southern Bexar and northern Wilson Counties, but it may not be found within SAAN. The **western slender glass lizard** (*Ophisaurus a. attenuatus*) is known from northern Bexar County by some very old records, but it is apparently extirpated from south central Texas (Vermersch, 1992).

Snakes

A few records from the sandy Carrizo formation of southern Bexar County document the **Texas glossy snake** (*Arizona elegans arenicola*). It is not known from Wilson County and is probably not present within SAAN, which lacks appropriate habitat. The **eastern yellowbelly racer** (*Coluber constrictor flaviventris*) is one of the most common snakes in parts of its range, but it is apparently rare in Bexar and Wilson Counties and there were no museum specimens of this species in the collections examined. The **Texas indigo snake** (*Drymarchon corais erebennus*) has never been common in Bexar County and may be extirpated from the area. It is not known from Wilson County. Vermersch and Kuntz (1986) refer to the **eastern hognose snake** (*Heterodon platirhinos*) as "widespread in Bexar County" though it was not represented in the museum collections examined. It is listed as "possible" for SAAN. There are some old records for the **Texas night snake** (*Hysiglena torquata jani*) from northern and southwestern Bexar County but none from Wilson County. There were no records for the Texas night snake in the collections examined. It is probably not present within SAAN. There is one old record for the **Mexican milk snake** (*Lampropeltis triangulum annulata*) for Bexar County and none for Wilson County. It is unlikely to occur in SAAN. The **central Texas whipsnake** (*Masticophis taeniatus girardi*) is known from northern Bexar County and would probably not be found within SAAN. One of Texas's largest snakes, **the bull snake** (*Pituophis catenifer sayi*)**,** was probably fairly common in San Antonio a century ago, but there were no museum specimens found that were less than 40 years old. If this snake is still found in rural parts of Bexar County, it is not common. It is very mobile and could occur at the Rancho de las Cabras, if only occasionally, but almost certainly would not be seen at the mission complexes in the city. The **flathead snake** (*Tantilla gracilis*) is common and widespread from western Kansas and southern Missouri to the Rio Grande valley. While we were unable to definitely confirm the occurrence of this fossorial and secretive little snake within the boundaries of SAAN, there are numerous museum and literature records north and south of the mission complexes in San Antonio—it seems fairly likely to occur there, though it is best known from the southern, sandier portion of Bexar County. Vermersch and Kuntz (1986) in their research on the snakes of south central Texas found only one record for the **ground snake** (*Sonora semiannulata*) outside of the area just south of the Balcones Escarpment—this species is probably not found within SAAN. The **plains blackhead snake** (*T. nigriceps*) is extremely rare, and like the flathead snake it is usually sampled serendipitously. It is known from far southwestern Bexar County but not from Wilson County—it is impossible to say whether it might occur within SAAN. The **eastern blackneck garter snake** (*Thamnophis cyrtopsis ocellatus*) occurs in the Edwards Plateau and would not be found in southern Bexar or Wilson County. Vermersch and Kuntz (1986) speculated that the **lined snake** (*Tropidoclonion lineatum texanum*) may be somewhat common in "isolated populations" in some urban parts of San Antonio and they show some locations that appear to be near SAAN, however there were few specimens in the collections that we examined. The species is included as "possible" on the list. The western **smooth earth snake** (*Virginia valeriae elegans*) is known from the Edwards Plateau and is probably not found within SAAN. We found a few specimens that did not appear to come from the vicinity of SAAN for the **broad-banded copperhead** (*Agkistrodon contortrix laticinctus*). There are records from the northern part of Wilson County, which marks the southern edge of its range—those records are around 20 miles from the Rancho de las Cabras—it is not likely to occur there. Some habitat within SAAN is marginally appropriate for this species—it could occur in some of the wooded areas near water and is included on the list of species, but its

occurrence at SAAN is considered to be fairly unlikely. There are records for the **blacktail rattlesnake** (*Crotalus m. molossus*) in far northwestern Bexar County but this species would not occur in the southern part of Bexar or in Wilson County.

SUMMARY AND DISCUSSION—SAAN

At SAAN we confirmed the presence of 33 species of reptiles and amphibians which included six species of toads and frogs, six species of turtles, six species of lizards, and 15 species of snakes. Bexar County lies on the edge of the Balcones Escarpment, in a transition region between the Edwards Plateau and the Rio Grande Plain to the south. This creates a great diversity of ecological features, which in turn provides habitat for a great diversity of plants and animals. However, only a tiny portion of those ecological features or habitats is contained within the boundaries of SAAN. Thus there are many species of reptiles and amphibians found in Bexar County that would not be found within SAAN. One would not expect to find the same diversity of plants and animals within SAAN that one finds in the county as a whole. In addition, in an area like Bexar County where human populations are high, sampling intensity (mostly through casual observation) is extreme and virtually every species present tends to be recorded at some time or another. In Wilson County, we see just the opposite phenomenon—lack of a general human presence and very little focused sampling effort has led to a case in which some fairly common species have not previously been recorded. This inventory documents four new county records for Wilson County. Some species recorded in Bexar County many years ago probably no longer occur there—**Cagle's map turtle** (*Graptemys caglei*) being one example. Urbanization has probably eliminated other species that may have been found historically found at SAAN like **the bull snake** and the **Texas indigo snake**. Another phenomenon that may occur in a metropolitan area like San Antonio is that plants and animals collected from their native ranges outside of Bexar County can be released locally or allowed to escape. Species range maps in field guides are sprinkled with single isolated occurrences that in many cases are probably the result of this phenomenon. The record for Bexar County contains a number of isolated occurrences of reptiles and amphibians that appear to be outside their native range. For many of the species known to occur in Bexar County that we did not confirm within SAAN property, suitable habitat merely does not exist within the park. Others species may occur within the park boundaries occasionally or when extended favorable environmental conditions exist, and there are undoubtedly a few species present that this inventory simply did not detect. Some of the turtles that are confirmed for SAAN were from the San Antonio River, which is not actually in the park.

Traps were installed at SAAN in August 2002 with plans to run them from late September through October. Our planning included the retention of temporary workers to assist with that sampling. This schedule was coordinated through the resource manager at SAAN, who assisted with planning and trap installations. It was quite unfortunate that due to contractual concerns, a decision was made by NPS to not allow trapping during that time. This delayed sampling until the following spring and reduced the total amount of trapping effort conducted at SAAN by about 50%. Additionally, this type of trapping is most effective when done fairly soon after traps are installed. Some confirmations of species at SAAN by direct sampling may have been missed because of that decision.

Unlike PAIS, where the principle investigator and other workers were living in the immediate vicinity and could sometimes sample amphibians opportunistically during rainfall, most calling-frog surveys for SAAN were pre-scheduled. We were not fortunate in scheduling those surveys to coincide with suitable weather conditions and did not sample during periods of substantial rainfall. While there are few permanent or semi-permanent ponds located within the park boundaries that are suitable breeding sites for most anurans, there are several species of frogs that might be detected within or adjacent to SAAN property if more auditory sampling and road driving were done during heavy rains.

RESULTS FOR PALO ALTO BATTLEFIELD NATIONAL HISTORIC SITE

Table 5 contains a checklist of PAAL reptiles and amphibians—it includes species that currently occur at PAAL as confirmed by this inventory, as well as species that may be present there. The list includes 40 species. Twenty-two species confirmed by direct observation during this inventory are listed as "common," "fairly common," "uncommon," or "rare," and another 18 species are listed as "probable," "possible," or "unlikely" based on the frequency of their appearance in the museum collections examined and on the proximity of those collection locations to PAAL. This checklist includes one siren, one newt, nine species of frogs, four species of turtles, eight species of lizards, and 17 species of snakes. There are 262 individual entries in the data table created for reptiles and amphibian observations of all types at PAAL (Appendix 14). Species that were observed as more than one individual at one location constitute a single entry in the data set (e. g., 28 rose-bellied lizards observed at trap site two are given as one entry), but multiple observations are noted. Trapping provided 140 observations of reptiles and amphibians (Appendix 15). Mammals were also trapped 34 times. All but four reptile or amphibian species sampled during this inventory were sampled by trapping, and of all species detected, only seven that were trapped were not sampled in some other way. No species were observed during VES (Appendix 16) that were not sampled via some other method. We added 44 entries to the data set from road-kills or other casual observations in the course of other activities, often on trails leading to trap sites (Appendix 17). We conducted a few auditory surveys (Appendix 18) around PAAL when portions of the resacas and the old farm ponds held small amounts of water for a few days to a few weeks, but frogs were never heard calling at PAAL until late September 2003 after the scheduled completion of field work. Twenty two specimens were taken or picked up as road-kills at PAAL (Appendix 19). Nine species with special conservation status occur or possibly occur at PAAL (Table 56).

Table 55. Checklist of Reptiles and Amphibians at Palo Alto Battlefield National Historic Site.

Common Name	Scientific Name	Frequency This Inventory	Richard and Richardson (1993)	Museum/Literature Records in Vicinity of PAAL
Sirens and Newts				
Rio Grande Siren	*Siren texana*	possible	possible	common
Black-spotted Newt	*Notophthalmus meridionalis*	possible	possible	uncommon
Frogs and Toads				
Coastal Plain Toad	*Bufo nebulifer*	common	present	common
Great Plains Narrowmouth Toad	*Gastrophryne olivacea*	common	present	common
Sheep Frog	*Hypopachus variolosus*	possible	possible	
White-lipped Frog	*Leptodactylus labialis*	unlikely	possible	rare (extirpated?)
Spotted Chorus Frog	*Pseudacris clarkii*	rare	present	uncommon
Rio Grande Leopard Frog	*Rana berlandieri*	uncommon	present	common
Couch's Spadefoot	*Scaphiopus couchii*	common	present	common
Mexican Tree Frog	*Smilisca baudinii*	rare	not detected	uncommon
Rio Grande Chirping Frog	*Eleutherodactylus cystignathoides campi*	probable	possible	common
Turtles				
Texas Spiny Softshell	*Apalone spinifera emoryi*	probable	present	common
Texas Tortoise	*Gopherus berlandieri*	fairly common	probable	fairly common
Yellow Mud Turtle	*Kinosternon flavescens*	rare	present	common
Red-eared Slider	*Trachemys scripta elegans*	probable	present	common
Lizards				
Texas Spotted Whiptail	*Aspidoscelis gularis*	common	present	common
Six-lined Racerunner	*Aspidoscelis s. sexlineatus*	possible	present	rare
Four-lined Skink	*Eumeces t. tetragrammus*	possible	not detected	common
Mediterranean Gecko	*Hemidactylus turcicus*	possible	not detected	common
Texas Horned Lizard	*Phrynosoma cornutum*	common	present	rare
Mesquite Lizard	*Sceloporus grammicus microlepidotus*	possible	not detected	rare
Texas Spiny Lizard	*Sceloporus olivaceus*	fairly common	present	common
Rose-bellied Lizard	*Sceloporus variabilis marmoratus*	common	present	common
Snakes				
Mexican Racer	*Coluber constrictor oaxaca*	fairly common	present	fairly common
Black-striped Snake	*Coniophanes imperialis*	probable	probable	common
Western Diamondback Rattlesnake	*Crotalus atrox*	fairly common	present	common
Texas Indigo Snake	*Drymarchon corais erebennus*	rare	present	fairly common
Mexican Milk Snake	*Lampropeltis triangulum annulata*	unlikely	possible	rare
Plains Blind Snake	*Leptotyphlops d. dulcis*	possible	not detected	uncommon
Western Coachwhip	*Masticophis flagellum testaceus*	rare	not detected	fairly common
Ruthven's Whipsnake	*Masticophis schotti ruthveni*	fairly common	not detected	common
Diamondback Water Snake	*Nerodia r. rhombifer*	probable	present	common
Great Plains Rat Snake	*Pantherophis emoryi*	uncommon	not detected	common
Bull Snake	*Pituophis catenifer sayi*	rare	not detected	uncommon
Texas Patch-nosed Snake	*Salvadora grahamiae lineata*	fairly common	present	uncommon
Taylor's Ground Snake	*Sonora semiannulata taylori*	rare	not detected	rare
Texas Brown Snake	*Storeria dekayi texana*	possible	not detected	uncommon
Plains Black-headed Snake	*Tantilla n. nigriceps*	rare	not detected	rare
Checkered Garter Snake	*Thamnophis m. marcianus*	possible	not detected	fairly common
Gulf Coast Ribbon Snake	*Thamnophis proximus orarius*	probable	present	common

Table 56. Species with Special Conservation Status That Occur or That May Occur at Palo Alto Battlefield National Historic Site. GR=Global Rank; SR=State Rank; FS=Federal Status; SS= State Status. (See Appendix 7 for explanation of codes).

Common Name	Scientific Name	Status - PAAL	GR	SR	FS	SS
Sirens and Newts						
Rio Grande Siren	*Siren texana*	possible	G?Q	S?	none	T
Black-spotted Newt	*Notophthalmus meridionalis*	possible	G1	S1	none	T
Frogs and Toads						
Sheep Frog	*Hypopachus variolosus*	possible	G5	S2	none	T
White-lipped Frog	*Leptodactylus labialis*	unlikely	G5	S1	none	T
Mexican Tree Frog	*Smilisca baudinii*	rare	G5	S3	none	T
Turtles						
Texas Tortoise	*Gopherus berlandieri*	common	G4	S3	none	T
Lizards						
Texas Horned Lizard	*Phrynosoma cornutum*	common	G4G5	S4	none	T
Snakes						
Black-striped Snake	*Coniophanes imperialis*	probable	G4G5	S2	none	T
Texas Indigo Snake	*Drymarchon corais erebennus*	rare	G4	S3	(PS)	T

SPECIES DETAILS AND DISCUSSION—PAAL

Frogs and Toads

Coastal Plain Toad (*Bufo nebulifer*)

The coastal plain toad (Figure 37) is an amphibian that does not require continuous access to standing water. It will breed in mud puddles and other ephemeral pools at almost any time of year that the opportunity presents itself. This was the only amphibian detected during the extremely dry first year of field work (2002) at PAAL. Male coastal plain toads call when breeding, but no frogs were heard calling at PAAL until September 22, 2003, at which time coastal plain toads and a number of other species were calling in abundance all along the old resacas that run through the park. In addition to photographs and a specimen of this species from PAAL, we obtained a number of excellent audio files of their calls. The table below has been condensed somewhat, but the entire record made for *B. nebulifer* at PAAL is contained in the GIS database and in Appendix 14.

Table 57. Known locations of the Coastal Plain Toad at Palo Alto Battlefield National Historic Site.

Dates	Location	Easting	Northing	Type of Record/ Specimen #
8/9/2002	just W. of trap 3 in oldfiled	652681.38	2879900.55	observation-photos
3/10/2003	on road just south of trap 2	652476.88	2878841.72	observation
9/22/2003	SW part resaca by hwy 1837	652104.34	2879101.57	audio-recording
9/22/2003	N. boundary off of hwy 1837	652251.88	2881401.77	audio-recording
10/1/2003	~70 m W. of overlook	652745.21	2879042.80	audio-recording
5/28/2003	trap 3	652580.51	2879775.35	trapped -specimen / PAAL-092
8/9/2002	oldfield 200 m east of trap 3	652726.22	2879777.06	photos
9/22/2003	SW part resaca by hwy 1837 (at least 5)	652081.45	2879053.95	audio-recording
10/1/2003	~70 m W. of overlook (at least 7)	652779.55	2879191.85	audio-recording
9/22/2003	N. boundary off of hwy 1847 (at least 6)	652239.18	2881406.33	audio-recording

Great Plains Narrowmouth Toad (*Gastrophryne olivacea*)

The Great Plains narrowmouth toad (Figure 38) is widespread and common from extreme southern Nebraska to most of Mexico. In the south Texas part of the range, it thrives in the arid climate, even at times when other species experience significant population reduction. With 15 observations by trapping at only one trap location (the mesquital/thornscrub trap 3), the Great Plains narrowmouth toad appeared to exhibit as much habitat specialization of any species sampled. Its distinctive buzzing call was recorded at the southern end of the resaca near Highway 1847 and at the junction of the drainage canal with Highway 1847 on September 22, 2003.

Table 58. Known locations of the Great Plains Narrowmouth Toad at Palo Alto Battlefield National Historic Site.

Dates	Location	Easting	Northing	Type of Record/ Specimen #
3/9--6/2/2003 (15)	Trap 3	652581.05	2879778.35	trapped - 1 spec/ PAAL-115
9/22/2003	SW part of resaca	652099.88	2879088.55	heard- recorded
9/22/2003	NW corner of property	652228.68	2881407.71	heard- recorded
9/22/2003	NW corner of property	652243.79	2881397.40	heard- recorded

Spotted Chorus Frog (*Pseudacris clarkii*)

The spotted chorus frog (Figure 12) apparently has the ability to remain inactive and maintain populations for considerable periods of drought. It was not detected at PAAL until October 3, 2003, when audio recordings were made of a large number of (breeding male) spotted chorus frogs. One specimen and photos were also taken. The frogs were calling in the resaca just behind the visitor overlook but were not calling from the part of the resaca near the highway.

Rio Grande Leopard Frog (*Rana berlandieri*)

The Rio-Grande leopard frog (Figure 14) is another species that, despite its presence in abundance over much of its range (including in the Brownsville area), was difficult to detect at PAAL because of the lack of water during most of the inventory. We trapped three leopard frogs and observed another after summer rains on June 1, 2003, but those rains were insufficient to make frogs call or to create standing water in the resacas and old farm ponds for more than a few days.

Table 59. Known locations of the Rio Grande Leopard Frog at Palo Alto Battlefield National Historic Site.

Dates	Location	Easting	Northing	Type of Record/Specimen #
6/1/2003	just SW of old barn/corral	652940.21	2879974.70	visual-photo(not good)
9/22/2003	SW part of resaca by hw1837	652103.49	2879122.07	heard
6/1/2003	Trap 3	652578.68	2879775.34	trap-specs - DIT/ PAAL-088,089

Couch's Spadefoot (*Scaphiopus couchii*)

Couch's spadefoot (Figure 39) was trapped 11 times in trapping array #3, which is in the mesquital/thornscrub. This mesquite woodland provides some shade and holds some moisture, and therefore becomes home for species like Couch's spadefoot and the Great Plains narrowmouth toad, particularly during times of extended drought such as this area had seen for many years prior to this inventory. Other than catching these 11 specimens in pitfall traps, only one other observation of Couch's spadefoot was made—a road-killed specimen found on a rainy night on Highway 1847, near the drainage canal at the northern edge of the property. The species is probably much more common than these rare observations indicate, however, because there were many museum specimens from Brownsville and Cameron County.

Table 60. Known locations of Couch's Spadefoot at Palo Alto Battlefield National Historic Site.

Dates	Location	Easting	Northing	Type of Record/Specimen #
3/23--7/2/2003 (11)	Trap 3 (11)	652574.28	2879766.31	spec, photos / PAAL-082 & 078
10/1/2003	Hwy 1847 @ canal	652178.10	2880953.43	DOR spec. / PAAL-114

Mexican Tree Frog (*Smilisca baudinii*)

The Mexican tree frog (Figure 56) occurs only in Hidalgo and Cameron County in the United States, though Dixon (2000) lists a couple of questionable records from San Patricio and Bexar Counties. It is listed by the state of Texas as endangered, probably because of its limited range in the state more than for any other reason. In this study, it was first heard and recorded calling on September 22, 2003, at which time one individual was also captured and photographed. Interestingly, this species was not detected by Richard and Richardson (1993), despite the wet conditions they had for sampling.

Turtles

Texas Tortoise (*Gopherus berlandieri*)

Texas tortoise (Figure 42) populations have probably been reduced due to habitat destruction and the species is listed as state threatened, but the tortoises are locally common in many parts of their range including at PAAL.

We observed tortoises frequently, usually inside the mesquital or thornscrub. Abell (2000) states that they observed 12 tortoises while walking transects in the thornscrub around the visitor center.

Table 61. Known locations of the Texas Tortoise at Palo Alto Battlefield National Historic Site.

Dates	Location	Easting	Northing	Type of Record/Specimen #
8/9/2002	250 m SW of trap 3	652419.85	2879576.55	observation - photos
8/9/2002	150 m SW of trap 3	652515.37	2879641.60	observation - photos
6/2/2003	~300 m E. of H. 1837-S. trp 2	652362.18	2878804.82	observation - photos
5/16/2003	on trail to trap 3	652310.79	2879918.98	observation - photos
5/15/2003	on trail to trap 3	652392.76	2879918.30	observation - photos
5/26,27,28/2003	by trap 3	652587.98	2879766.11	observation - photos
6/1/2003	in thornscrub, south of Trap 2	652213.45	2878894.63	observation - photos
5/16/2003	on trail to trap 3	652476.05	2879894.31	observation - photos

Yellow Mud Turtle (*Kinosternon flavescens*)

The yellow mud turtle is a common turtle across most of its range, which includes most of Texas and northern Mexico. It prefers non-moving water with muddy bottoms and is sometimes found in temporary pools. During the time of this study at PAAL, there was not enough rainfall to create such habitat. But Dr. Frank Judd trapped and released a yellow mud turtle in a pitfall trap near the eastern bank of the middle part of the resaca during his study in 2001 (F.B. Judd, pers. comm.). We collected a few pieces of a *K. flavescens* carapace in August of 2002 near that same site, and a few more pieces of a carapace along the banks of a dry farm pond on the eastern boundary of the property in October 2003.

Table 62. Known locations of the Yellow Mud Turtle at Palo Alto Battlefield National Historic Site.

Dates	Location	Easting	Northing	Type of Record/Specimen #
10/3/2003	pond on E. side	653601.82	2879099.90	carapace plastron parts spec. / PAAL-117
2001	upper part of resaca	652976.46	2879690.65	trapped – released (F.B. Judd, pers. comm.)
8/9/2002	middle part of resaca	652421.41	2879223.28	pieces of carapace

Lizards

Texas Spotted Whiptail (*Aspidoscelis gularis*)

The Texas spotted whiptail (Figure 45) is a very common lizard at PAAL. While these were perhaps most common around and just north of an old barn in the north-central portion of the park, they are often seen along ecotones, especially where old fields and old fence lines meet the thornscrub and mesquital. The species was much less commonly observed inside the mesquital and thornscrub. They were often observed foraging on harvester ants. The table below is condensed so that individual lizards seen in close proximity are listed singly, but the complete record is available in the GIS database or in Appendix 14.

Table 63. Known locations of the Texas Spotted Whiptail at Palo Alto Battlefield National Historic Site.

Dates	Location	Easting	Northing	Type of Record/Specimen #
4/26/2003 (4)	In Sacatal in central NE area	653556.87	2879948.94	Observation - some photos (4)
4/30/2003	In oldfield- NW area	653594.95	2880188.04	Observation - some photos
4/30/2003 (7)	along old fence road N central	653198.95	2880039.38	observation
4/30/2003 (2)	near old barn in central area	652935.11	2880032.17	Observation - some photos
4/26/2003	near old barn in central area	652867.20	2880117.78	Observation - some photos
6/1/2003	ecotone-300 m NW Trap 3	652670.96	2880104.90	Observation - some photos
6/1/2003	by old resaca-400 m NW barn	652564.73	2880260.72	Observation - some photos
6/1/2003 (3)	fenceline-400 m NW old barn	652661.70	2880324.09	Observation - some photos
6/1/2003	just N of old barn	652869.52	2880067.22	Observation - some photos
7/1/2003	~50 m E of middle gate	652095.24	2878735.04	Observation - some photos
4/26, 4/28/2003	Trap 2	652332.67	2879025.85	photos-spec/ PAAL-102
5/16/2003	Trap 3	652579.80	2879774.19	trapped-photos
8/9/2002	by old barn	652886.09	2880072.07	observation

Texas Horned Lizard (*Phrynosoma cornutum*)

Populations of the Texas horned lizard (Figure 46) have been greatly reduced across the species' range, and it is listed as endangered by the state of Texas, but this lizard was one of the most frequently observed reptiles during this survey. It was observed 36 times, usually in old fields or along their edges, near harvester ant beds. The table below is a condensed version of what is available in the GIS database or in Appendix 14.

Table 64. Known locations of the Texas Horned Lizard at Palo Alto Battlefield National Historic Site.

Dates	Location	Easting	Northing	Type of Record/Specimen #
4/26/2003	75 m SSE of overlook	652803.42	2878914.64	observed - photos
8/9/2002	in oldfield E. of trap 3	652695.54	2879856.55	observed - photos
4/26/2003 (6)	sacatal NE of overlook	653648.21	2879768.98	observed - some photos
4/30/2003 (9)	old field ENE of old barn/corr	653042.85	2880354.37	observed - some photos
5/30/2003 (2)	300 m SE of north gate	652450.90	2880785.67	observed - some photos
6/1/2003	300 m E. of middle gate	652518.36	2880987.79	observed - photos
3/1/2003	350 m E. of middle gate	652327.87	2878800.81	observed - photos
6/1/2003 (2)	just N. of old Barn	652847.39	2880127.71	observed - some photos
6/1/2003	on W. side of old barn	652918.19	2880026.30	observed - some photos
8/9/2003	oldfield E. of Trap 3	652696.96	2879796.27	found desiccated specimen
3/25, 4/2, 4/4/2003 (3)	Trap 1	652167.15	2879335.23	trapped - photos
3/19/2003 (2)	on middle road S. of trap 2	652295.04	2878807.74	observed - photos
4/27/2003	on road to trap 3,~200 m-gate	652358.48	2880851.41	observed - photos
4/27/2003	just w. of pond on E. side	653608.94	2880617.38	observed - photos
4/30/2003 (3)	on road to trap 3,~800 m-gate	652293.88	2880897.93	observed - photos

Texas Spiny Lizard (*Sceloporus olivaceus*)

This is a common lizard (Figure 47) across its range and was one of the more common lizards inventoried at the SAAN sites. Though mainly a woodland species, at PAAL this species was often observed along woodland/old field edges and was captured at all three trapping locations. It is difficult to distinguish between immature specimens of the Texas spiny lizard and the southern prairie lizard without close examination. Early in this study that misidentification was made of a casually observed specimen or two, and misreported in some preliminary project reports. However, the southern prairie lizard apparently does not occur at PAAL and is not well represented in museum collections for Cameron County, so it is probably uncommon or possibly even misidentified in the county. Dr. Frank Judd (pers.comm.) does not believe the southern prairie lizard occurs at PAAL.

Table 65. Known locations of the Texas Spiny Lizard at Palo Alto Battlefield National Historic Site.

Dates	Location	Easting	Northing	Type of Record/Specimen #
8/9/2002 (2)	fence post south of old barn	652959.69	2879960.38	observation
8/10/2002	fence post south of old barn	653019.55	2879886.07	collected spec. / PAAL-043
4/26/2003	near E. bound - E of overlook	653305.98	2878837.97	
8/9/2002	~300 m NW of old barn	652669.02	2880254.90	collected spec / PAAL-042
4/30/2003	~80 m E. of North Gate	652263.04	2880915.04	observed
4/30/2003	~200 m N. of N. Gate	652374.37	2880842.35	observed
5/28/2003	Trap 1	652165.39	2879336.49	trapped - photos
3/10/2002	Trap 2	652330.58	2879024.99	trapped - photos
3/8 -- 5/6/2003 (5)	Trap 3	652581.77	2879777.06	trapped 5 - photos most

Rose-bellied Lizard (*Sceloporus variabilis marmoratus*)

The rose-bellied lizard (Figure 48) is easily the most observed reptile or amphibian at PAAL. This study recorded 167 individual observations. This lizard was considerably more common in the borrichia prairie and particularly in the sacatal than it was in the mesquital or the thornscrub, though it was common even there. The table below combines locations in the same general area, but the entire record is contained in the GIS database and in Appendix 14.

Table 66. Known locations of the Rose-bellied Lizard at Palo Alto Battlefield National Historic Site.

Dates	Location	Easting	Northing	Type of Record/Specimen #
3/21/2002 (3)	around thornscrub SW corner	652833.03	2880467.34	observation
8/10/2002 (10)	resaca/edges of thornscrub	652772.21	2880494.03	observation
8/9/2002 (25)	East of (future) overlook	652516.23	2879096.64	observation
04262003 (13)	East of (future) overlook	652810.92	2880162.38	observation
5/30/2003 (2)	Edge of thornscrub - N bound.	652691.78	2880826.65	observation
6/1/2003 (4)	near to and E. of old barn	652910.00	2880039.54	observation
3/10/2003 and others (9)	betw traps 1 & 2	652316.06	2879315.47	observation
3/8/2003 and other dates (34)	W. of trap 3	652455.13	2879902.36	observation
3/9/2003 -- 7/3/2003 (16)	trap 1	652166.20	2879340.53	trapped -some photos
3/9/2003 -- 7/3/2003 (10)	trap 3	652580.97	2879775.17	trapped -some photos
3/9/2003 -- 7/3/2003 (38)	trap 2	652333.81	2879022.92	trapped -some photos
3/19/2003	coverboard 10	652272.76	2879931.73	under coverboard
3/19, 3/26/2003 (2)	coverboard 3	652200.52	2879338.47	under coverboard

Snakes

Mexican Racer (*Coluber constrictor oaxaca*)

The Mexican racer (Figure 24) was very common within PAAL. We trapped it seven times and found it once under a cover board. Like other members of the genus, the Mexican racer is a thin, fast snake. This investigator found the Mexican racer to be somewhat less aggressive than other racers he has handled. In this part of the range, racers can be very easily confused with Ruthven's whip snake (*Masticophis schotti ruthveni*).

Table 67. Known locations of the Mexican Racer at Palo Alto Battlefield National Historic Site.

Dates	Location	Easting	Northing	Type of Record/Specimen #
3/26, 4/6, 4/24/2003(2)	Trap 1	652166.33	2879335.87	Trapped-Spec/ PAAL-096
4/5, 5/15, 6/2/2002	Trap 2	652333.29	2879022.85	Trapped/photos
3/26/2003	Coverboard 11	652431.68	2879922.32	observation

Western Diamondback Rattlesnake (*Crotalus atrox*)

The diamondback rattlesnake (Figure 25) is one of the largest, by body mass, of all Texas snakes. Not only does PAAL contain many diamondback rattlesnakes, it contains a large number of unusually large individuals. Of the snakes recorded in the table below, all but one snake was near or greater than five feet in length. Where diamondbacks come into frequent contact with humans, population numbers tend to be reduced significantly and if contact is very frequent, local extirpation may occur. Contact with humans also tends to remove larger snakes. The refuge afforded by the large tracts of relatively remote diamondback habitat within PAAL have apparently allowed the population to contain an unusual number of large adult snakes, though these population demographics are probably normal for a relatively undisturbed population. These snakes can, of course, be deadly, but most bites will occur when a person is trying to catch or otherwise harass the snake. We collected the small individual that was trapped (PAAL-097).

Table 68. Known locations of the Western Diamondback Rattlesnake at Palo Alto Battlefield National Historic Site.

Dates	Location	Easting	Northing	Type of Record/Specimen #
6/1/2003	thornscrub NE of middle gate	652205.53	2878874.59	snake skin
3/10/2003	mesquital between traps 1 & 3	652488.65	2879615.54	observation - photos
3/19/2003	just SW of old barn/corral	652923.79	2880000.85	observation - photos
5/16/2003	trail from 1837 to trap 3	652360.09	2879917.67	observation - photos
5/28/2003	trail from 1837 to trap 3	652250.12	2879950.09	observation - photos
5/28/2003	trail from 1837 to trap 3	652443.40	2879909.66	observation - photos
4/27/2003	trail from 1837 to trap 3	652465.88	2879896.44	observation - photos
4/3/2003	Trap 1	652164.93	2879335.83	trapped - specimen PAAL-097
3/20/2003	Trap 3	652580.94	2879775.36	trapped - photos

Texas Indigo Snake (*Drymarchon corais erebennus*)

Indigo snakes (Figure 26) are distributed from the northern coastal plain of Mexico up to the southern edge of the Balcones Escarpment and along the Texas coast to around Corpus Christi, though they may be disappearing on the edges of the range. The Texas indigo snake is one of Texas' largest snakes. Adults average 5 to 6.5 feet.

Conant and Collins (1998) give the maximum length as 8 feet 4.5 inches but Vermersch and Kuntz (1986) mention a 9 foot 5 inch specimen. While indigo snakes may hiss or blow and flatten their heads vertically as a rather impressive and scary defense mechanism, they rarely bite when handled. Like other large and conspicuous snakes, the Texas indigo snake apparently becomes locally extirpated where it comes into frequent contact with humans and the habitat degradation that encroaching human populations bring with them. It is classified by the state of Texas as endangered. These snakes can become quite common in areas of suitable habitat where they are afforded protection, however. The Texas indigo snake is one of the most frequently seen snakes at The Nature Conservancy's Southmost Preserve east of Brownsville, about 20 miles south of Palo Alto on the Rio Grande. As natural succession continues in the old fields of PAAL, and especially when and if rainfall is sufficient to keep water in the resacas, PAAL should serve as a good refuge for indigo snakes. While indigo snakes are occasionally present at PAAL as evidenced by the one specimen captured in trap #1 (in the borrichia prairie at the bottom of the dry resaca) they are clearly uncommon there, as that was the only observation made of any kind. That snake, which was photographed and released, was an average-sized 6.5-foot specimen.

Great Plains Rat Snake (*Pantherophis emoryi*)

The Great Plains rat snake (Figure 27) is another inhabitant of Rio Grande Plain brush country whose range extends to the Balcones Escarpment. This snake can easily be confused with the glossy snake (*Arizona elegans*). Both exhibit a bold, dark, forward-pointing spear point marking on the top of the head, but the glossy snake has an unmarked ventral surface. Probably one of the more common snakes in south Texas, the Great Plains rat snake was trapped at each trap site and was observed leaving an old field and entering the thornscrub on one occasion.

The taxonomy for this rat snake group has been changing rapidly. The southern form, described as the "southern plains rat snake" (*E. guttata meahllmorum*) by Smith, et al. (1994), and later referred to as the "southwestern rat snake" by Vaughan, et al. (1996), has most recently been synonomized with the great plains rat snake (*E. emoryi*) based on a molecular study by Burbrink (2002).

Table 69. Known locations of the Great Plains Rat Snake at Palo Alto Battlefield National Historic Site.

Dates	Location	Easting	Northing	Type of Record/Specimen #
4/27/2003	~175 m N. of trap 3	652608.44	2879953.01	Observation
5/1, 5/8, 5/16 (2) /2003	Trap 1	652165.54	2879338.20	trapped - photos
5/2/2003	Trap 2	652333.40	2879025.67	trapped - photos
3/28/2003	Trap 3	652580.99	2879777.83	trapped - photos

Western Coachwhip (*Masticophis flagellum testaceus*)

The western coachwhip (Figure 30) is distributed over the western three-quarters of Texas, the adjacent southern Midwestern U.S., and northern to central coastal Mexico. It was the snake most commonly trapped and observed during our concurrent inventory of PAIS and is one of the most common snakes seen in most parts of its range. It was trapped or otherwise observed only twice at PAAL in the relatively open habitat at traps #1 and #2, but it was not trapped in the mesquital/thornscrub at trap #3.

Table 70. Known locations of the Western Coachwhip at Palo Alto Battlefield National Historic Site.

Dates	Location	Easting	Northing	Type of Record/Specimen #
5/20/2003	Trap 1	652163.55	2879334.51	trapped - photos
5/17/2003	Trap 2	652332.33	2879025.19	trapped - specimen/ PAAL-105

Ruthven's Whipsnake (*Masticophis schotti ruthveni*)

Ruthven's whipsnake (Figure 57) is a thin, very fast moving snake, easily mistaken for the Mexican racer in specimens without dorsolateral striping or a reddish color behind the jaw—true of almost all specimens examined at PAAL. This snake can also be differentiated from the Mexican racer by counting dorsal scale rows. There seems to be a good deal of disagreement and/or confusion about the taxonomy of this subspecies. We have followed the taxonomy of Dixon (2000).

Table71. Known locations of Ruthven's Whipsnake at Palo Alto Battlefield National Historic Site.

Dates	Location	Easting	Northing	Type of Record/Specimen #
3/18/2003	460 m SW of north gate	652610.32	2880711.69	observed – anecdote –R. Garza
4/3/2003	hwy 1847, W of trap 3	652138.92	2880042.39	DOR - specimen / PAAL-094
5/7/2003	Trap 2	652331.87	2879026.30	trapped photos
4/26, 5/16, 5/31/2003	Trap 3	652580.62	2879776.46	trapped - photos

Bull Snake (*Pituophis catenifer sayi*)

The bull snake (Figure 58) is one of the largest snakes found in South Texas or anywhere in North America. It is found through the Midwest and in Texas it occurs everywhere except the eastern one-third of the state and the Trans Pecos where it is replaced by its close relative, the Sonoran gopher snake (*P. c. affinis*). An enlarged rostral scale, probably an adaptation for the extensive burrowing that most *Pituophis* snakes exhibit, distinguishes members of this genus. Members of this genus are also well known for their impressive aggression display in which they raise their heads, open their mouths, and emit a loud blowing sound. Despite the display, many specimens will not bite when handled although the largest snake that we trapped, a 6 foot 8 inch specimen, did bite repeatedly. We caught two bull snakes in the same trap (trap #2) on May 22, 2003. These individuals were photographed and released. Only two museum specimens for Cameron County were found, so we speculate that bull snakes are not currently very common there. Other members of the genus have proven to be very sensitive to human induced habitat degradation and have become extirpated over wide stretches of their former ranges (Duran, 2000).

Texas Patch-nosed Snake (*Salvadora grahamiae lineata*)

The Texas patch-nosed snake (Figure 54) is distributed across south central Texas and northeastern Mexico. Museum records indicate that it is common over most parts of that range, including Cameron County. This snake was trapped at all three PAAL trap sites.

Table 72. Known locations of the Texas Patch-nosed Snake at Palo Alto Battlefield National Historic Site.

Dates	Location	Easting	Northing	Type of Record/Specimen #
3/22/2003	Trap 1	652164.46	2879338.33	Trapped /spec/ PAAL-104
5/1, 7/1/2003	Trap 2 (2)	652330.43	2879024.86	Trapped - photos
7/1/2003	Trap 3	652581.44	2879776.83	Trapped

Taylor's Ground Snake (*Sonora semiannulata taylori*)

Taylor's ground snake (Figure 59) is found in the southern Rio Grande Plain (not as far north as the Balcones Escarpment) and in northern Mexico. It is a very small, somewhat thick-bodied snake, spending most of its time underground. Because of its secretive, fossorial nature, it is difficult to speculate about its relative abundance. It was represented by only one specimen in the various museum collections examined. It was trapped twice on 5/15/2003 and 5/26/2003 at trap site #2.

Plains Black-headed Snake (*Tantilla nigriceps nigriceps*)

The plains black-headed snake (Figure 60) is another very small, fossorial snake that would rarely be seen unless captured in pitfall traps, and therefore it is difficult to assess its relative abundance. It was represented in the museum collections examined by only one specimen from Cameron County (east of Brownsville). We speculate that it is more common than the number of observations would indicate. It was trapped once each in trap arrays #1 and #2.

Table 73. Known locations of the Plains Black-headed Snake at Palo Alto Battlefield National Historic Site.

Dates	Location	Easting	Northing	Type of Record/Specimen #
3/12/2003	Trap 2	652332.21	2879026.88	trap, photos, spec / PAAL-076
4/29/2003	Trap 1	652164.46	2879338.33	trapped, photos

OTHER POTENTIAL SPECIES—PAAL

There are a number of species found in Cameron County that we did not find at PAAL. Many of those are typical of upland areas that probably would not find suitable habitat in the low-lying salt prairies of PAAL. Other species, particularly freshwater turtles, frogs, sirens, and newts require a more consistent source of fresh water. Some of the aquatic to semi-aquatic species might be present at PAAL but very inactive or even dormant during times of drought, so we might have been unable to sample them during the course of this inventory due to the extreme dry conditions. Following is a discussion of the potential for some species known from Cameron County to occur at PAAL.

Salamanders, Sirens, and Newts

The **barred tiger salamander** (*Ambystoma tigrinum mavortium*) has been found in Cameron County but it was not contained in the collections examined for this study. It is probably uncommon in Cameron County and is probably not present at PAAL. There are records for the **black-spotted newt** (*Notophthalmus meridionalis*) only 5 km southwest of PAAL. The black spotted newt should occur within PAAL. When water stood for a few days during the course of this inventory, we dip netted the old farm ponds in the west central part of the property and the few puddles that formed in the resacas, but were unable to sample any newts. However, based on the nearby records, the species has been included on the checklist as "possible" for PAAL. The **Rio Grande siren** (*Siren texana*) is also included in the checklist as "possible" for PAAL based on nearby records, just 5 km due east of PAAL. When the farm ponds in the west central part of the park filled in September 2003, we set funnel traps baited with chicken livers in them for two days and nights. The investigator initially suspected that the Rio Grande siren was unlikely to persist at PAAL through the drought the area has experienced in recent years—there were many months when there was no standing water in the park during our study, particularly in 2002. But when the old farm ponds filled back up with water, fish (*Gambusia* species) were observed in the southernmost pond. If fish were able to survive the long drought or somehow immediately repopulate the ponds via overflow from nearby water bodies, then both newts and sirens might also be found there in wetter times. PAAL should consider further sampling to ascertain the presence of these two state threatened species if adequate sampling conditions persist.

Frogs and Toads

The **Rio Grande chirping frog** (*Eleutherodactylus cystignathoides campi*) is a common species in the Rio Grande valley and should occur at PAAL during periods of normal precipitation. We did not capture or observe the species during this inventory; but it was detected by Richard and Richardson (1993) and it has been included on our checklist as "probable." The **white-lipped frog** (*Leptodactylus labialis*) occurs in coastal northern Mexico and is known from Cameron, Hidalgo, and Starr Counties in Texas. It is very rare in this part of its range, and there were no specimens for it in the collections examined. Dixon (2000) speculates that the white-lipped frog has been extirpated from Cameron County. Since Richard and Richardson (1993) included it in their table of species with conservation status as a species that "may occur" at PAAL, we include it on our list as "unlikely." The **giant toad** (*Bufo marinus*) is another northern Mexican species that is also known north of the Rio Grande from Cameron to Webb County, with some records from Jim Hogg County. It is not common however; it was not represented in the collections examined and would probably not be seen at PAAL. The **sheep frog** (*Hypopachus variolosus*) is known from a number of South Texas counties, north to Refugio and Goliad Counties. There were specimens included in the collections examined, though few of them contained specific locality data. It seems likely to occur at PAAL if wet conditions persist for some time—it is included as "possible" on the checklist. **Hurter's spadefoot** (*Scaphiopus hurterii*) has been recorded in the area, but is uncommon in Cameron County. It prefers sandy grasslands and probably would not be found at PAAL. There are a few records for a somewhat disjunct population of **Blanchard's cricket frog** (*Acris crepitans blanchardi*) in Cameron and Hidalgo Counties but the species is not common there and probably would not be found at PAAL. The **green tree frog** (*Hyla cinerea*) was probably introduced into Cameron County (Conant, 1977) and is quite uncommon there. It prefers semi-permanent to permanent breeding ponds and it might expand its range into PAAL if rainfall remained sufficient to provide breeding habitat, but there is little evidence to indicate that it occurs in the vicinity of PAAL at the present time. It was not detected by Richard and Richardson (1993) and

has not been included on our checklist. The **eastern green toad** (*Bufo d. debilis*) is uncommon in this part of its range and probably would not be found in the low-lying coastal plains. The **Texas toad** (*B. speciosus*) is common in parts of Cameron County but prefers grasslands with sandy soil and therefore would probably not be found within PAAL. **Woodhouse's toad** (*B. woodhousii*) is rare (if not extirpated) in this part of its range and prefers grassland savannas that are not found at PAAL. The **Mexican burrowing toad** (*Rhinophrynus dorsalis*) is extremely rare in the three southernmost Texas counties and no records for it were found in the collections examined. It was recently heard calling at the Nature Conservancy's Southmost Preserve (M. Pons, pers. comm.) but would not be expected at PAAL.

Turtles

The **red-eared slider** (*Trachemys scripta elegans*) is very common around Cameron County and would be found at PAAL if freshwater habitat was consistently available—it was detected by Richard and Richardson (1993) and was included as "probable" on the current checklist. The Texas spiny softshell turtle (*Apalone spiniferus emoryi*) is also common in the major drainages, ponds, and resacas of Cameron County (F.B. Judd, pers. comm.), and the species was detected at PAAL by Richard and Richardson (1993). While the resacas of PAAL did not retain enough water to provide habitat for this species during this study, it should occur there during years of average to above average rainfall. The **ornate box turtle** (*Terrapene o. ornata*) is at the edge of it range in Cameron County where it is uncommon. It is probably not found in the low-lying coastal plain of PAAL.

Lizards

The **Texas banded gecko** (*Coleonyx brevis*) inhabits rocky areas and would not be found in the coastal plain habitats of PAAL. The **Mediterranean gecko** (*Hemidactylus turcicus*) is an introduced species first reported in the Brownsville area in the 1940s (Vermersch, 1992). In North America it is usually found in urban areas on the walls of buildings. It is not currently known from PAAL but now that there are buildings on the property it could find suitable "habitat" there and has therefore been included on the list as a "possible" species. Another introduced species, the **brown anole** (*Anolis sagrei*) is known from Cameron County but is probably not present at PAAL. The **keeled earless lizard** (*Holbrookia p. propinqua*) is common in sandy areas of Cameron County but would not be found at PAAL. The **mesquite lizard** (*Sceloporus grammicus mircrolepidotus*) inhabits northern Mexico and five Rio Grande Valley counties with a few questionable records farther north. It is apparently rare in Cameron County and there were no records for it in any of the museum collections examined. Abell, et al. (2000) say that the mesquite lizard had been confirmed for PAAL, but we could not verify that account, as the source of the record was not given and we were unable to contact those researchers. Dr. Frank Judd did not observe the mesquite lizard at PAAL and does not believe that it is present (F.B. Judd, pers. comm.). It seems possible that the mesquite lizard could occur at PAAL—there is no real evidence indicating that it does, but given the presence of some marginal habitat, it has been included on the checklist as a "possible" species. The **southern prairie lizard** (*S. undulatus consobrinus*) is not common in this part of its range. It is known by very few records from Cameron County and would probably not be found at PAAL. The **Great Plains skink** (*Eumeces obsoletus*) is a species usually found in areas with deep sandy soils and therefore it would probably not be found at PAAL. While we did not trap or observe the **four-lined skink** (*E. t. tetragrammus*), there are some documented locations close to PAAL—there is a reasonable possibility that it occurs there and it has been included on the checklist as "possible." We did not observe or trap the **six-lined racerunner** (*Aspidoscelis s. sexlineatus*), which prefers grasslands with sandy soils and would therefore find little habitat at PAAL. However, Richard and Richardson (1993) did observe the species, so we have also tentatively included it as "possible" at PAAL**.** Walker (1987a, b) extended the range of the parthenogenic lizard, the **Laredo striped whiptail** (*A. laredoensis*) from Webb to Cameron County, but there are very few records for the species from most of those counties and the species would probably not be found at PAAL. The **slender glass lizard** (*Ophisaurus attenuatus*) is yet another species found almost exclusively in sandy grasslands that would probably not find suitable habitat at PAAL.

Snakes

It might be easy to fail to detect the tiny and fossorial **plains blind snake** (*Leptotyphlops d. dulcis*). However, pitfall trapping is generally a very effective means of sampling this species and none were detected at PAAL. It

has been included on the checklist as "possible" for PAAL, based on the relative proximity of museum records, collected to the south, at Southmost Preserve, and to the north near San Benito. While Dixon (2000) shows that the **Texas glossy snake** (*Arizona elegans arenicola*) is present in Cameron County, Werler and Dixon (2000) do not show any records for it. There were no specimens of the Texas glossy snake for Cameron County in any of the databases examined. It is probably not present at PAAL. There is a record for the **black-striped snake** (*Coniophanes imperialis*) from just three km east of PAAL but we did not observe one. It is common in Brownsville so there is a good chance it could be found at PAAL. It is included on the checklist as a "probable" species for PAAL. While it is common in northern Mexico, the **speckled racer** (*Drymobius m. margaritiferus*) in Texas is only known from sub-tropical forest remnants along the Rio Grande, with one questionable record from Kleberg County. It would probably not be found at PAAL. The **Mexican hooknose snake** (*Ficimia streckeri*) apparently prefers tight alluvial soils in the lower elevation coastal plains, which would seem to describe the soils found at PAAL, but this snake is uncommon enough that a single record has been cause for a published article (Axtell, 1969). None of the museum databases examined for Cameron County contained a record for this species, and it probably does not occur at PAAL. The **northern cat-eyed snake** (*Leptodeira s. septentrionalis*) is found in northern Mexico, with scarce records from a few counties at the southern tip of Texas (though none in the databases examined). It prefers thick brush near water where it feeds heavily on frogs. This species is extremely rare in Texas and probably would not find suitable habitat at PAAL. There is a historical record for the **Texas rat snake** (*Pantherophis obsoleta lindheimeri*) in Cameron County, though there were no records in the databases examined, and Werler and Dixon (2000) do not show the Texas rat snake's range extending further south than Nueces County. Apparently, the Texas rat snake is not currently extant in the Rio Grande valley. The **Mexican hognose snake** (*Heterodon nasicus kennerlyi*) is extremely rare in this part of its range and is not known from the low-lying coastal plain. It would not be found at PAAL. There are also very few records for the **desert king snake** (*Lampropeltis getula splendida*) in this part of its range (none in the databases examined). It is unlikely to occur at PAAL. The **Mexican milk snake** (*L. triangulum annulata*) is also uncommon in Cameron County and would not find the low lying coastal habitat at PAAL suitable. This species has been included on the checklist as "unlikely" due to its inclusion by Richard and Richardson (1993) in their list of species with special conservation status that might be found at PAAL (though it does not currently have special conservation status). The diamondback water snake is common in Cameron County and would be found at PAAL if standing water were more of a permanent feature. It was detected by Richard and Richardson (1993). There are apparently disjunct populations of both the **yellow-bellied water snake** (*N. erythrogaster flavigaster*) and the **Florida water snake** (*N. fasciata pictiventris*) known from Cameron County, though these two snakes are apparently uncommon and possibly introduced there (Conant, 1977). No specimens were found in the collections examined, so those species have not been included on the checklist. The **rough green snake** (*Opheodrys aestivus*) is known from a somewhat disjunct population in Cameron and Hidalgo Counties but most previous records for that species in the Rio Grande Valley have come from the remnant sub-tropical forests along the Rio Grande. PAAL might contain some reasonably suitable habitat but there is no evidence that the species occurs there. There are numerous records for the **Texas brown snake** (*Storeria dekayi texana*) from Cameron County, some quite close to PAAL, which contains some reasonably suitable habitat for the species—we did not detect it during this inventory, but on the basis of nearby museum records, it has been included on the checklist. The **checkered garter snake** (*Thamnophis m. marcianus*) is common around PAAL. It is another species that requires access to almost continuously standing water. We did not detect it, but as with a number of other species not detected during this inventory, if conditions remained wet for long enough periods, it should move into the area. This species and its close relative, the **gulf coast ribbon snake** (*T. proximus orarius*), are quite common in the region, but they are basically water snakes that feed on fish and frogs and would only be seen at PAAL if standing water persisted for some time. The ribbon snake was detected by Richard and Richardson (1993). Thus the checkered garter snake and the gulf cost ribbon snake are included on the current checklist as "probable." There are few records for the **Texas coral snake** (*Micrurus fulvius tener*) in Cameron County, and those records are mainly from near the Rio Grande in sub-tropical forest remnants, with none from the vicinity of PAAL. Habitat appears to be marginal for coral snakes at PAAL and they have not been included on the checklist. The **massasauga** is somewhat common on North Padre Island but is otherwise quite rare in south Texas with very few records from Cameron County and no records in the databases that were examined. It is almost certainly not found at PAAL.

SUMMARY AND DISCUSSION—PAAL

The inventory of the Palo Alto Battlefield site recorded 22 species of reptiles and amphibians by direct observation. While we were able to find a number of museum records for Cameron County, none were specific enough to use as records for PAAL, though on the checklist we were able to include another 18 species that may be present at PAAL based on the proximity of museum collection locations. The checklist includes one siren, one newt, nine species of frogs, four species of turtles, eight species of lizards, and 17 species of snakes. A previous inventory by Richard and Richardson (1993) as well as some direct communication with Norman Richard provided information useful to this inventory. Other previous biological inventories conducted at PAAL consisted mainly of a compilation of generic field guide information (Farmer, 1992) or were conducted by having relatively inexperienced workers making field identifications (Abell et al, 2000) and provided little useful information for this inventory.

Several species with special conservation status were detected and several other such species should be present if wetter conditions persist. Species with special conservation status that were detected via direct observation were the **Texas tortoise**, the **Mexican tree frog**, the **Texas indigo snake**, and the **Texas horned lizard**. The **sheep frog**, the **black-striped snake**, the **Rio Grande siren**, and the **black-spotted newt** are all likely to occur at PAAL under wetter conditions.

This biological inventory suffered from being mainly conducted during a time when rainfall levels were far below average. South Texas had been in a multi-year drought during the first year of the inventory and even in the second year rainfall was not sufficient to create standing water for more than a day or two until after regular field surveys were concluded. By comparison, Richard and Richardson (1993) must have had much wetter conditions under which to sample as they not only detected three species of aquatic turtles and two species of aquatic snakes, they detected *10 species of fish*. Several months after the scheduled completion of field work for this study, in September 2003, heavy and continuous rain fell and the investigator made several additional "last trips" to PAAL. On September 22, 2003, the investigator heard frogs calling for the very first time at PAAL since the project began, and two important records were made for species not previously detected—the **spotted chorus frog** and the state threatened **Mexican tree frog**, which even Richard and Richardson (1993) had not detected. There are probably a number of other species that might be recorded at PAAL if rainfall level remains average or above average for a couple of years. There are historical records for the **black spotted newt** just to the west of the battlefield and that species will probably occur in the old farm ponds at PAAL if they hold water more regularly over a few years. The **Rio Grande siren** might also occur within PAAL though its occurrence is somewhat less probable given its obligate aquatic nature.

INVENTORY AND MONITORING: COMMENTS AND RECOMMENDATIONS

One objective of this project was to employ survey designs that might be emulated by resource managers designing future monitoring programs. However, the respective objectives of inventory programs and monitoring programs are, by definition, different. While baseline inventories should mainly rely on repeatable methodology, they *should also* incorporate many more opportunistic and non-random sampling techniques than might be utilized in a monitoring program. This must be done in order to satisfy the *primary goal* to detect as many species as possible in a limited amount of time and with limited resources. As would be expected for a biological inventory, our sampling regimen was much more intense over a shorter period of time than a regimen that would be appropriate for long term monitoring. It is therefore impractical and unrealistic to expect that a monitoring program can or should be able to *exactly replicate* the methods of this baseline inventory though the results should be similar *over time*. Additionally, a monitoring study design *should vary* from the inventory methodology based on what has been learned during the inventory, and the monitoring program should be improved year to year based on cumulative knowledge from previous years.

For example: The within-year sampling schedule for reptiles and amphibians in South and South-Central Texas must be conducted March through November, but within that time frame, sampling/trapping regime for this project was determined by the logistics of sampling at three widely separated sites with a limited workforce. A park resource manager conducting a multi-year monitoring program would have his own set of logistical

considerations, but they would be different.

Regarding recommendations for a monitoring study design, historically two-thirds of average annual rainfall at both PAIS and PAAL occurs from May to October, so any monitoring sampling regimens should be designed with that in mind. It is true that the present study utilized little fall trapping. This was due to contractual limitations and not a lack of interest in sampling at that time. It is strongly recommended that a fall sampling regimen be part of any long term monitoring program in South Texas.

Monitoring Recommendations

In general the parks can follow nearly the same methodology that we employed. Specifically, NPS resource managers should use USGS GIS layers to delineate vegetation cover and thereby habitat. For terrestrial reptiles and amphibians, traps consisting of pitfalls and funnels should be placed randomly within those habitat polygons. But instead of checking traps daily over a one or two or three month period, the study design should include trapping for as much as 5-7 days per month, from March through November, if possible, or as few as four 5-7 day trapping periods, evenly distributed or chosen randomly from April through October.

Some techniques that were necessarily employed in this comprehensive inventory effort, and which should be included in a monitoring program, are by nature opportunistic. Techniques for sampling larval amphibians will be most effective ten days to three weeks after major precipitation (and therefore major breeding) events. Methods for a long term monitoring program may differ somewhat from our inventory because much of our field work was performed in the last year of a multi-year drought. This is particularly true at PAAL, which contains numerous resacas and old farm ponds that were completely dry during most of the period of this study, but historically, that has not been the case (In a previous biological inventory of PAAL, Richards and Richardson (1993) not only observed three species of turtles, they detected ten species of fish.) At PAIS, we caught no more than four or five larval amphibians in many hours of seining, dip-netting, and funnel trapping with minnow traps over several months in 2002, but were able to easily observe numerous tadpoles when visiting some of the trap sites after months of above average rainfall in 2004. We sampled *all freshwater sites* at PAIS, but there is enough ephemeral water at the northern end of the park that sample sites for seining and funnel trapping could be selected randomly (annually) for long-term monitoring. All three permanent ponds should be sampled at least once yearly by seining and periodically, 2-3 times per year for 3-4 days by funnel (minnow) trapping. We used hoop traps to sample turtles at PAIS but because there is little evidence that more than one turtle species occurs there, it may be sufficient to consider hoop-trapping only once every 3-5 years. An easier way to monitor turtles would be to install some artificial basking logs and observe them with binoculars and/or photograph them with a zoom lens.

The considerable variation in rainfall between years along the Texas coast will also make designing a calling-frog survey regimen a challenge for park resource managers. By simply picking preset times to go out and listen, many years might pass before any monitoring study would mimic the results of this inventory, in which virtually all notable finds of previously undocumented species were made by sampling opportunistically. While we recommend following a preset regimen as was employed in this inventory, an adequate monitoring design should also include some opportunistic sampling.

ACKNOWLEDGEMENTS

The author thanks the National Park Service for funding this project, and wishes to express gratitude to each Contracting Officer's Technical Representative at each park for their assistance in implementing the project. I particularly express appreciation to D. Echols at PAIS for, among other things, insuring that we had a running vehicle for our daily trip down Padre Island; to B. Carré, at SAAN, for direct participation and assistance with various aspects of the inventory, including assisting with drift fence array installation and supplying specimens; and to L. Krug, the first COTR at PAAL, and later D. Murphy, who greatly expedited the permitting process there. Thanks to G. Mitchell at SAAN for his assistance with removing the drift fence arrays. We would also like to thank the park archeologists, R. Garza at PAAL and S. Snow at SAAN, for assisting in the field and for expediting the permitting process. S. Snow at SAAN and Phil Slattery at PAIS also assisted with database management and helped educate us about the NPS specimens database (ANCS+). Whitney Granger did likewise on the NPS obervations database (NPSpecies).

At PAIS the project would not have been possible without the field assistance of B. Koza, D. Guerrero, B. Young, and N. Hayes. They all made numerous trips up and down the beach of Padre Island. K. Fazioli made a huge contribution to the project at PAAL, where she assisted in trap installation, ran the traps, photographed animals, and maintained the data set.

A number of staff members from The Nature Conservancy deserve thanks for volunteering their time to help with the grueling task of installing and removing drift fence arrays: R. Miller, R. McDowell, J. Schuler, A. Mein, O. Garza, S. Garza, and J. Gonzalez. A. Ercelawn assisted with database management. Carl Lahser, a Nature Conservancy volunteer, assisted with data management. Members of the Texas Conservation Data Center of The Nature Conservancy contributed to various aspects of this project. B. Carr wrote the description of the San Antonio Missions property used in this document. J. Karges and reviewed parts of this report and offered reviews and advice on interim project reports and related species lists. D. Benesh performed a final edit of this manuscript. S. Hortenstine, J. Bergan, and C. Smith contributed administrative and moral support for this project. L. Elliott assisted with various questions regarding species identification and distribution and edited parts of the manuscript. M. Gallyoun administered the project and assisted in all aspects of the work including editing of this document.

I would also like to thank Drs. F. Judd, A. Chaney, J. R. Dixon, G. Hickman, N. Rabalais, and N. Richard for their comments on various aspects of the project.

LITERATURE CITED

Abell, A., A. Cardenas, G. Garcia, C. Gonzales, A. Litton. 2000. Progress report, herpetological inventory of Palo Alto National Historical Site. 2 pp.

Axtell, R. W. 1969. Another *Ficimia streckeri* from southern Texas. Tex. J. Sci. 20(4): 381.

Behrens, E. W. 1974. Holocene sea level rise effect on the development of an estuarine carbonate depositional environment: Baffin Bay, Texas. Memorias Institucion Geologia Bassin Aquitaine 7: 337-41.

Brown, L. F., J. L. Brewton, J. H. McGowen, T. J. Evans, W. L. Fisher, and C. G. Groat. 1976. Environmental Geologic Atlas of the Texas Coastal Zone: Corpus Christi Area. Austin: Bureau of Economic Geology, University of Texas. 123 pp. + 9 maps.

Brown, T. E., N. B. Waechter, P. R. Rose, and V. E. Barnes. 1983. Geologic atlas of Texas, San Antonio sheet. Bureau of Economic Geology, The University of Texas at Austin.

Burbrink, F. T. 2002. A new species of Corn Snake from Louisiana and eastern Texas. Molecular Phylogenetics and Evolution 25(3): 465-476.

Carr, W. R. 2004a. A botanical inventory of San Antonio Missions National Historical Park—Part 1 for the portion in Bexar County—Results of a 2001-2002 botanical inventory and related research and reviews. Report Prepared for the National Park Service.

_____. 2004b. A botanical inventory of San Antonio Missions National Historical Park—Part II for the portion in Wilson County—Results of a 2001-2002 botanical inventory and related research and reviews. Report Prepared for the National Park Service.

Chabreck, R. H. 1965. The movement of alligators in Louisiana. Proc. Ann. Conf. Southeastern Assoc. Game and Fish Comm. 19: 102-10.

Collins, J. T. 1997. Standard common and current scientific names for North American amphibians and reptiles. 4th edition. SSAR herpetol. Circular 25.

_____ and T. W. Taggart. 2002. Standard common and current scientific names for North American amphibians, turtles, reptiles, and crocodilians. 5th edition. The Center for North American Herpetology. Lawrence, Kansas. iv + 44 pp.

Conant, R. 1977. The Florida water snake (Reptilia, Serpentes, Colubridae) established at Brownsville, Texas, with comments on other herpetological introductions in the area. J. Herpetol. 11(2): 217-220.

_____, R. and J. T. Collins. 1998. Reptiles and amphibians of eastern central North America. Third edition, expanded. Houghton Mifflin Co. New York, NY. 616 pp.

Copeland, B. J. 1967. Environmental characteristics of hypersaline lagoons. Contributions in Marine Science, 12:207-18.

_____, B. J. and R. S. Jones. 1965. Report of a Preliminary Investigation of the Wind Erosion and Salt Problem on the Salt Flats of the Laguna Madre. U.S. Department of Agriculture, Soil Conservation Service. Temple, Tex. 32 pp.

Crother, B. I., J. Boundy, J. A. Campbell, K. Quieroz, D. Frost, D. M. Green, R. Highton, J. B. Iverson, R. W. McDiarmid, P. A. Meylan, T. W. Reeder, M. E. Seidel, J. W. Sites, Jr., S. G. Tilley, and D. B. Wake. 2003. Scientific and standard English names of amphibians and reptiles of North America and North Mexico: Update. Herpetol. Review. 34(3): 196-203.

Dixon, J. R. 2000. Amphibians and Reptiles of Texas. Texas A & M University Press. 2nd Edition. 421 pp.

Duran, C. M. 2000. Status of the black pine snake (*Pituophis lodingi*). Final report to the U. S. Fish and Wildlife Service. 49 pp. + maps.

Farmer, M. 1992. A natural resource survey of Palo Alto National Battlefield. Report to the National Park Service. 24 pp.

Haynes, D. and R. R. McKown. 1974. A new species of map turtle (Genus *Graptemys*) from the Guadalupe River System in Texas. Tulane Stud. Zool. Bot. 18(4):143-152.

Hedges, S. B. 1989. Evolution and biogeography of West Indian frogs of the genus *Eleutherodactylus*: slow-evolving loci and the major groups. Pp 305-370 In Woods, C. (ed.), *Biogeography of the West Indies: Past, Present, and Future*. Sandhill Crane Press, Gainesville, Florida.

Hickman, G. 1999. Will this snake bite me? Padre Island National Seashore Informational Bulletin. 2 pp.

Hildebrand, H. 1958. Estudios biologicos preliminares sobre la Laguna Madre de Tamaulipas. Ciencia (Mexico) 17: 151-73.

_____, H. 1969. Laguna Madre de Tamaulipas: Observations on its hydrography and fisheries. Pp. 679-86 in A. Ayala Castanares and F. B. Phleger (eds.), *Coastal Lagoons: A Symposium*. Mexico, D.F.: Universidad Nacional Autonoma de Mexico.

Javor, B. 1989. Hypersaline Environments. New York: Springer-Verlag. 328 pp.

Joanen. T. 1969. Nesting ecology of alligators in Louisiana. *Proc. Ann. Conf. Southeastern Assoc. Game and Fish Comm.* 23: 141-51.

_____ and L. McNease. 1970. A telemetric study of nesting female alligators on Rockefeller Refuge, Louisiana. Proc. Ann. Conf. Southeastern Assoc. Game and Fish Comm. 24: 175-93.

_____ and L. McNease. 1972. A telemetric study of adult male alligators on Rockefeller Refuge, Louisiana. Proc. Ann. Conf. Southeastern Assoc. Game and Fish Comm. 26: 252-75.

_____ and L. McNease. 1987. The management of alligators in Louisiana. pp. 33-42 In Grahame, J.W., S. Charlie Manolis and Peter J. Whitehead (eds.) *Wildlife Management: Crocodiles and Alligators*. Surrey Beatty and Sons Pty., Ltd, Chipping Norton, Australia.

Judd, F. W., R. I. Lonard, and S. L. Sides. 1977. The vegetation of South Padre Island, Texas in relation to topography. Southwestern Naturalist 22:31-48.

Judd, F. W. 2002. Tamaulipan biotic province. In J. W. Tunnel, Jr., and F. W. Judd (eds.), The Laguna Madre of Texas and Tamaulipas. Gulf Coast Studies; no. 2. Texas A & M University Press, College Station. 346 pp.

Kofron, C. P., and A. A. Schreiber. 1985. Ecology of two endangered aquatic turtles in Missouri: *Kinosternon flavescens* and *Emydoidea blandingii*. J. Herp. 19(1):27-40.

LeBlanc, R. J, and W. D. Hodgson. 1959. Origin and development of the Texas shoreline. Transactions of the Gulf Coast Association of Geologic Societies 9:197-220.

Morton, R. A. and L. E. Garner. 1993. Geological Investigation of the Wind-Tidal Flat Area, Kenedy County, Texas. No. IAC (92-93) 2170. Austin: Bureau of Economic Geology, University of Texas. 99 pp.

Mossman, M. J., L. M. Hartman, R. Hay, J. R. Sauer, and B. J. Dhuey. 1998. Monitoring long-term trends in Wisconsin frog and toad populations. Pp. 169-198 In M. J. Lannoo (ed.). *Status and Conservation of Midwestern Amphibians*. Univ. Iowa Press, Iowa City, Iowa.

Natural Fibers Information Center. 1987. The climates of Texas counties. Bureau of Business Research, The University of Texas at Austin. 569 pp.

Nelson, A. D., J. R. Goetze, I.G. Negrete, L. Macke, T. Wilburn, A. Day, and A. Lucksinger. 2000. A floristic survey of Padre Island National Seashore, Texas, with comparisons to other barrier islands along the Texas coast. Final Report to Padre Island National Seashore. 100 pp.

Rabalais, N. 1975. Padre Island National Seashore Checklist of Reptiles and Amphibians. Padre Island National Seashore, Texas. PAIS informational bulletin No. 4. 2 pp. (photocopy)

_____ and J. K. Baker. 1980. The flora and fauna of Padre and Mustang Islands. Unpubl. Man.

Richard, N. L. and A. T. Richardson. 1993. Biological inventory, natural history, and human impact of Palo Alto National Battlefield. Report to the National Park Service. 37 pp. + maps.

Smith, H. M., D. Chiszar, J. R. Staley II, and K. Tepedelen. 1994. Population relationships in the corn snake *Elaphe guttata* (Reptilia: Serpentes). Tex. J. Sci. 46(3):259-92.

Torres, L. Undated. San Antonio Missions. Southwest Parks and Monuments Association, Tucson, Arizona. 48 pp.

Trauth, S. E. 1992. A new subspecies of six-lined racerunner, *Cnemidophorus sexlineatus* (Sauria, Teiidae), from southern Texas. Texas Journal of Science 44: 437–443.

_____, 1995. An emendation to the subspecies name of *Cnemidophorus sexlineatus stephensi* (Sauria: Teiidae). Bull. Chicago. Herpetol. Soc. 30(4): 68.

Tunnell, Jr., J. W. 2002. Geology, Climate, and Hydrography. In J. W. Tunnel, Jr., and F. W. Judd (eds.), *The Laguna Madre of Texas and Tamaulipas*. Gulf Coast Studies; no. 2. Texas A & M University Press, College Station. 346 pp.

United States Geological Survey. 1998a. Landcover classification for Padre Island National Seashore.

United States Geological Survey. 1998b. Landcover classification for the Palo Alto Battlefield National Historic Site.

Utiger, U., N. Helfenberger, B. Schätti, C. Schmidt, M. Ruf, and V. Ziswiler. 2002. Molecular Systematics and Phylogeny of Old and New World Ratsnakes, Elaphe auct., and Related Genera (Reptilia, Squamata, Colubridae). Russ. J. Herpetol., 9(2): 105-124.

Vaughan, R. K., J. R. Dixon, and R. A. Thomas. 1996. A reevaluation of populations of *Elaphe guttata* (Reptilia:

Serpentes: Colubridae) in Texas. Tex. J. Sci. 48(3):175-90.
Vermersch, T. G. 1992. Lizards and turtles of South-Central Texas. Eakin Press. Austin, TX. 170 pp.
_____, T. G., and R. E. Kuntz. 1986. Snakes of South-Central Texas. Eakin Press. Austin, TX. 137 pp.
Walker, J. M. 1987a. Distribution and habitat of the parthenogenetic whiptail lizard *Cnemidophorus laredoensis* (Sauria: Teiidae). Am. Midl. Nat. 117(2): 319-32.
Walker. J. M. 1987b. Distribution and habitat of a new major clone of a parthenogenetic whiptail lizard (genus *Cnemidophorus*) in Texas and Mexico. Tex. J. Sci. 39(4):313-34.
Watson, R. L. 1989. Sedimentation Rates, Kenedy Ranch Supratidal Flats. Unpublished manuscript on file at Texas A&M University-Corpus Christi, Center for Coastal Studies Library. 20 pp.
Weise, B. R., and W. A. White. 1980. Padre Island National Seashore: A Guide to the Geology, Natural Environments, and History of a Texas Barrier Island. Guidebook 17. Austin: Bureau of Economic Geology, University of Texas. 94 pp. + map.
Werler, J. E. and J. R. Dixon. 2000. Texas Snakes. University of Texas Press. Austin, TX. 437 pp.
Williams, K. L., B. C. Brown, and L. D. Wilson. 1966. A new subspecies of the colubrid snake, *Cemophora coccinea* (Blumenbach), from southern Texas. Tex. J. Sci. 18 (1):85-88.

FIGURES NOT INCLUDED WITH TEXT

Figure 6a. Major Trapping and Other Sampling Sites during Herpetological Inventory of Padre Island National Seashore 2002-2003 (northernmost section).

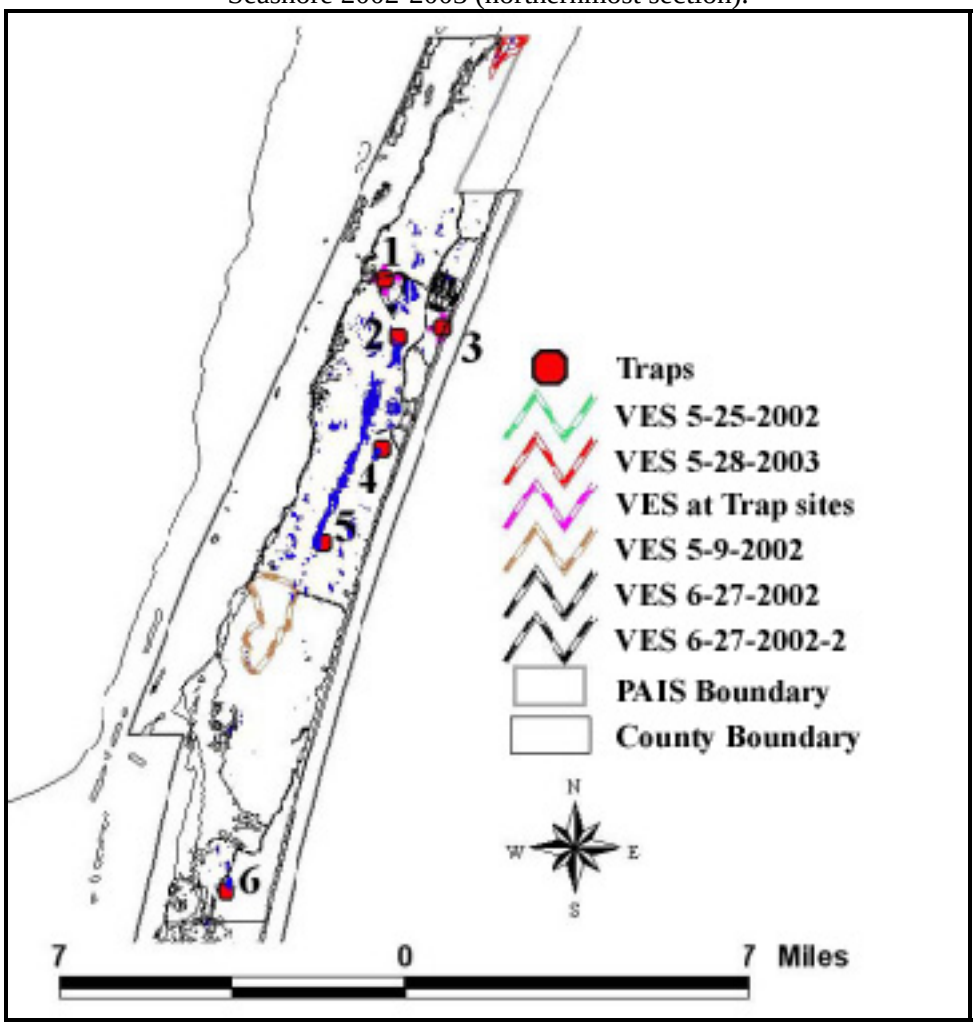


Figure 6b. Major Trapping and Other Sampling Sites during Herpetological Inventory of Padre Island National Seashore 2002-2003 (middle section).

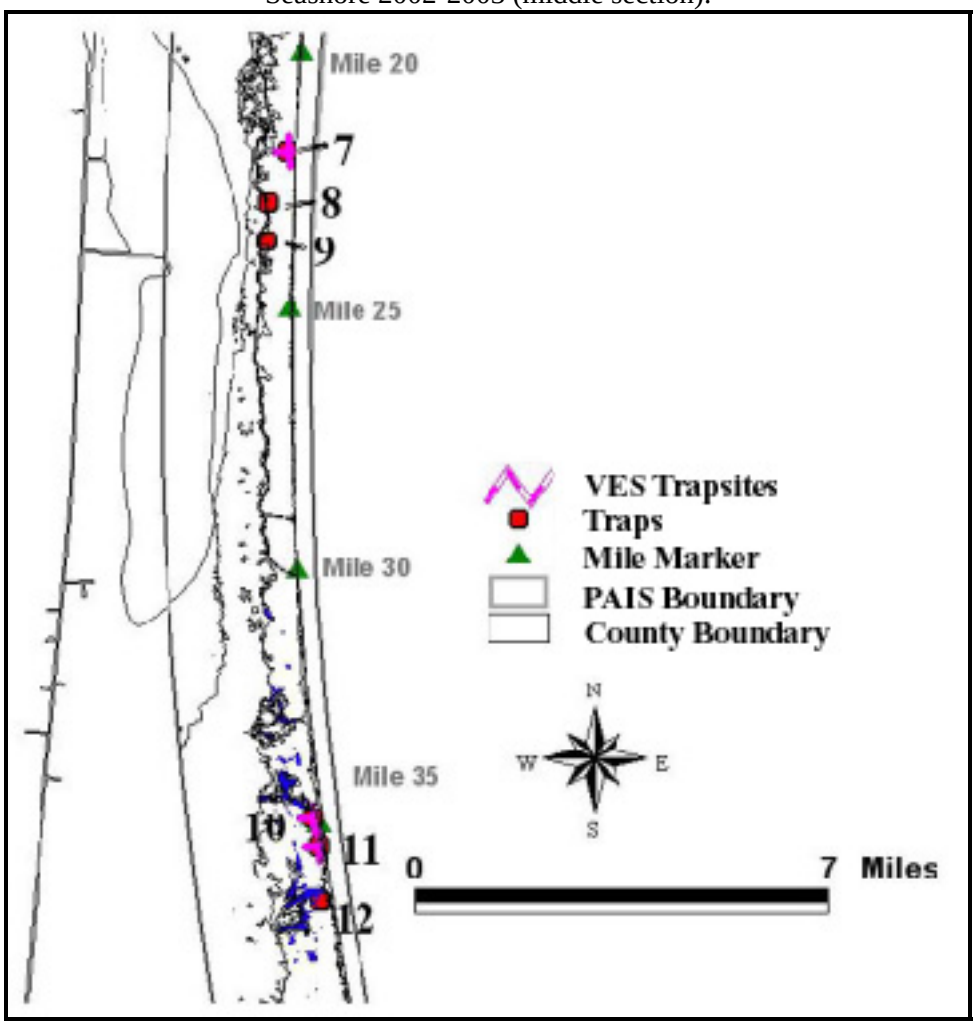


Figure 6c. Major Trapping and Other Sampling Sites during Herpetological Inventory of Padre Island National Seashore 2002-2003 (southernmost section).

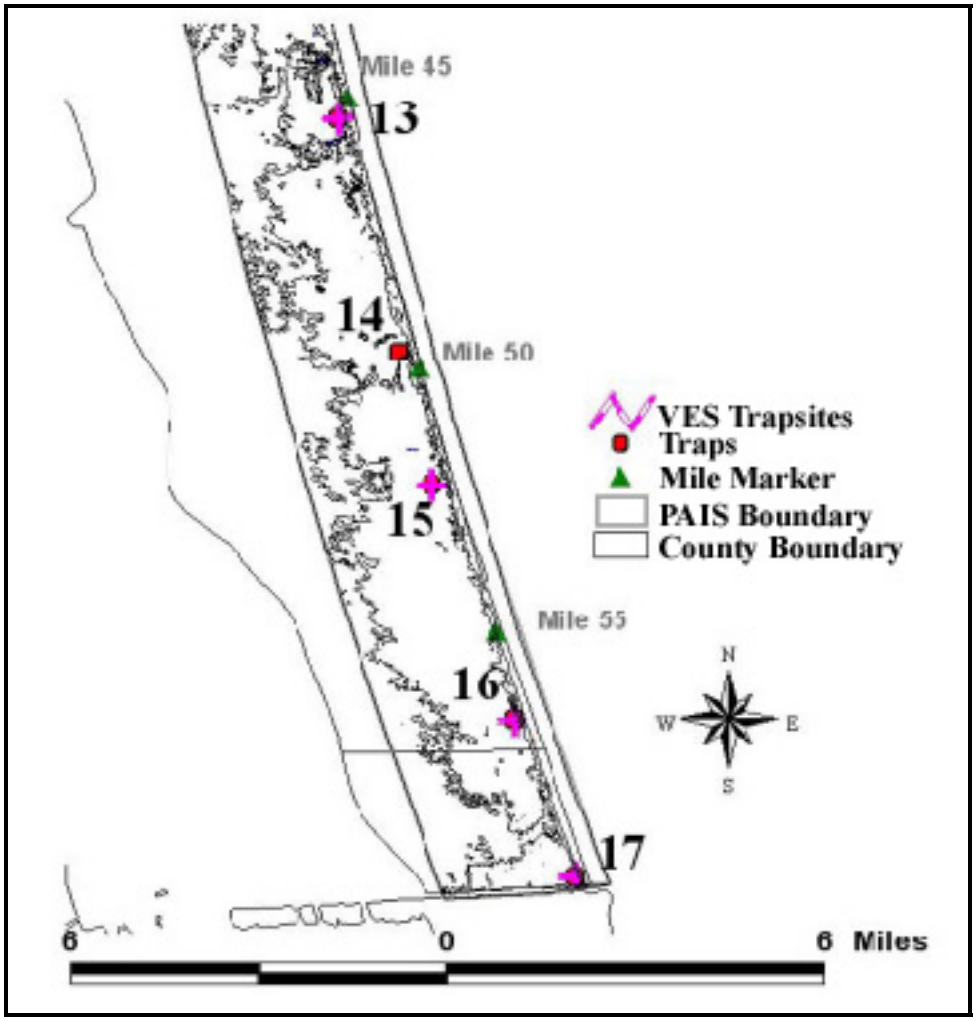


Figure 7. Major Trapping and other Sampling Sites during Herpetological Inventory of Palo Alto Battlefield National Historic Site – 2002-2003

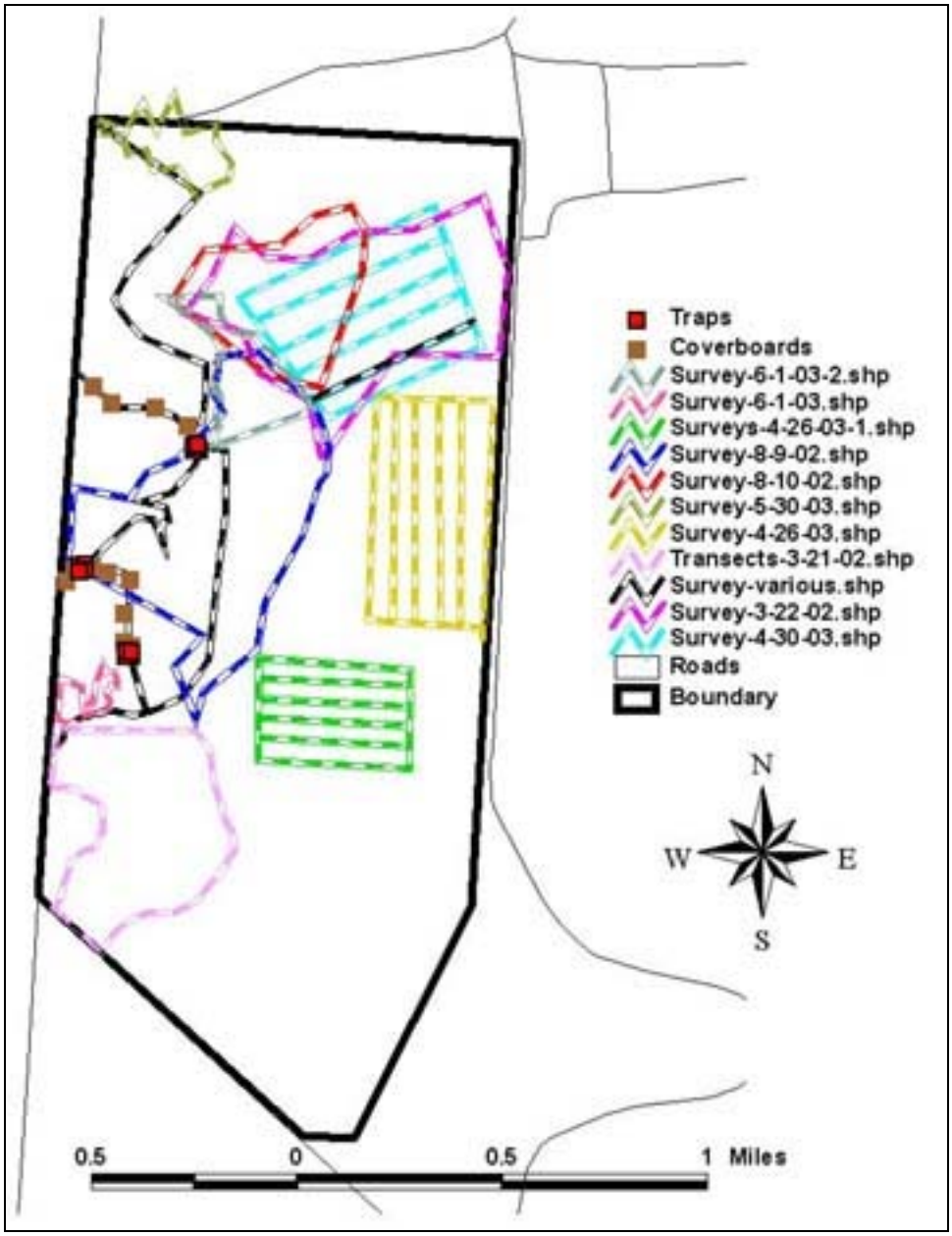


Figure 8a. Major Trapping and Other Sampling Sites during Herpetological Inventory of San Antonio Missions National Historical Monument – 2002-2003 (city section)

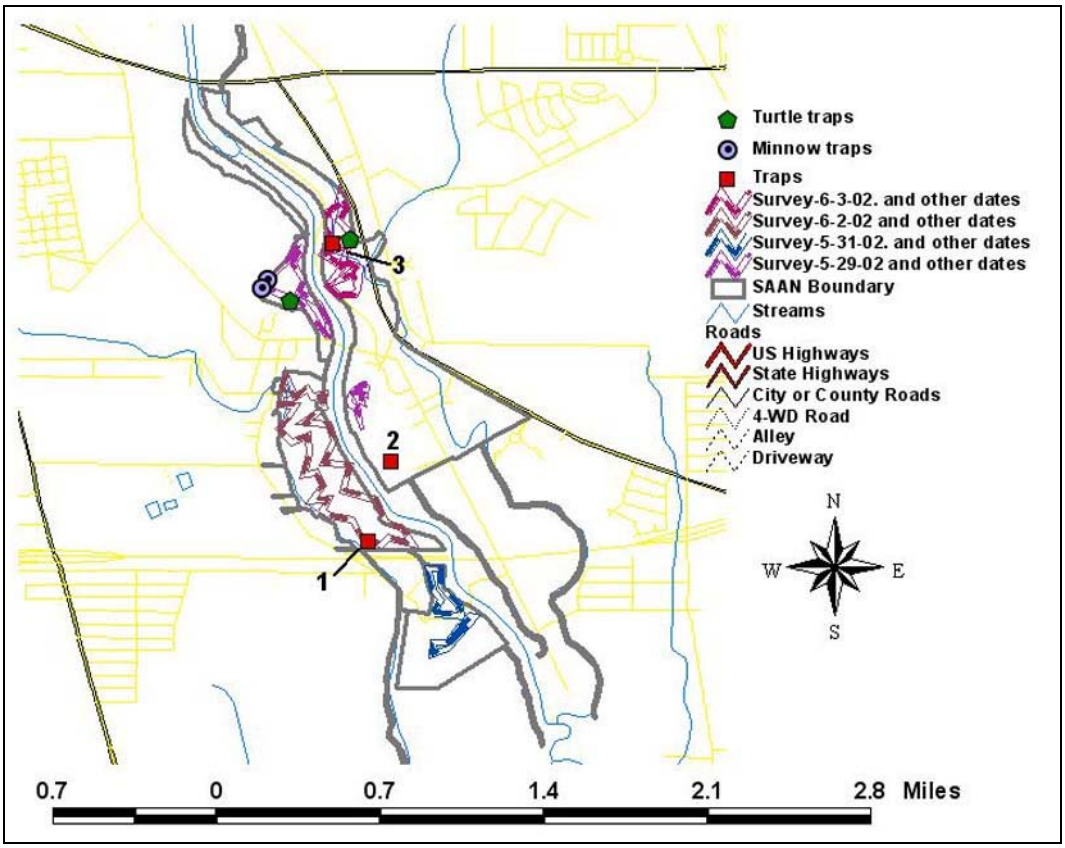


Figure 8b. Major Trapping and Other Sampling Sites during Herpetological Inventory of San Antonio Missions National Historical Monument – 2002-2003 (Rancho de las Cabras).

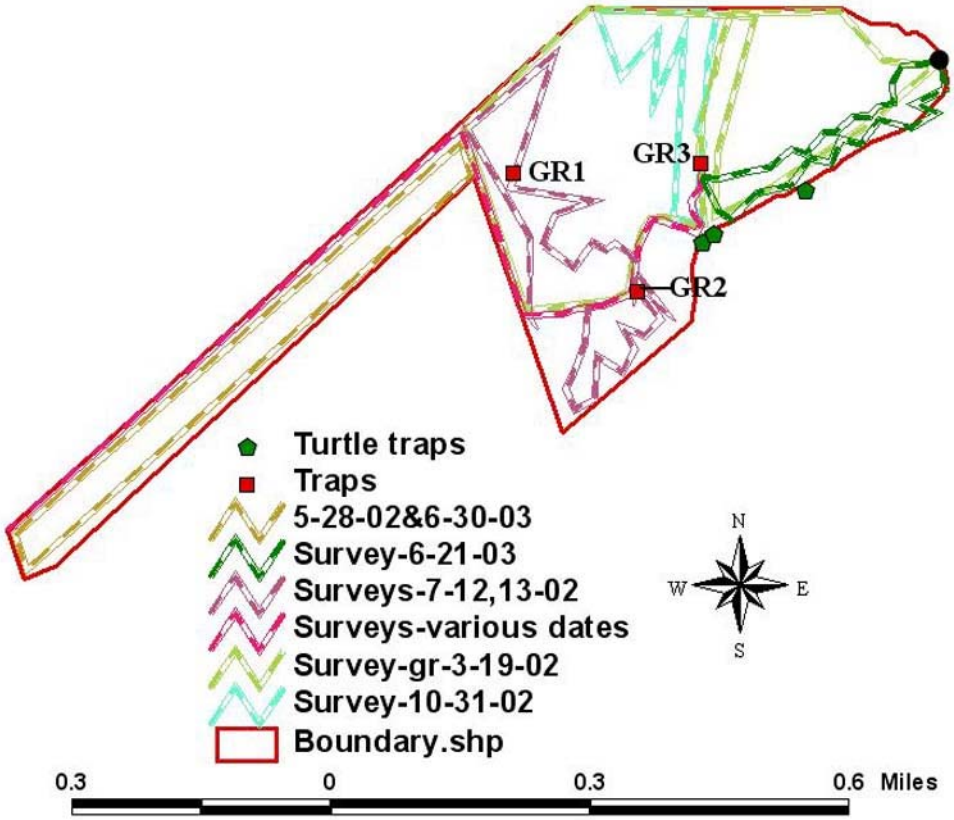


Figure 9. Woodhouse's Toad: Photo Taken During 2003-2003 Herpetological Inventory of Padre Island National Seashore.

Figure 10. A Narrowmouth Toad: Photo Taken During 2003-2003 Herpetological Inventory of Padre Island National Seashore.

Figure 11. Green Tree Frog: Photo Taken During 2003-2003 Herpetological Inventory of Padre Island National Seashore.

Figure 12. Spotted Chorus Frog: Photo Taken During 2003-2003 Herpetological Inventory of Padre Island National Seashore.

Figure 13. Hurter's Spadefoot: Photo Taken during 2003-2003 Herpetological Inventory of Padre Island National Seashore.

Figure 14. Rio Grande Leopard Frog: Photo Taken During 2003-2003 Herpetological Inventory of Padre Island National Seashore.

Figure 15. Red-eared Slider: Photo Taken During 2003-2003 Herpetological Inventory of Padre Island National Seashore.

Figure 16. American Alligator: A Reptile Detected during 2003-2003 Herpetological Inventory of Padre Island National Seashore (this photo not from PAIS).

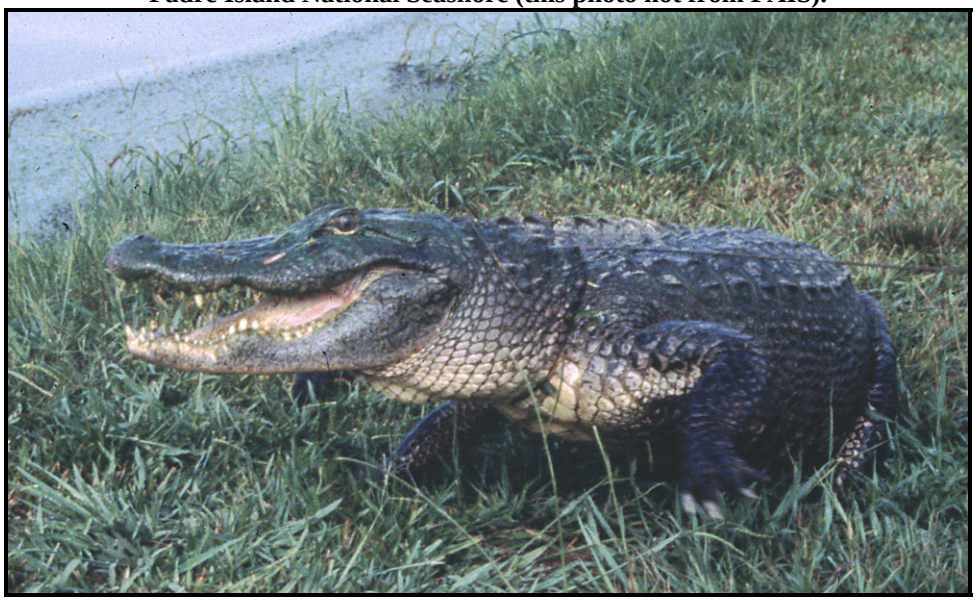


Figure 17a. Six-lined Racerunner: Photo Taken During 2003-2003 Herpetological Inventory of Padre Island National Seashore.

Figure 17b. Six-lined Racerunner: Photo Taken During 2003-2003 Herpetological Inventory of Padre Island National Seashore.

Figure 18. Great Plains Skink: Photo Taken During 2003-2003 Herpetological Inventory of Padre Island National Seashore.

Figure 19. Mediterranean Gecko: Photo Taken During 2003-2003 Herpetological Inventory of Padre Island National Seashore.

Figure 20a. Keeled Earless Lizard: Photo Taken During 2003-2003 Herpetological Inventory of Padre Island National Seashore.

Figure 20b. Keeled Earless Lizard: Photo Taken During 2003-2003 Herpetological Inventory of Padre Island National Seashore.

Figure 21. Western Slender Glass Lizard: Photo Taken During 2003-2003 Herpetological Inventory of Padre Island National Seashore.

Figure 22a. Ground Skink: Photo Taken During 2003-2003 Herpetological Inventory of Padre Island National Seashore.

Figure 22b. Ground Skink: Photo Taken During 2003-2003 Herpetological Inventory of San Antonio Missions Historical Monument

Figure 23. Texas Scarlet Snake: Photo Taken During 2003-2003 Herpetological Inventory of Padre Island National Seashore.

Figure 24. Mexican Racer: Photo Taken During 2003-2003 Herpetological Inventory of Palo Alto Battlefield National Historic Site.

Figure 25. Western Diamondback Rattlesnake: Photo Taken by a Visitor (Charlie Golar) during 2003-2003 Herpetological Inventory of Padre Island National Seashore.

Figure 26. Texas Indigo Snake: Photo Taken During 2003-2003 Herpetological Inventory of Palo Alto Battlefield National Historic Site.

Figure 27. Great Plains Rat Snake: Photo Taken During 2003-2003 Herpetological Inventory of Padre Island National Seashore.

Figure 28. Eastern Hognose Snake: Photo Taken During 2003-2003 Herpetological Inventory of Padre Island National Seashore.

Figure 29. Mexican Milk Snake: Photo Taken During 2003-2003 Herpetological Inventory of Padre Island National Seashore.

Figure 30. Western Coachwhip: Photo Taken During 2003-2003 Herpetological Inventory of Padre Island National Seashore.

Figure 31. Diamondback Water Snake: Photo Taken During 2003-2003 Herpetological Inventory of Padre Island National Seashore.

Figure 32. Massasauga: Photo Taken During 2003-2003 Herpetological Inventory of Padre Island National Seashore.

Figure 33. Flathead Snake: Photo Taken During 2003-2003 Herpetological Inventory of Padre Island National Seashore.

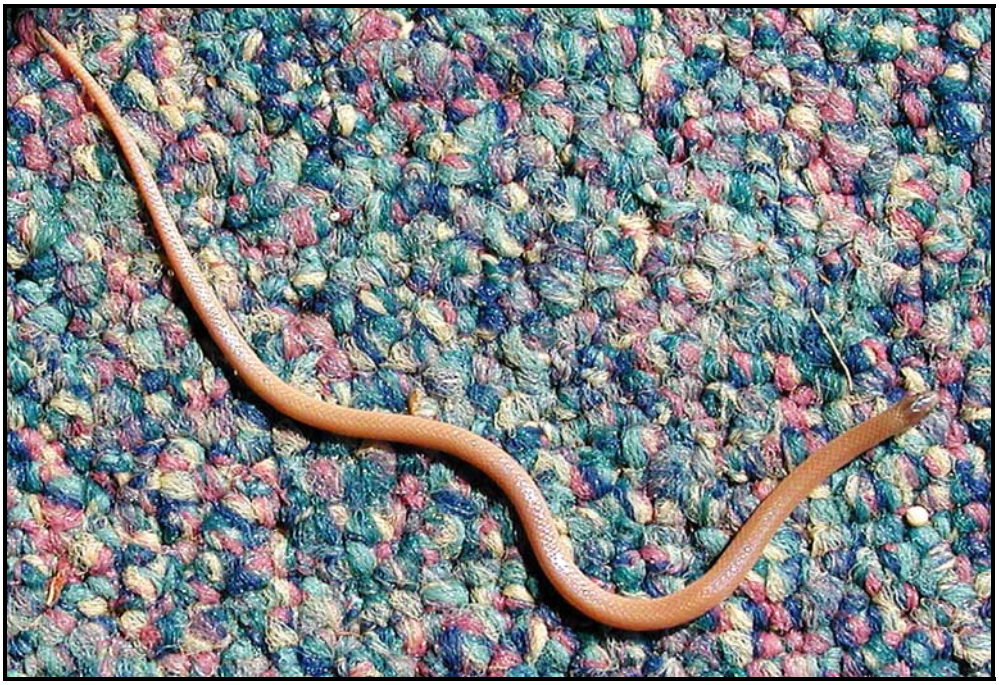


Figure 34. Checkered Garter Snake: Photo Taken During 2003-2003 Herpetological Inventory of Padre Island National Seashore.

Figure 35. Gulf Coast Ribbon Snake (DOR): Photo Taken During 2003-2003 Herpetological Inventory of Padre Island National Seashore.

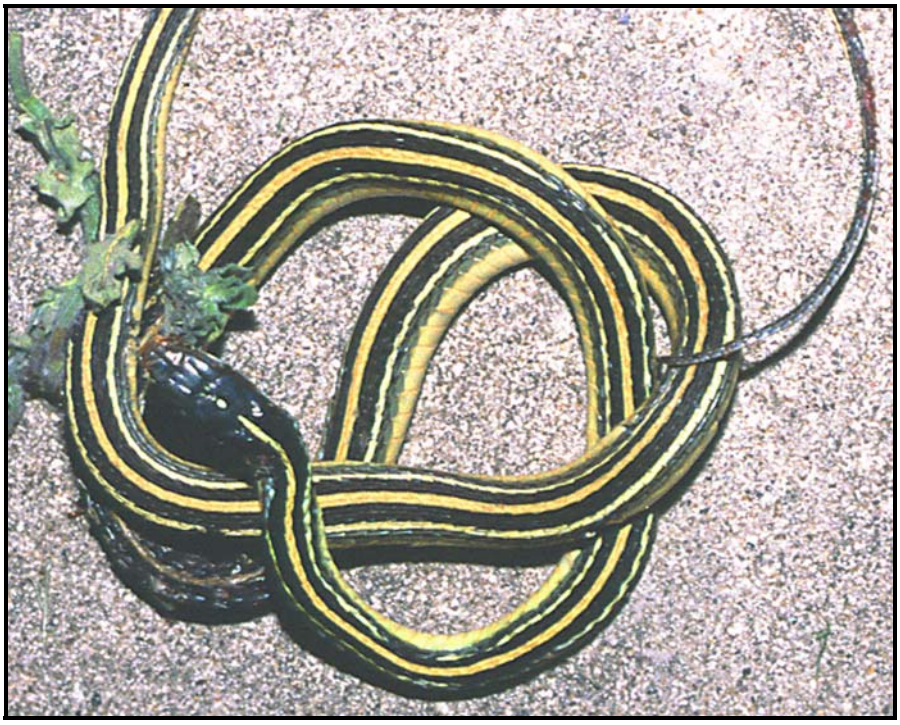


Figure 36. Blanchard's Cricket Frog: Photo Taken During 2003-2003 Herpetological Inventory of San Antonio Missions National Historical Monument.

Figure 37. Coastal Plain Toad: Photo Taken During 2003-2003 Herpetological Inventory of Palo Alto Battlefield National Historic Site.

Figure 38. Great Plains Narrowmouth Toad: Photo Taken During 2003-2003 Herpetological Inventory of San Antonio Missions National Historical Monument.

Figure 39. Couch's Spadefoot: Photo Taken During 2003-2003 Herpetological Inventory of Palo Alto Battlefield National Historic Site.

Figure 40. Rio Grande Chirping Frog: Photo Taken During 2003-2003 Herpetological Inventory of San Antonio Missions National Historical Monument.

Figure 41. Common Snapping Turtle: Photo Taken During 2003-2003 Herpetological Inventory of San Antonio Missions National Historical Monument.

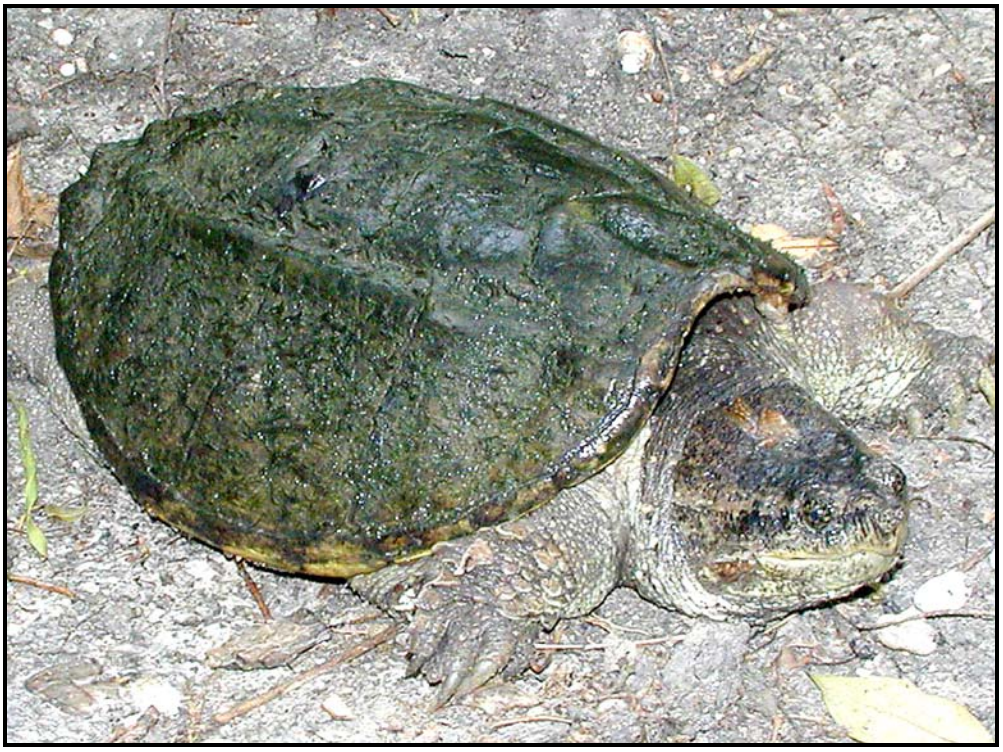


Figure 42. Texas Tortoise: Photo Taken During 2003-2003 Herpetological Inventory of San Antonio Missions National Historical Monument.

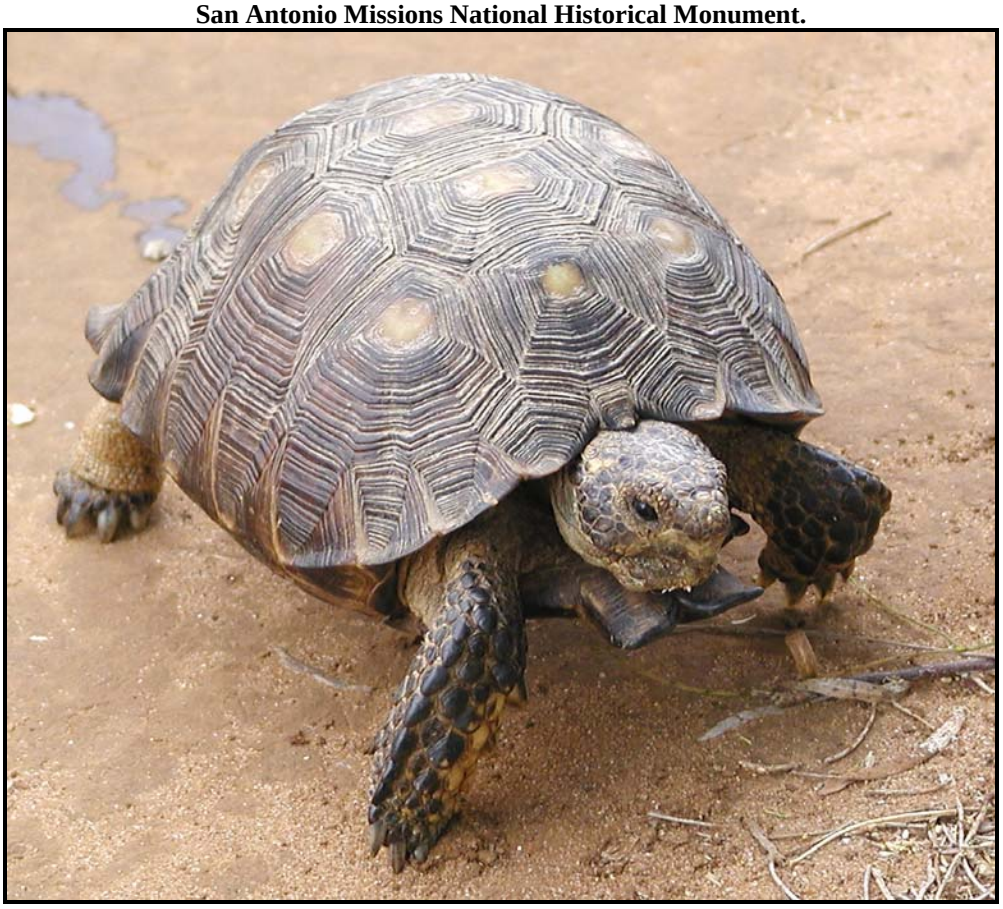


Figure 43. Texas River Cooter: Photo Taken During 2003-2003 Herpetological Inventory of San Antonio Missions National Historical Monument.

Figure 44. Green Anole: Photo Taken During 2003-2003 Herpetological Inventory of San Antonio Missions National Historical Monument.

Figure 45. Texas Spotted Whiptail: Photo Taken During 2003-2003 Herpetological Inventory of Palo Alto Battlefield National Historic Site.

Figure 46. Texas Horned Lizard: Photo Taken During 2003-2003 Herpetological Inventory of Palo Alto Battlefield National Historic Site.

Figure 47. Rose-bellied Lizard: Photo Taken During 2003-2003 Herpetological Inventory of San Antonio Missions National Historical Monument.

Figure 48. Texas Spiny Lizard: Photo Taken During 2003-2003 Herpetological Inventory of Palo Alto Battlefield National Historic Site.

Figure 49. Texas Rat Snake: Photo Taken During 2003-2003 Herpetological Inventory of San Antonio Missions National Historical Monument.

Figure 50. Desert King Snake: Photo Taken During 2003-2003 Herpetological Inventory of San Antonio Missions National Historical Monument.

Figure 51. Plains Blind Snake: Photo Taken During 2003-2003 Herpetological Inventory of San Antonio Missions National Historical Monument.

Figure 52. Schott's Whipsnake: Photo Taken During 2003-2003 Herpetological Inventory of San Antonio Missions National Historical Monument.

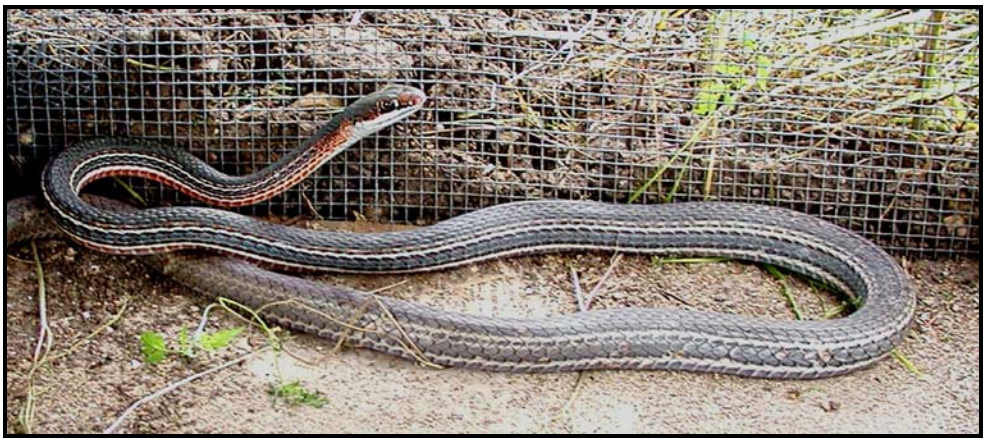


Figure 53. Texas Long-nosed Snake: Photo Taken During 2003-2003 Herpetological Inventory of San Antonio Missions National Historical Monument.

Figure 54. Texas Patch-nosed Snake: Photo Taken During 2003-2003 Herpetological Inventory of San Antonio Missions National Historical Monument.

Figure 55. Texas Brown Snake: Photo Taken During 2003-2003 Herpetological Inventory of San Antonio Missions Historical Monument.

Figure 56. Mexican Tree Frog: Photo Taken During 2003-2003 Herpetological Inventory of Palo Alto Battlefield National Historic Site.

Figure 57. Ruthven's Whipsnake: Photo Taken During 2003-2003 Herpetological Inventory of Palo Alto Battlefield National Historic Site.

Figure 58. Bull Snake: Photo Taken During 2003-2003 Herpetological Inventory of Palo Alto Battlefield National Historic Site.

Figure 59. Taylor's Ground Snake: Photo Taken During 2003-2003 Herpetological Inventory of Palo Alto Battlefield National Historic Site.

Figure 60. Plains Black-headed Snake: Photo Taken During 2003-2003 Herpetological Inventory of Palo Alto Battlefield National Historic Site.

APPENDICES

Appendix 1. All collections, observations, and museum records collected during a reptile and amphibian inventory of Padre Island National Seashore - January 2002 – October 2003**.**

SPECIES	DATE(S)	Location	Easting	Northing	Type of Record	Comments
Alligator mississippiensis	3/18,4/19,7/9 - 2002	Pond by waste water treat. fac	667213	3034189	Observations - 3	introduced - 10 foot alligator
Aspidoscelis sexlineatus	8/27/1966	3 mi. S. of Bob Hall Pier	673454	3047764	Specimen-TCWC-22771	
Aspidoscelis sexlineatus	8/27/1966	3 mi. S. of Bob Hall Pier	673511	3047843	Specimen-TCWC-22772	
Aspidoscelis sexlineatus	5/14/1965	Old Dunn Ranch	669278	3038543	Specimen-NPS-440	right part of "old Dunn Ranch"?
Aspidoscelis sexlineatus	11/25/1938	23 mi. S. Port Aransas	673884	3049356	Specimen-TCWC-151	stephansae? - says Mustang Is.
Aspidoscelis sexlineatus	4/24/2002	near trap site 7	660741	2998890	observation	
Aspidoscelis sexlineatus	6/20/2002	~200 m SE of trap 14	666343	2954749	observation	
Aspidoscelis sexlineatus	7/25/2002	~200 m SE of trap 14	666370	2954755	observation	
Aspidoscelis sexlineatus	5/20/2003	~50 m E of Trap 10	661532	2978276	observation	
Aspidoscelis sexlineatus	8/4/2002	~30 m W. of Trap 7	660633	2998912	observation	rainy day
Aspidoscelis sexlineatus	5/26/2002	~100 m W of Trap 11	661536	2977430	observation	
Aspidoscelis sexlineatus	5/9/02	~5 mi down is. - near backside	663061	3027870	observation	near top of tall hill
Aspidoscelis sexlineatus	5/25/2002	~150 N. Trap 13	664475	2961954	observation	
Aspidoscelis sexlineatus	5/25/2002	~ 150 m. E. Trap 13	664354	2961735	observation	
Aspidoscelis sexlineatus	5/25/2002	~350 m S. of Trap 13	664481	2961468	observation	
Aspidoscelis sexlineatus	5/26/2002	400 m east of trap 15	667700	2951078	observation	
Aspidoscelis sexlineatus	5/26/2002	500 m east of trap 15	667617	2951047	observation	
Aspidoscelis sexlineatus	5/13--6/15/2002	road to trap 6	662503	3020524	observation	
Aspidoscelis sexlineatus	5/13--6/15/2002	road to trap 6	662869	3020584	observation	
Aspidoscelis sexlineatus	5/13--6/15/2002	road to trap 6	663150	3020574	observation	
Aspidoscelis sexlineatus	5/13--6/15/2002	road to trap 6	663447	3021207	observation	
Aspidoscelis sexlineatus	5/13--6/15/2002	road to trap 6	663685	3021620	observation	
Aspidoscelis sexlineatus	6/13, 6/22/2002	Trap 1	667364	3039250	2 trapped	
Aspidoscelis sexlineatus	5/5/2002	Trap 2	667853	3037352	1 trapped - 1 specimen	Collected
Aspidoscelis sexlineatus	5/11, 5/16, 6/6/2002	Trap 5	665354	3030667	3 trapped - 1 specimen	DIT
Aspidoscelis sexlineatus	5/13/02	Trap 6	662237	3019245	1 trapped	
Aspidoscelis sexlineatus	5/27/2002	Trap 7	660669	2998882	1 trapped	
Aspidoscelis sexlineatus	6/14/2002	Trap 8	660105	2997282	1 trapped	
Aspidoscelis sexlineatus	5/29 -- 6/22/2002	Trap 9	660020	2996126	6 trapped	
Aspidoscelis sexlineatus	7/22, 8/1, 10/9/2002	Trap 10	661484	2978269	8 trapped - 1 specimen	DIT
Aspidoscelis sexlineatus	6/17 -- 10/9/2002	Trap 11	661654	2977422	6 trapped	
Aspidoscelis sexlineatus	6/20, 6/22/2002	Trap 12	661702	2975707	2 trapped	
Aspidoscelis sexlineatus	6/22 -- 7/31/2002	Trap 13	664472	2961734	10 trapped 1 specimen	DIT
Aspidoscelis sexlineatus	10/6/2002	Trap 15	667212	2951057	1 trapped	
Aspidoscelis sexlineatus	7/20, 7/30, 7/31/2002	Trap 17	671390	2939599	3 trapped	
Aspidoscelis sexlineatus	6/2/2002	Trap 3	669299	3037654	1 trapped	
Aspidoscelis sexlineatus	1968	18 mi. S. of Bob Hall Pier	665293	3026057	mus spec TAMUK-1505	
Aspidoscelis sexlineatus	1969	4 mi. S. of Bob Hall Pier	672834	3046448	mus spec - TAMUK-2518	

SPECIES	DATE(S)	Location	Easting	Northing	Type of Record	Comments
Aspidoscelis sexlineatus	1979	N. of Mansfield Jetty	671518	2939431	mus spec. - TAMUK-4782	
Arizona elegans arenicola	8/2/2002	1 km west on road at 3.5 mi	665277	3028834	Obs - captured but escap	
Arizona elegans arenicola	8/26/1966	3 mi. S. Bob Hall Pier	673562	3047902	Specimen-TCWC -22800	
Arizona elegans arenicola	8/26/1966	3 mi. S. Bob Hall Pier	673341	3047840	Specimen-TCWC-22801	
Arizona elegans arenicola	03/17/1976	N. Padre Is. - Nueces Co.	675428	3052097	Specimen-TCWC-52051	
Arizona elegans arenicola	1965	Nueces County Park	675444	3052222	Museum Spec. NPS-335	
Arizona elegans arenicola	1965	100 yd. S. of Packery Channel	676258	3053941	Museum Spec.- NPS-474	exact location?
Arizona elegans arenicola	1963	10 mi. S. Bob Hall Pier	669534	3038590	Mus Spec. TAMUK-512	
Arizona elegans arenicola	1968	22 mi. S. Bob Hall Pier	663780	3020303	Mus. Spec. TAMUK-1515	
Bufo woodhousii	5/19/2003	behind dunes at 0 mile marker	667602	3033579	observed - photo	saw at least 40 at this site
Bufo woodhousii	5/19/2003	behind dunes at 0 mile marker	667605	3033572	observed - photo	saw at least 40 at this site
Bufo woodhousii	5/19/2003	behind dunes at 0 mile marker	667593	3033569	observed - photo	saw at least 40 at this site
Bufo woodhousii	5/19/2003	behind dunes at 0 mile marker	667612	3033566	observed - photo	saw at least 40 at this site
Bufo woodhousii	5/19/2003	behind dunes at 0 mile marker	667622	3033565	observed - photo	saw at least 40 at this site
Bufo woodhousii	5/19/2003	behind dunes at 0 mile marker	667635	3033563	observed - photo	saw at least 40 at this site
Bufo woodhousii	5/19/2003	behind dunes at 0 mile marker	667629	3033573	observed - photo	saw at least 40 at this site
Bufo woodhousii	5/19/2003	behind dunes at 0 mile marker	667649	3033557	observed - photo	saw at least 40 at this site
Bufo woodhousii	5/19/2003	behind dunes at 0 mile marker	667622	3033558	observed - photo	saw at least 40 at this site
Bufo woodhousii	5/19/2003	behind dunes at 0 mile marker	667612	3033577	observed - photo	saw at least 40 at this site
Bufo woodhousii	5/19/2003	behind dunes at 0 mile marker	667602	3033552	observed - photo	saw at least 40 at this site
Bufo woodhousii	5/19/2003	behind dunes at 0 mile marker	667585	3033579	observed - photo	saw at least 40 at this site
Bufo woodhousii	2/11, 7/1/02, 4/7/03	ephemeral pond behind WWT	666848	3034391	heard - recording	
Bufo woodhousii	7/1/02, 7/4/03	near BIB pond	668045	3039241	heard	too far away for recording
Bufo woodhousii	7/15/02	3.5 mile down Is.- W.~300	666358	3030909	heard,recorded,specimen	many calling
Bufo woodhousii	4/7/2003	BIB Rd-400 m W. of int Pkrd22	668298	3039035	heard	one calling
Bufo woodhousii	7/4/2003	BIB Road	667805	3039420	photo	in road
Bufo woodhousii	6/5/2003	Visitor Center Parking Lot	668073	3034464	photo	
Bufo woodhousii	7/15/02	Outside gate to WWT facility	667612	3034345	photo	
Bufo woodhousii	5/20/2003	125 m E. of Trap 14	666358	2954956	photo	
Cemophora coccinea lineri	7/23/2002	trap 10	661484	2978287	trapped - photos	only record for island
Coluber constrictor oaxaca	7/4/2003	~ 11 km N. of ent. sta. PINS	672685	3048224	DOR – Specimen – PAIS-110	
Coluber constrictor oaxaca	5/20/2003	~2 mi down isl. in foredunes	666897	3030835	obs - Nicky Hayes	ID?
Coluber constrictor oaxaca	10/17/68	hdqts bldg	668399	3037046	specimen-NPS-1151	spec. looks speckled-faded
Coluber constrictor oaxaca	1980	DOR – PAIS Rd (?)	unk	unk	mus. rec. TAMUK-4824	
Coluber constrictor oaxaca	1987	PINS	unk	unk	flaviventris-mus - TAMUK-5890	
Coluber constrictor oaxaca	1980	PINS	unk	unk	mus rec. – TAMUK 5184	
Crotalus atrox	unknown	N. of PINS	672800	3048452	Mus. Rec.- NPS-261	N. of PINS? exact location?
Crotalus atrox	1965	Balli Park	675842	3053028	Mus. Rec. NPS-450	pair breeding
Crotalus atrox	1965	Balli Park	675862	3053153	Mus. Rec. NPS-451	
Crotalus atrox	1983	1 mi. N. of PINS	672929	3048703	Mus. Rec. NPS-2601	
Crotalus atrox	3/10/2002	~5-mi mkl~3 km W. of beach	662752	3027145	observation-Dan Ginter	
Crotalus atrox	unknown	near boardwalk behind VC	668123	3034539	photo by Phil Slattery	
Crotalus atrox	Jan 2003	5 miles down near beach	664166	3021659	observation- Dan Ginter	observed on 5 or 6 occassions
Crotalus atrox	Jan 2003	8 miles down near beach	665556	3026729	observation- Dan Ginter	
Crotalus atrox	May 2003	turlte patrol cabin-38 mi mker	662321	2972243	obs by various turtle patrolle	
Crotalus atrox	2/22/2004	near beach near Mansfield Channel	671618	2939991	photo by Charles Gollar	photo at corpusfishing.com
Elaphe emoryi	6/7/2002	Trap 4	667317	3033648	Trapped-photos	

SPECIES	DATE(S)	Location	Easting	Northing	Type of Record	Comments
Elaphe emoryi	5/15, 6/6/02	Trap 5 (2)	665355	3030703	trapped photos	2 individuals trapped
Elaphe emoryi	5/16/02	Pk. Rd. 22 ~100 m from beach	667719	3033871	DOR-spec PAIS-071	
Eumeces obsoletus	1966	Balli Park	675798	3052740	specimen-NPS-441	
Eumeces obsoletus	6/27/2002	Trap 3	669290	3037637	trapped-photos	
Eumeces obsoletus	6/7, 6/27/2002	Trap 7	660701	2998930	trapped (2) - Spec (2) DIT (1)	PAIS-053, PAIS-016
Eumeces obsoletus	6/15/2002	Trap 8	660067	2997264	trapped 1	
Eumeces obsoletus	5/31, 6/22, 6/23/2002	Trap 9	660047	2996139	trapped 4, Spec (1) DIT	DIT
Eumeces obsoletus	6/23, 8/1/2002	Trap 10	661474	2978269	Trapped 2	
Eumeces obsoletus	7/30/2002	Trap 17	671381	2939600	Trapped 1	
Eumeces obsoletus	1969	1/2 mi. S. Bob Hall Pier	674962	3050820	Museum Rec. TAMUK-2515	
Hemidactylus turcicus	unknown	Ranger Station buildings	668327	3037080	Museum NPS-2140	no dates
Hemidactylus turcicus	unknown	Ranger Station buildings	668368	3037070	Museum NPS-2228	no dates
Hemidactylus turcicus	6/30/02 and other dates	Ranger Station by main door	668421	3037023	observed-photos	did not collect
Hemidactylus turcicus	6/30/02 and other dates	barn in back of Ranger Station	668440	3037002	observed	
Hemidactylus turcicus	6/30/02 and other dates	barn in back of Ranger Station	668407	3036993	observed	
Hemidactylus turcicus	unknown	comments on draft of this report	668077	3034618	observed by Park staff	
Heterodon platirhinos	1965	1 mi. S. county line on beach	674754	3049939	Museum Specimen--NPS-324	old faded specimen
Heterodon platirhinos	6/14/2003	200 m. south of entrance sta.	669174	3039633	DOR-PAIS-099	
Heterodon platirhinos	6/17/2002	near visitor center	668068	3034363	collected specimen-PAIS-067	Briana Young
Heterodon platirhinos	7/25, 10/4/2002	Trap 10	661470	2978282	trapped-photos-released	
Heterodon platirhinos	1989	Ranger Station	668433	3037059	Museum Spec,- TAMUK-5826	Alan Cheney
Holbroodkia lacerata subcaudalis	1969	Dunn Ranch Site	669404	3038832	museum spec.- TAMUK-1879	have not examined specimen
Holbrookia propinqua propinqua	2/15/2002	near Mansfield channel	669455	2939725	observation	in sparsely vegetated areas
Holbrookia propinqua propinqua	2/15/2002	near Mansfield channel	671418	2939785	observation	in sparsely vegetated areas
Holbrookia propinqua propinqua	5/20/2003	80 m East of Trap 10	661575	2978283	observation	in sparsely vegetated areas
Holbrookia propinqua propinqua	5/20/2003	80 m East of Trap 10	661572	2978285	observation	in sparsely vegetated areas
Holbrookia propinqua propinqua	5/20/2003	80 m East of Trap 10	661570	2978285	observation	in sparsely vegetated areas
Holbrookia propinqua propinqua	5/20/2003	150 - 450 m N. of Trap 10	661466	2978439	observation	in sparsely vegetated areas
Holbrookia propinqua propinqua	5/20/2003	150 - 450 m N. of Trap 10	661467	2978443	observation	in sparsely vegetated areas
Holbrookia propinqua propinqua	5/20/2003	150 - 450 m N. of Trap 10	661465	2978455	observation	in sparsely vegetated areas
Holbrookia propinqua propinqua	5/20/2003	150 - 450 m N. of Trap 10	661464	2978473	observation	in sparsely vegetated areas
Holbrookia propinqua propinqua	5/20/2003	150 - 450 m N. of Trap 10	661452	2978720	observation	in sparsely vegetated areas
Holbrookia propinqua propinqua	5/20/2003	150 - 450 m N. of Trap 10	661465	2978481	observation	in sparsely vegetated areas
Holbrookia propinqua propinqua	5/20/2003	150 - 450 m N. of Trap 10	661453	2978663	observation	in sparsely vegetated areas
Holbrookia propinqua propinqua	5/20/2003	150 - 450 m N. of Trap 10	661454	2978607	observation	in sparsely vegetated areas
Holbrookia propinqua propinqua	5/20/2003	150 - 450 m N. of Trap 10	661460	2978596	observation	in sparsely vegetated areas
Holbrookia propinqua propinqua	5/20/2003	150 - 450 m N. of Trap 10	661455	2978602	observation	in sparsely vegetated areas
Holbrookia propinqua propinqua	5/20/2003	150 - 450 m N. of Trap 10	661454	2978658	observation	in sparsely vegetated areas
Holbrookia propinqua propinqua	5/20/2003	150 - 450 m N. of Trap 10	661451	2978711	observation	in sparsely vegetated areas
Holbrookia propinqua propinqua	8/4/2002	175-200 m E. of Trap 7	660885	2998916	observation	rainy day
Holbrookia propinqua propinqua	8/4/2002	175-200 m E. of Trap 7	660884	2998910	observation	rainy day
Holbrookia propinqua propinqua	8/4/2002	175-200 m E. of Trap 7	660870	2998914	observation	rainy day
Holbrookia propinqua propinqua	8/4/2002	175-200 m E. of Trap 7	660876	2998912	observation	rainy day
Holbrookia propinqua propinqua	various 5/27-9/17/02	Trap 7	660679	2998908	trapped- some specimens	11 individuals
Holbrookia propinqua propinqua	5/26/2002	just east of trap site 11	661684	2977432	observation	in sparsely vegetated areas
Holbrookia propinqua propinqua	5/26/2002	just east of trap site 11	661686	2977422	observation	in sparsely vegetated areas
Holbrookia propinqua propinqua	5/26/2002	50-100 m east of trap 11	661728	2977433	observation	in sparsely vegetated areas

SPECIES	DATE(S)	Location	Easting	Northing	Type of Record	Comments
Holbrookia propinqua propinqua	5/26/2002	50-100 m east of trap 11	661734	2977420	observation	in sparsely vegetated areas
Holbrookia propinqua propinqua	5/26/2002	50-500 m S. of trap 11	661662	2977405	observation	in sparsely vegetated areas
Holbrookia propinqua propinqua	5/26/2002	50-500 m S. of trap 11	661666	2977389	observation	in sparsely vegetated areas
Holbrookia propinqua propinqua	5/26/2002	50-500 m S. of trap 11	661668	2977370	observation	in sparsely vegetated areas
Holbrookia propinqua propinqua	5/26/2002	50-500 m S. of trap 11	661668	2977362	observation	in sparsely vegetated areas
Holbrookia propinqua propinqua	5/26/2002	50-500 m S. of trap 11	661667	2977302	observation	in sparsely vegetated areas
Holbrookia propinqua propinqua	5/26/2002	50-500 m S. of trap 11	661664	2977288	observation	in sparsely vegetated areas
Holbrookia propinqua propinqua	5/26/2002	50-500 m S. of trap 11	661662	2977263	observation	in sparsely vegetated areas
Holbrookia propinqua propinqua	5/26/2002	50-500 m S. of trap 11	661661	2977246	observation	in sparsely vegetated areas
Holbrookia propinqua propinqua	5/26/2002	50-500 m S. of trap 11	661660	2977141	observation	in sparsely vegetated areas
Holbrookia propinqua propinqua	5/26/2002	50-500 m S. of trap 11	661662	2977024	observation	in sparsely vegetated areas
Holbrookia propinqua propinqua	5/26/2002	50-500 m N. of trap 11	661658	2977467	observation	in sparsely vegetated areas
Holbrookia propinqua propinqua	5/26/2002	50-500 m N. of trap 11	661657	2977506	observation	in sparsely vegetated areas
Holbrookia propinqua propinqua	5/26/2002	50-500 m N. of trap 11	661657	2977529	observation	in sparsely vegetated areas
Holbrookia propinqua propinqua	5/26/2002	50-500 m N. of trap 11	661657	2977549	observation	in sparsely vegetated areas
Holbrookia propinqua propinqua	5/26/2002	50-500 m N. of trap 11	661660	2977580	observation	in sparsely vegetated areas
Holbrookia propinqua propinqua	5/26/2002	50-500 m N. of trap 11	661659	2977667	observation	in sparsely vegetated areas
Holbrookia propinqua propinqua	5/26/2002	50-500 m N. of trap 11	661660	2977691	observation	in sparsely vegetated areas
Holbrookia propinqua propinqua	5/26/2002	50-500 m N. of trap 11	661656	2977899	observation	in sparsely vegetated areas
Holbrookia propinqua propinqua	6/17--10/9/2002	Trap 11	661660	2977430	trapped - some photos	10 individuals
Holbrookia propinqua propinqua	5/9/2002	~5 miles down - ~2 km in	663779	3027353	observed	some photos
Holbrookia propinqua propinqua	5/9/2002	~5 miles down - ~2 km in	663690	3027116	observed	some photos
Holbrookia propinqua propinqua	5/9/2002	~5 miles down - ~2 km in	663503	3026857	observed	some photos
Holbrookia propinqua propinqua	5/25/2002	~150 m E. Trap 13	664624	2961741	observed	some photos
Holbrookia propinqua propinqua	5/25/2002	~150 m E. Trap 13	664638	2961741	observed	some photos
Holbrookia propinqua propinqua	5/25/2002	~150 m E. Trap 13	664653	2961741	observed	some photos
Holbrookia propinqua propinqua	5/26/02	near trap 15	667231	2951061	observed	some photos
Holbrookia propinqua propinqua	5/26/02	near trap 15	667223	2951076	observed	some photos
Holbrookia propinqua propinqua	5/26/02	near trap 15	667222	2951044	observed	some photos
Holbrookia propinqua propinqua	5/26/02	~ 50 m E. trap 15	667274	2951059	observed	some photos
Holbrookia propinqua propinqua	5/26/02	~200 east of trap 15	667405	2951065	observed	some photos
Holbrookia propinqua propinqua	5/26/02	~200 east of trap 15	667405	2951065	observed	some photos
Holbrookia propinqua propinqua	5/26/02	~ 50 m west of trap 15	667187	2951060	observed	some photos
Holbrookia propinqua propinqua	5/26/02	~ 50 m west of trap 15	667187	2951060	observed	some photos
Holbrookia propinqua propinqua	5/26/02	~200 m west of trap 15	667051	2951056	observed	some photos
Holbrookia propinqua propinqua	5/26/02	~200 m west of trap 15	667036	2951056	observed	some photos
Holbrookia propinqua propinqua	5/26/02	~100-200 m N. of trap 15	667214	2951166	observed	some photos
Holbrookia propinqua propinqua	5/26/02	~100-200 m N. of trap 15	667212	2951185	observed	some photos
Holbrookia propinqua propinqua	5/26/02	~100-200 m N. of trap 15	667212	2951209	observed	some photos
Holbrookia propinqua propinqua	5/26/02	~100-200 m N. of trap 15	667213	2951237	observed	some photos
Holbrookia propinqua propinqua	5/26/02	~200-500 m N. of trap 15	667211	2951411	observed	some photos
Holbrookia propinqua propinqua	5/26/02	~200-500 m N. of trap 15	667211	2951428	observed	some photos
Holbrookia propinqua propinqua	5/26/02	~200-500 m N. of trap 15	667212	2951450	observed	some photos
Holbrookia propinqua propinqua	5/26/02	~200-500 m N. of trap 15	667214	2951478	observed	some photos
Holbrookia propinqua propinqua	5/26/02	~200-500 m N. of trap 15	667216	2951503	observed	some photos
Holbrookia propinqua propinqua	5/26/02	~200-500 m East of trap 15	667453	2951064	observed	some photos
Holbrookia propinqua propinqua	5/26/02	~200-500 m East of trap 15	667498	2951062	observed	some photos

SPECIES	DATE(S)	Location	Easting	Northing	Type of Record	Comments
Holbrookia propinqua propinqua	5/26/02	~200-500 m East of trap 15	667532	2951082	observed	some photos
Holbrookia propinqua propinqua	5/26/02	~200-500 m East of trap 15	667558	2951050	observed	some photos
Holbrookia propinqua propinqua	5/26/02	~200-500 m East of trap 15	667590	2951063	observed	some photos
Holbrookia propinqua propinqua	5/26/02	~200-500 m East of trap 15	667619	2951079	observed	some photos
Holbrookia propinqua propinqua	5/26/02	~200-500 m East of trap 15	667637	2951062	observed	some photos
Holbrookia propinqua propinqua	5/26/02	~200-500 m East of trap 15	667660	2951045	observed	some photos
Holbrookia propinqua propinqua	5/26/02	~200-500 m East of trap 15	667683	2951067	observed	some photos
Holbrookia propinqua propinqua	5/26/02	~200-500 m East of trap 15	667714	2951054	observed	some photos
Holbrookia propinqua propinqua	6/18/--10/09/2002	between the beach & trap 15	667292	2951122	observed	some photos
Holbrookia propinqua propinqua	6/18/--10/09/2002	between the beach & trap 15	667369	2951151	observed	some photos
Holbrookia propinqua propinqua	6/18/--10/09/2002	between the beach & trap 15	667381	2951121	observed	some photos
Holbrookia propinqua propinqua	6/18/--10/09/2002	between the beach & trap 15	667440	2951150	observed	some photos
Holbrookia propinqua propinqua	6/18/--10/09/2002	between the beach & trap 15	667494	2951198	observed	some photos
Holbrookia propinqua propinqua	6/18/--10/09/2002	between the beach & trap 15	667498	2951150	observed	some photos
Holbrookia propinqua propinqua	6/18/--10/09/2002	between the beach & trap 15	667537	2951166	observed	some photos
Holbrookia propinqua propinqua	6/18/--10/09/2002	between the beach & trap 15	667565	2951194	observed	some photos
Holbrookia propinqua propinqua	6/18/--10/09/2002	between the beach & trap 15	667585	2951164	observed	some photos
Holbrookia propinqua propinqua	6/18/--10/09/2002	between the beach & trap 15	667624	2951158	observed	some photos
Holbrookia propinqua propinqua	6/18/--10/09/2002	between the beach & trap 15	667637	2951187	observed	some photos
Holbrookia propinqua propinqua	6/18/--10/09/2002	between the beach & trap 15	667691	2951181	observed	some photos
Holbrookia propinqua propinqua	6/18/--10/09/2002	between the beach & trap 15	667679	2951209	observed	some photos
Holbrookia propinqua propinqua	6/18/--10/09/2002	between the beach & trap 15	667694	2951239	observed	some photos
Holbrookia propinqua propinqua	6/18/--10/09/2002	between the beach & trap 15	667716	2951201	observed	some photos
Holbrookia propinqua propinqua	6/18/--10/09/2002	between the beach & trap 15	667747	2951149	observed	some photos
Holbrookia propinqua propinqua	6/18/--10/09/2002	between the beach & trap 15	667771	2951111	observed	some photos
Holbrookia propinqua propinqua	6/18/--10/09/2002	between the beach & trap 15	667774	2951055	observed	some photos
Holbrookia propinqua propinqua	6/18/--10/09/2002	between the beach & trap 15	667765	2950997	observed	some photos
Holbrookia propinqua propinqua	6/18/--10/09/2002	between the beach & trap 15	667760	2950928	observed	some photos
Holbrookia propinqua propinqua	6/18/--10/09/2002	between the beach & trap 15	667747	2950878	observed	some photos
Holbrookia propinqua propinqua	6/18/--10/09/2002	between the beach & trap 15	667691	2950888	observed	some photos
Holbrookia propinqua propinqua	6/18/--10/09/2002	between the beach & trap 15	667648	2950952	observed	some photos
Holbrookia propinqua propinqua	6/18/--10/09/2002	between the beach & trap 15	667605	2950945	observed	some photos
Holbrookia propinqua propinqua	6/18/--10/09/2002	between the beach & trap 15	667586	2950906	observed	some photos
Holbrookia propinqua propinqua	6/18/--10/09/2002	between the beach & trap 15	667547	2950949	observed	some photos
Holbrookia propinqua propinqua	6/18/--10/09/2002	between the beach & trap 15	667518	2950987	observed	some photos
Holbrookia propinqua propinqua	6/18/--10/09/2002	between the beach & trap 15	667452	2950982	observed	some photos
Holbrookia propinqua propinqua	6/18/--10/09/2002	between the beach & trap 15	667408	2950979	observed	some photos
Holbrookia propinqua propinqua	6/18/--10/09/2002	between the beach & trap 15	667390	2950998	observed	some photos
Holbrookia propinqua propinqua	6/18/--10/09/2002	between the beach & trap 15	667367	2950992	observed	some photos
Holbrookia propinqua propinqua	6/18/--10/09/2002	between the beach & trap 15	667342	2950994	observed	some photos
Holbrookia propinqua propinqua	6/18/--10/09/2002	between the beach & trap 15	667294	2950971	observed	some photos
Holbrookia propinqua propinqua	6/18/--10/09/2002	between the beach & trap 15	667274	2950999	observed	some photos
Holbrookia propinqua propinqua	6/18/--10/09/2002	between the beach & trap 15	667257	2951025	observed	some photos
Holbrookia propinqua propinqua	6/18/--10/09/2002	between the beach & trap 15	667335	2951116	observed	some photos
Holbrookia propinqua propinqua	6/18/--10/09/2002	between the beach & trap 15	667253	2951117	observed	some photos
Holbrookia propinqua propinqua	5/26/2002	100 m south of trap 15	667217	2950921	observed	some photos
Holbrookia propinqua propinqua	5/26/2002	500 m south of trap 15	667216	2950622	observed	some photos

SPECIES	DATE(S)	Location	Easting	Northing	Type of Record	Comments
Holbrookia propinqua propinqua	5/26/2002	500 m south of trap 15	667216	2950594	observed	some photos
Holbrookia propinqua propinqua	5/20/2003	~200 m E. of trap 14	666415	2954942	observed	
Holbrookia propinqua propinqua	5/20/2003	~200 m E. of trap 14	666436	2954940	observed	
Holbrookia propinqua propinqua	5/20/2003	~400 m E. of trap 14	666605	2954968	observed	
Holbrookia propinqua propinqua	5/20/2003	~400 m E. of trap 14	666628	2954976		
Holbrookia propinqua propinqua	5/25/2002	~38 mi down island -beach	662528	2972385	observed	required VES
Holbrookia propinqua propinqua	5/25/2002	~38 mi down island -beach	662492	2972378	observed	required VES
Holbrookia propinqua propinqua	5/25/2002	~38 mi down island -beach	662487	2972314	observed	required VES
Holbrookia propinqua propinqua	5/25/2002	~38 mi down island -beach	662496	2972270	observed	required VES
Holbrookia propinqua propinqua	5/25/2002	~38 mi down island -beach	662503	2972210	observed	required VES
Holbrookia propinqua propinqua	5/25/2002	~38 mi down island -beach	662522	2972146	observed	required VES
Holbrookia propinqua propinqua	5/25/2002	~38 mi down island -beach	662526	2972092	observed	required VES
Holbrookia propinqua propinqua	5/25/2002	~38 mi down island -beach	662527	2972038	observed	required VES
Holbrookia propinqua propinqua	5/25/2002	~38 mi down island -beach	662527	2971995	observed	required VES
Holbrookia propinqua propinqua	5/25/2002	~38 mi down island -beach	662543	2971931	observed	required VES
Holbrookia propinqua propinqua	5/26/2002	near trap 16	669629	2944237	observed	trapsite VES
Holbrookia propinqua propinqua	5/26/2002	near trap 16	669637	2944206	observed	trapsite VES
Holbrookia propinqua propinqua	5/26/2002	near trap 16	669632	2944173	observed	trapsite VES
Holbrookia propinqua propinqua	5/26/2002	near trap 16	669866	2944209	observed	trapsite VES
Holbrookia propinqua propinqua	5/26/2002	near trap 16	669846	2944199	observed	trapsite VES
Holbrookia propinqua propinqua	5/26/2002	near trap 16	669822	2944207	observed	trapsite VES
Holbrookia propinqua propinqua	5/26/2002	near trap 16	669798	2944206	observed	trapsite VES
Holbrookia propinqua propinqua	5/26/2002	near trap 16	669806	2944180	observed	trapsite VES
Holbrookia propinqua propinqua	5/26/2002	near trap 16	669892	2944205	observed	trapsite VES
Holbrookia propinqua propinqua	5/26/2002	near trap 16	669681	2944196	observed	trapsite VES
Holbrookia propinqua propinqua	5/26/2002	near trap 16	669703	2944197	observed	trapsite VES
Holbrookia propinqua propinqua	5/26/2002	near trap 16	669575	2944195	observed	trapsite VES
Holbrookia propinqua propinqua	5/26/2002	near trap 16	669560	2944195	observed	trapsite VES
Holbrookia propinqua propinqua	5/26/2002	near trap 16	669463	2944192	observed	trapsite VES
Holbrookia propinqua propinqua	5/26/2002	near trap 16	669476	2944190	observed	trapsite VES
Holbrookia propinqua propinqua	5/26/2002	near trap 16	669258	2944183	observed	trapsite VES
Holbrookia propinqua propinqua	5/26/2002	near trap 16	669243	2944182	observed	trapsite VES
Holbrookia propinqua propinqua	5/26/2002	near trap 16	669622	2944098	observed	trapsite VES
Holbrookia propinqua propinqua	5/26/2002	near trap 16	669625	2944114	observed	trapsite VES
Holbrookia propinqua propinqua	5/26/2002	near trap 16	669633	2943927	observed	trapsite VES
Holbrookia propinqua propinqua	5/26/2002	near trap 16	669632	2943912	observed	trapsite VES
Holbrookia propinqua propinqua	5/26/2002	near trap 16	669637	2943812	observed	trapsite VES
Holbrookia propinqua propinqua	5/26/2002	near trap 16	669636	2943825	observed	trapsite VES
Holbrookia propinqua propinqua	5/26/2002	near trap 16	669597	2944554	observed	trapsite VES
Holbrookia propinqua propinqua	5/26/2002	near trap 16	669598	2944528	observed	trapsite VES
Holbrookia propinqua propinqua	various - 5/30 - 10/9/2002	near trap 16	669863	2944167	observed	walking to traps every day
Holbrookia propinqua propinqua	various - 5/30 - 10/9/2002	near trap 16	669871	2944130	observed	walking to traps every day
Holbrookia propinqua propinqua	various - 5/30 - 10/9/2002	near trap 16	669866	2944095	observed	walking to traps every day
Holbrookia propinqua propinqua	various - 5/30 - 10/9/2002	near trap 16	669820	2944121	observed	walking to traps every day
Holbrookia propinqua propinqua	various - 5/30 - 10/9/2002	near trap 16	669785	2944141	observed	walking to traps every day
Holbrookia propinqua propinqua	various - 5/30 - 10/9/2002	near trap 16	669862	2944271	observed	walking to traps every day
Holbrookia propinqua propinqua	various - 5/30 - 10/9/2002	near trap 16	669830	2944321	observed	walking to traps every day

SPECIES	DATE(S)	Location	Easting	Northing	Type of Record	Comments
Holbrookia propinqua propinqua	various - 5/30 - 10/9/2002	near trap 16	669831	2944260	observed	walking to traps every day
Holbrookia propinqua propinqua	various - 5/30 - 10/9/2002	near trap 16	669770	2944259	observed	walking to traps every day
Holbrookia propinqua propinqua	various - 5/30 - 10/9/2002	near trap 16	669741	2944261	observed	walking to traps every day
Holbrookia propinqua propinqua	various - 5/30 - 10/9/2002	near trap 16	669666	2944270	observed	walking to traps every day
Holbrookia propinqua propinqua	various - 5/30 - 10/9/2002	near trap 16	669690	2944360	observed	walking to traps every day
Holbrookia propinqua propinqua	various - 5/30 - 10/9/2002	near trap 16	669680	2944442	observed	walking to traps every day
Holbrookia propinqua propinqua	various - 5/30 - 10/9/2002	near trap 16	669747	2944451	observed	walking to traps every day
Holbrookia propinqua propinqua	various - 5/30 - 10/9/2002	near trap 16	669834	2944150	observed	walking to traps every day
Holbrookia propinqua propinqua	various - 5/30 - 10/9/2002	near trap 16	669742	2944163	observed	
Holbrookia propinqua propinqua	5/5 -- 6/26/2002	trap 3	669308	3037655	trapped 11 individuals	
Holbrookia propinqua propinqua	5/23, 7/18/2002	trap 5	665374	3030677	trapped 2 individuals	
Holbrookia propinqua propinqua	7/27/2002	trap 10	661477	2978278	trapped 1 individuals	
Holbrookia propinqua propinqua	6/21--6/28/2002	trap 12	661700	2975716	trapped 3 individuals	
Holbrookia propinqua propinqua	7/18--10/9/2002	trap 15	667217	2951063	trapped 23 individuals	
Holbrookia propinqua propinqua	7/18--7/31/2002	Trap 16	669611	2944208	trapped 21 individuals	
Holbrookia propinqua propinqua	various - 5/15--7/31/2002	around gate at ~7 mile marker	664548	3023048	observed frequently	opening gate and driving in
Holbrookia propinqua propinqua	various - 5/15--7/31/2002	around gate at ~7 mile marker	664523	3023060	observed frequently	opening gate and driving in
Holbrookia propinqua propinqua	various - 5/15--7/31/2002	around gate at ~7 mile marker	664498	3023083	observed frequently	opening gate and driving in
Holbrookia propinqua propinqua	various - 5/15--7/31/2002	around gate at ~7 mile marker	664490	3023134	observed frequently	opening gate and driving in
Holbrookia propinqua propinqua	various - 5/15--7/31/2002	around gate at ~7 mile marker	664472	3023169	observed frequently	opening gate and driving in
Holbrookia propinqua propinqua	various - 5/15--7/31/2002	around gate at ~7 mile marker	664444	3023200	observed frequently	opening gate and driving in
Holbrookia propinqua propinqua	various - 5/15--7/31/2002	around gate at ~7 mile marker	664381	3023203	observed frequently	opening gate and driving in
Holbrookia propinqua propinqua	various - 5/15--7/31/2002	around gate at ~7 mile marker	664430	3023157	observed frequently	opening gate and driving in
Holbrookia propinqua propinqua	various - 5/15--7/31/2002	around gate at ~7 mile marker	664459	3023090	observed frequently	opening gate and driving in
Holbrookia propinqua propinqua	various - 5/15--7/31/2002	around gate at ~7 mile marker	664481	3023020	observed frequently	opening gate and driving in
Holbrookia propinqua propinqua	various - 5/15--7/31/2002	around gate at ~7 mile marker	664340	3023132	observed frequently	opening gate and driving in
Holbrookia propinqua propinqua	various - 5/15--7/31/2002	around gate at ~7 mile marker	664323	3023038	observed frequently	opening gate and driving in
Holbrookia propinqua propinqua	various - 5/15--7/31/2002	around gate at ~7 mile marker	664297	3022919	observed frequently	opening gate and driving in
Holbrookia propinqua propinqua	various - 5/15--7/31/2002	around gate at ~7 mile marker	664249	3022785	observed frequently	opening gate and driving in
Holbrookia propinqua propinqua	various - 5/15--7/31/2002	around gate at ~7 mile marker	664202	3022663	observed frequently	opening gate and driving in
Holbrookia propinqua propinqua	various - 5/15--7/31/2002	around gate at ~7 mile marker	664144	3022568	observed frequently	opening gate and driving in
Holbrookia propinqua propinqua	various - 5/15--7/31/2002	around gate at ~7 mile marker	664099	3022457	observed frequently	opening gate and driving in
Holbrookia propinqua propinqua	various - 5/15--7/31/2002	around gate at ~7 mile marker	664045	3022354	observed frequently	opening gate and driving in
Holbrookia propinqua propinqua	various - 5/15--7/31/2002	around gate at ~7 mile marker	664000	3022248	observed frequently	opening gate and driving in
Holbrookia propinqua propinqua	various - 5/15--7/31/2002	around gate at ~7 mile marker	663964	3022075	observed frequently	opening gate and driving in
Holbrookia propinqua propinqua	various - 5/15--7/31/2002	around gate at ~3.5 mi. marker	666089	3028461	observed frequently	opening gate and driving in
Holbrookia propinqua propinqua	various - 5/15--7/31/2002	around gate at ~3.5 mi. marker	666029	3028483	observed frequently	opening gate and driving in
Holbrookia propinqua propinqua	various - 5/15--7/31/2002	around gate at ~3.5 mi. marker	666001	3028553	observed frequently	opening gate and driving in
Holbrookia propinqua propinqua	various - 5/15--7/31/2002	around gate at ~3.5 mi. marker	665997	3028634	observed frequently	opening gate and driving in
Holbrookia propinqua propinqua	various - 5/15--7/31/2002	around gate at ~3.5 mi. marker	665883	3028655	observed frequently	opening gate and driving in
Holbrookia propinqua propinqua	various - 5/15--7/31/2002	around gate at ~3.5 mi. marker	665784	3028678	observed frequently	opening gate and driving in
Holbrookia propinqua propinqua	various - 5/15--7/31/2002	around gate at ~3.5 mi. marker	665676	3028726	observed frequently	opening gate and driving in
Holbrookia propinqua propinqua	various - 5/15--7/31/2002	around gate at ~3.5 mi. marker	665549	3028782	observed frequently	opening gate and driving in
Holbrookia propinqua propinqua	various - 5/15--7/31/2002	around gate at ~3.5 mi. marker	665435	3028810	observed frequently	opening gate and driving in
Holbrookia propinqua propinqua	various - 5/15--7/31/2002	around gate at ~3.5 mi. marker	665752	3028627	observed frequently	opening gate and driving in
Holbrookia propinqua propinqua	8/1/2002	around trap 3	669296	3038101	yes	
Holbrookia propinqua propinqua	8/1/2002	around trap 3	669312	3037680	yes	

SPECIES	DATE(S)	Location	Easting	Northing	Type of Record	Comments
Holbrookia propinqua propinqua	8/1/2002	around trap 3	669300	3037622	ves	
Holbrookia propinqua propinqua	8/1/2002	around trap 3	669287	3037584	ves	
Holbrookia propinqua propinqua	8/1/2002	around trap 3	669273	3037535	ves	
Holbrookia propinqua propinqua	8/1/2002	around trap 3	669265	3037501	ves	
Holbrookia propinqua propinqua	8/1/2002	around trap 3	669246	3037459	ves	
Holbrookia propinqua propinqua	8/1/2002	around trap 3	669245	3037428	ves	
Holbrookia propinqua propinqua	8/1/2002	around trap 3	669212	3037362	ves	
Holbrookia propinqua propinqua	8/1/2002	around trap 3	669175	3037245	ves	
Holbrookia propinqua propinqua	4/21/1962	8 mi. S Bob Hall Pier	670453	3040578	museum record - TCWC-18002	
Holbrookia propinqua propinqua	4/21/1962	8 mi. S Bob Hall Pier	670548	3040808	museum record - TCWC-18003	
Holbrookia propinqua propinqua	4/21/1962	8 mi. S Bob Hall Pier	670481	3040620	museum record - TCWC-18004	
Holbrookia propinqua propinqua	4/15/1961	8 mi. S Bob Hall Pier	670508	3040707	museum record - TCWC-18010	
Holbrookia propinqua propinqua	4/15/1961	8 mi. S Bob Hall Pier	670574	3040843	museum record - TCWC-18011	
Holbrookia propinqua propinqua	4/15/1961	8 mi. S Bob Hall Pier	670424	3040525	museum record - TCWC-18012	
Holbrookia propinqua propinqua	4/15/1961	8 mi. S Bob Hall Pier	670528	3040753	museum record - TCWC-18013	
Holbrookia propinqua propinqua	4/15/1961	8 mi. S Bob Hall Pier	670480	3040658	museum record - TCWC-18014	
Holbrookia propinqua propinqua	8/26/1966	3 mi. S Bob Hall Pier	673665	3047680	museum record - TCWC-22784	
Holbrookia propinqua propinqua	8/26/1966	3 mi. S Bob Hall Pier	673664	3047736	museum record - TCWC-22785	
Holbrookia propinqua propinqua	1965	Old Dunn Ranch	669692	3038655	museum record- NPS-439	
Holbrookia propinqua propinqua	1965	Old Dunn Ranch	669670	3038604	museum record- NPS-443	
Holbrookia propinqua propinqua	1965	Old Dunn Ranch	669658	3038537	museum record- NPS-444	
Holbrookia propinqua propinqua	1965	Old Dunn Ranch	669621	3038474	museum record- NPS-445	
Holbrookia propinqua propinqua	1965	Old Dunn Ranch	669595	3038418	museum record- NPS-446	
Holbrookia propinqua propinqua	1965	Old Dunn Ranch	669555	3038355	museum record- NPS-447	
Holbrookia propinqua propinqua	10/10/1964	5 mi. S. Bob Hall Pier	672325	3044977	museum record- UT-46303	
Holbrookia propinqua propinqua	10/10/1964	5 mi. S. Bob Hall Pier	672323	3045084	museum record- UT-50067	
Holbrookia propinqua propinqua	10/10/1964	5 mi. S. Bob Hall Pier	672263	3044870	museum record- UT-50068	
Holbrookia propinqua propinqua	10/10/1964	5 mi. S. Bob Hall Pier	672356	3045013	museum record- UT-50515	
Holbrookia propinqua propinqua	1962	11.5 mi. S. Bob Hall Pier	668354	3035152	museum rec. TAMUK-44	
Holbrookia propinqua propinqua	1970	15 mi. S. Bob Hall Pier	666529	3029787	museum rec. TAMUK-1632	
Holbrookia propinqua propinqua	1968 (55)	18 mi. S. Bob Hall Pier	665094	3025234	museum rec. TAMUK-1504	55 individuals
Holbrookia propinqua propinqua	1965	22 mi. S. Bob Hall Pier	663571	3019005	museum rec. TAMUK-1550	
Holbrookia propinqua propinqua	1969	5 mi. S. Bob Hall Pier	672366	3044877	museum rec. TAMUK-2574	
Holbrookia propinqua propinqua	1969	5 mi. S. Bob Hall Pier	672423	3044995	museum rec. TAMUK-2575	
Holbrookia propinqua propinqua	1969	Dunn Ranch	669705	3038704	museum rec. TAMUK-1880	
Holbrookia propinqua propinqua	1982	PINS outskirts	671136	3042118	museum rec. TAMUK-5193	
Hyla cinerea	various - 4/1-10/3/2003	all freshwater locations	667746	3034321	heard-recorded	most common calling frog
Hyla cinerea	various - 4/1-10/3/2003	all freshwater locations	667651	3034483	heard-recorded	most common calling frog
Hyla cinerea	various - 4/1-10/3/2003	all freshwater locations	666921	3034563	heard-recorded	most common calling frog
Hyla cinerea	various - 4/1-10/3/2003	all freshwater locations	666806	3034205	heard-recorded	most common calling frog
Hyla cinerea	various - 4/1-10/3/2003	all freshwater locations	667830	3034917	heard-recorded	most common calling frog
Hyla cinerea	various - 4/1-10/3/2003	all freshwater locations	667827	3035184	heard-recorded	most common calling frog
Hyla cinerea	various - 4/1-10/3/2003	all freshwater locations	667836	3036432	heard-recorded	most common calling frog
Hyla cinerea	various - 4/1-10/3/2003	all freshwater locations	668149	3036793	heard-recorded	most common calling frog
Hyla cinerea	various - 4/1-10/3/2003	all freshwater locations	668476	3037154	heard-recorded	most common calling frog
Hyla cinerea	various - 4/1-10/3/2003	all freshwater locations	668637	3036963	heard-recorded	most common calling frog
Hyla cinerea	various - 4/1-10/3/2003	all freshwater locations	668761	3037633	heard-recorded	most common calling frog

SPECIES	DATE(S)	Location	Easting	Northing	Type of Record	Comments
Hyla cinerea	various - 4/1-10/3/2003	all freshwater locations	668664	3037884	heard-recorded	most common calling frog
Hyla cinerea	various - 4/1-10/3/2003	all freshwater locations	668823	3037901	heard-recorded	most common calling frog
Hyla cinerea	various - 4/1-10/3/2003	all freshwater locations	668383	3039098	heard-recorded	most common calling frog
Hyla cinerea	various - 4/1-10/3/2003	all freshwater locations	668301	3039290	heard-recorded	most common calling frog
Hyla cinerea	various - 4/1-10/3/2003	all freshwater locations	668209	3039185	heard-recorded	most common calling frog
Hyla cinerea	various - 4/1-10/3/2003	all freshwater locations	667956	3039285	heard-recorded	most common calling frog
Hyla cinerea	various - 4/1-10/3/2003	all freshwater locations	668230	3039571	heard-recorded	most common calling frog
Hyla cinerea	7/16/2002	near gate to waste treat. fac.	667611	3034483	collected spec. - photos PAIS075	
Hyla cinerea	5/27/2003	far north part of park	671119	3046350	collected tads - released	
Lampropeltis triangulum annulata	8/30/2002	20 m south of trap 1	667377	3039221	observed	
Lampropeltis triangulum annulata	6/7/2003	Bird Island Basin Road	667215	3039298	captured - photos	
Lampropeltis triangulum annulata	6/13/2002	Trap 4	667365	3033655	DIT-specimen-PAIS-020	
Lampropeltis triangulum annulata	6/10/2002	Trap 5	665411	3030700	collected spec. PAIS-040	photos
Lampropeltis triangulum annulata	1969	1 mi. N. of Ranger Station	668824	3038620	mus. rec. NPS-1175	
Lampropeltis triangulum annulata	1975	near N. entrance sign	670031	3042151	mus. rec. NPS-1777	
Lampropeltis triangulum annulata	1975	3 mile south of Bob Hall Pier	672577	3047914	mus. rec. NPS-1778	Park Rd 22
Lampropeltis triangulum annulata	1978	1 mi. S. grasslands on PINS	669792	3040601	mus. rec. TAMUK-4489	
Lampropeltis triangulum annulata	1985	1 mi. S. of Ranger Station	667945	3035594	mus. rec. TAMUK-5819	
Lampropeltis triangulum annulata	1987	2 mi. S. Ranger Station	667678	3033913	mus. rec. TAMUK-5747	
Lampropeltis triangulum annulata	1975	3 mi. S. Ranger Station	667064	3032312	mus. rec. TAMUK-3788	
Lampropeltis triangulum annulata	unknown	N. of Entrance Station	669812	3040710	mus. rec. TAMUK-5652	
Lampropeltis triangulum annulata	1985	Pk Rd. 22 PAIS	668747	3038367	mus. rec. TAMUK-5509	
Lampropeltis triangulum annulata	1985	1 mi.. S. of Ranger Station	667929	3035569	mus. rec. TAMUK-5224	
Masticophis flagellum testaceus	4/15/2002	1 mile N. of ent. station	669846	3041792	DOR	decomposed - did not collect
Masticophis flagellum testaceus	5/7/2002	.5 mile N. of entr. station	669720	3041287	DOR	decomposed - did not collect
Masticophis flagellum testaceus	5/6, 5/8, 5/23, 10/1/2002	Trap 1	667371	3039185	specimen 5/6 - PAIS-073	4 individuals
Masticophis flagellum testaceus	5/6(2), 6/20, 9/17/2002	Trap 4	667329	3033704	trapped 4	4 individuals
Masticophis flagellum testaceus	5/11, 6/8, 6/18/2002	Trap 5	665374	3030676	trapped 3	3 individuals
Masticophis flagellum testaceus	6/20(2), 10/4/2002	Trap 10	661484	2978292	trapped 3	3 individuals
Masticophis flagellum testaceus	7/26, 7/31, 10/9/2002	Trap 13	664495	2961761	trapped 3	3 individuals
Masticophis flagellum testaceus	7/20, 7/26, 10/2, 10/4/2002	Trap 14	666273	2954944	trapped 4	4 individuals
Masticophis flagellum testaceus	5/6, 7/18/2002	Trap 17	671409	2939621	trapped 2	2 individuals
Masticophis flagellum testaceus	8/27/1966	3 mi. S. of Bob Hall Pier	672584	3047799	Mus. Rec TCWC-22806	TCWC-22806
Masticophis flagellum testaceus	1965	10 mi. S. of county line	668178	3037483	Mus. Rec - NPS-325	NPS-325
Masticophis flagellum testaceus	1965	Dunn Ranch Site	669234	3038860	Mus. Rec - NPS-327	NPS-327
Masticophis flagellum testaceus	1965	Dunn Ranch Site	669317	3038838	Mus. Rec - NPS-328	NPS-328
Masticophis flagellum testaceus	1975	Ranger Station	668350	3037005	Mus. Rec - NPS-1781	NPS-1781
Masticophis flagellum testaceus	1980	Manhold E. of view tower	668527	3036927	Mus Rec. - NPS-2179	NPS-2179
Masticophis flagellum testaceus	11/26/1938	23 mi. S. of Port Aransas	673095	3048976	Mus. Rec. - TCWC-482	TCWC-482
Masticophis flagellum testaceus	1969	13 mi. S. Bob Hall Pier	667544	3032890	Mus. Rec. - TAMUK-1936	
Masticophis flagellum testaceus	1969	Dunn Ranch	669437	3038508	Mus. Rec. - TAMUK-1881	
Masticophis flagellum testaceus	1983	PINS N. Boundary	669978	3042085	Mus. Rec. - TAMUK-5353	
Nerodia rhombifer	1975	400 yds SW of Ranger Sta.	667987	3036695	museum rec. NPS-1901	
Nerodia rhombifer	1981	1 mile N. of Visitor Center	667978	3036587	museum rec. NPS-2200	
Nerodia rhombifer	4/1/2002	Bird Island Basin Rd. Pond	668095	3039304	observation	
Nerodia rhombifer	4/1/2002	Bird Island Basin Rd. Pond	668078	3039333	observation	
Nerodia rhombifer	4/1/2002	Bird Island Basin Rd. Pond	668087	3039270	observation	

SPECIES	DATE(S)	Location	Easting	Northing	Type of Record	Comments
Nerodia rhombifer	4/1/2002	Bird Island Basin Rd. Pond	668048	3039308	trapped 1 - photos - released	
Nerodia rhombifer	1987	1/2 mi. N. Ranger Station	668740	3037837	mus. rec. - TAMUK-5850	
Ophisaurus attenuatus	unknown	Dunn Ranch Site	669435	3038952	museum spec. NPS-442	
Ophisaurus attenuatus	unknown	Near Ranger Station	668468	3037285	museum spec. NPS-1814	
Ophisaurus attenuatus	7/24/1984	Bird Island Basin	667427	3039577	museum spec. NPS-2605	
Ophisaurus attenuatus	8/1/2002	1 m N. of Trap 4	667311	3033709	observation	
Ophisaurus attenuatus	8/2/2002	350 m E. of Trap 5	665021	3030675	observation	
Ophisaurus attenuatus	8/28/2002	100 m S. of trap 6	662226	3019118	observation	
Ophisaurus attenuatus	6/27/2002	willow thicket near BIB	667147	3039017	observation	
Ophisaurus attenuatus	6/27/2002	Dunn Ranch Site	669366	3038610	observation	
Ophisaurus attenuatus	5/4/2002	Trap 1	667375	3039268	trapped - photos	
Ophisaurus attenuatus	5/13, 6/23, 6/24/2002	Trap 2	667865	3037396	trapped - photos	
Ophisaurus attenuatus	5/26, 6/19/2002	Trap 4	667336	3033678	trapped -specimen - PAIS-021	
Ophisaurus attenuatus	6/1/2002	Trap 5	665425	3030687	trapped - photos	
Ophisaurus attenuatus	5/17, 6/19/2002	Trap 6	662244	3019235	trapped - photos	
Ophisaurus attenuatus	6/7/2002	Trap 7	660716	2998913	trapped - photos	
Ophisaurus attenuatus	6/21/2002	Trap 9	660031	2996134	trapped - photos	
Ophisaurus attenuatus	6/20/2002	Trap 12	661702	2975724	trapped - photos	
Ophisaurus attenuatus	6/14/2003	~200 m south of ent station	669075	3039474	DOR - specimen PAIS-100	
Ophisaurus attenuatus	6/8/2002	Back Is. Rd. ~22 mi marker	659703	2998651	DOR - specimen PAIS-38	
Ophisaurus attenuatus	1971	3 mi. S. of ent. to Back Rd.	660809	2999439	mus. spec.-TAMUK-2308	
Ophisaurus attenuatus	1965	3.5 mi. S. of Bob Hall Pier	673203	3047163	mus. spec.-TAMUK-341	
Ophisaurus attenuatus	1978	7.5 mi S. Nueces Co. Park	670047	3042205	mus. spec.-TAMUK-4545	
Ophisaurus attenuatus	1985	Campground Rd	668198	3035271	mus. spec.-TAMUK-5525	
Pseudacris clarkii	9/24/2003	150 m N. of V.C. parking lot	668196	3035072	audio, photos; spec- PAIS-113	spec # PAIS-113
Pseudacris clarkii	7/9/2003	100 m S. of Corpus City Limit	673554	3050343	recording of calling	
Pseudacris clarkii	9/24/2003	sea pines rd @ pk rd 22	675160	3052283	recording of calling	
Rana berlandieri	unknown	.5 mi. S. of Ranger Station	667971	3036519	Museum Record--NPS-2125	says Rana sp. only?
Rana berlandieri	3/1, 7/1/2002	Bird Island Basin Pond	667384	3039254	heard - recorded	
Rana berlandieri	2/15, 7/4, 7/8, 9/24/200	Bird Island Basin Pond	667390	3039282	heard - recorded	
Rana berlandieri	7/9/2003	100 m. S. of City Limit Sign	674871	3051628	heard - recorded	
Rana berlandieri	7/8, 7/9/2003	behind waste water treat.	666843	3034217	heard-recorded	
Rana berlandieri	7/8/2003	betw. corpus & PAIS bound.	673082	3049367	heard-recorded	calling in all wet locations
Rana berlandieri	7/8/2003	betw. corpus & PAIS bound.	673308	3049487	heard-recorded	
Rana berlandieri	7/8/2003	betw. corpus & PAIS bound.	673261	3049818	heard-recorded	
Rana berlandieri	7/8/2003	betw. corpus & PAIS bound.	673617	3050285	heard-recorded	
Rana berlandieri	9/24/2003	1 km NE of Ent Sta.	670140	3040707	heard - recorded	very many calling
Rana berlandieri	7/4/2003	just south of ent station	669641	3040327	DOR - Spec - PAIS-109	DOR
Rana berlandieri	7/4/2003	BIB Rd @ Pk Rd 22	668637	3039009	observed	
Rana berlandieri	7/4/2003	near gate to WWT plant	667582	3034261	observed	
Rana berlandieri	7/4/2003	Road to Bird Island Basin	668401	3039179	observed	
Rana berlandieri	7/4/2003	Road to Bird Island Basin	668178	3039279	observed	
Rana berlandieri	7/8/2003	200 m. N. of Entrance Sta.	669519	3040229	observed	
Rana berlandieri	7/21/2002	Trap 14	666226	2954886	trapped-specimen - PAIS-025	
Rana berlandieri	7/8/2003	~2.5 mi. S. of Kleberg Co. Lin	672552	3048098	heard-recorded	very many calling
Rana berlandieri	7/8/2003	~2.5 mi. S. of Kleberg Co. Lin	672570	3048183	heard-recorded	very many calling
Rana berlandieri	7/8/2003	~2.5 mi. S. of Kleberg Co. Lin	672597	3048289	heard-recorded	very many calling

SPECIES	DATE(S)	Location	Easting	Northing	Type of Record	Comments
Rana berlandieri	7/8/2003	~2.5 mi. S. of Kleberg Co. Lin	672657	3048369	heard-recorded	very many calling
Rana berlandieri	7/8/2003	~2.5 mi. S. of Kleberg Co. Lin	672779	3048339	heard-recorded	very many calling
Rana berlandieri	7/8/2003	~2.5 mi. S. of Kleberg Co. Lin	672752	3048254	heard-recorded	very many calling
Rana berlandieri	7/8/2003	~2.5 mi. S. of Kleberg Co. Lin	672693	3048132	heard-recorded	very many calling
Rana berlandieri	7/8/2003	~2.5 mi. S. of Kleberg Co. Lin	672624	3048041	heard-recorded	very many calling
Scaphiopus hurterii	6/28/2002 - 7/15/2002		667971	3035268	Recording	
Scaphiopus hurterii	5/7/2002--5/30/2002	Trap 4	667340	3033675	Trapped (9) – specs – PAIS-004,005,031	
Scaphiopus hurterii	6/28/2002--7/15/2002	all ephemeral freshwater	667984	3035536	Audio- spec - DOR PAIS-051(2)	
Scaphiopus hurterii	6/28/2002--7/15/2002	all ephemeral freshwater	668345	3036892	Calling Frog - Recording	
Scaphiopus hurterii	6/28/2002--7/15/2002	all ephemeral freshwater	668651	3037346	Calling Frog - Recording	
Scaphiopus hurterii	6/28/2002--7/15/2002	all ephemeral freshwater	668922	3038760	Calling Frog - Recording	
Scaphiopus hurterii	6/28/2002--7/15/2002	all ephemeral freshwater	668509	3039021	Calling Frog - Recording	
Scaphiopus hurterii	6/28/2002--7/15/2002	all ephemeral freshwater	668711	3038974	Calling Frog - Recording	
Scaphiopus hurterii	6/28/2002--7/15/2002	all ephemeral freshwater	669026	3039353	Calling Frog - Recording	
Scaphiopus hurterii	6/28/2002--7/15/2002	all ephemeral freshwater	669243	3039740	Calling Frog - Recording	
Scaphiopus hurterii	6/28/2002--7/15/2002	all ephemeral freshwater	669432	3039567	Calling Frog - Recording	
Scaphiopus hurterii	5/4/2002--6/7/2002	Trap 1	667390	3039247	Trapped (18)- photos - specs	18 individuals
Scaphiopus hurterii	6/28/2002--7/15/2002	all ephemeral freshwater	669749	3040322	Calling Frog - Recording	
Scaphiopus hurterii	6/28/2002--7/15/2002	all ephemeral freshwater	670139	3040611	Calling Frog - Recording	
Scaphiopus hurterii	5/4/2002--6/3/2002	Trap 2	667833	3037360	Trapped (3)-photos-specs	
Scaphiopus hurterii	6/28/2002--7/15/2002	all ephemeral freshwater	667639	3034138	Calling Frog - Recording	
Scaphiopus hurterii	5/4/2002--5/18/2002	Trap 5	665393	3030680	trapped (4) - Photos	
Scaphiopus hurterii	8/30/2002	south of trap 1	667382	3039097	observed	
Scaphiopus hurterii	8/30/2002	south of trap 1	667380	3039077	observed	
Scaphiopus hurterii	8/30/2002	south of trap 1	667380	3039052	observed	
Scaphiopus hurterii	1981	BIB washout	667465	3039427	museum spec-NPS2218	
Scaphiopus hurterii	1981	BIB washout	667519	3039450	museum spec-NPS2214	
Scaphiopus hurterii	1983	Ranger Station	668387	3037120	museum spec-TAMUK-5259	
Scaphiopus hurterii	1983	Ranger Station	668400	3037144	museum spec.-TAMUK-5261	
Scaphiopus hurterii	1965	10 mi. S. Kleberg Co Line	668035	3036778	museum spec.-NPS-455	
Scaphiopus hurterii	1965	1 mi. S. Bob Hall Pier	674899	3050831	museum spec-NPS-452	
Scaphiopus hurterii	1965	near Nueces Co. Park	675937	3053213	museum spec-NPS470	
Scincella lateralis	10/14/1968	Ranger Station	668396	3037066	Museum Spec. NPS-1149	
Scincella lateralis	5/12, /24, 6/23/2002	Trap 1	667395	3039271	trapped - some photos	3 individuals
Scincella lateralis	5/10, 5/24, 4/31/2002	Trap 2	667840	3037363	trapped - some photos	3 individuals
Scincella lateralis	5/5, 5/13, 5/30, 6/20/02 (2)	Trap 4	667344	3033669	trapped-spec (5/5) PAIS-060	4 individuals
Scincella lateralis	5/8, 5/13, 5/30, 6/20/2002	Trap 5	665377	3030673	trapped - some photos	5 individuals
Scincella lateralis	5/14, 5/24, 5/31/2002	Trap 6	662240	3019254	trapped - some photos	3 individuals
Scincella lateralis	6/25/2002	Trap 8	660078	2997311	trapped - some photos	1 individuals
Scincella lateralis	6/22, 6/25/2002	Trap 11	661648	2977434	trapped - some photos	I question this rec. wrong Hab
Scincella lateralis	1984	Bird Island Basin	667196	3039497	TAMUK-5514 (15?)	
Scincella lateralis	1978	Yarborough Pass	661147	3010460	TAMUK-4477	
Scincella lateralis	11/16/1979	Novillo Line Camp	669365	3038707	NPS-2025	Mis ID Eumeces septentrionalis
Sistrurus catenatus	7/1968	Padre Is. - 20 mi. S. Corpus Christi	663631	3021613	LSUMZ-23269	R. Earl Olsen
Sistrurus catenatus tergeminus	8/27/1966	3 mi. S. of Bob Hall Pier	672881	3047178	TCWC-22811	
Sistrurus catenatus edwardsi	10/15/1968	Rang. Sta. (old Caffey Barr)	668461	3036893	NPS-1150	

SPECIES	DATE(S)	Location	Easting	Northing	Type of Record	Comments
Sistrurus catenatus edwardsi	5/28/75	Near Nueces Co. Line	674885	3051726	NPS-1779	
Sistrurus catenatus tergeminus	1984	Bird Island Basin	667302	3039474	NPS-2602	
Sistrurus catenatus	1984	Ranger Station	668469	3037014	NPS-2603	
Sistrurus catenatus tergeminus	5/1/02	near Trap 4	667380	3033739	collected - PAIS-009	
Sistrurus catenatus	6/15/2002	Pk Rd. 22 near ent. station	669482	3040078	DOR - PAIS-036	
Sistrurus catenatus	6/14/2002	Road to trap 6	662528	3020247	DOR – Spec	spec. stil in freezer at NPS?
Sistrurus catenatus	6/1/02	Trap 1	667463	3039244	trapped - photos	
Sistrurus catenatus	6/22/02	Trap 4	667391	3033684	trapped - photos	
Sistrurus catenatus tergeminus	no date	1 mi S. Ranger Station	667921	3035452	museum rec. TAMUK-5524	
Sistrurus catenatus tergeminus	1968	18 mi. S Bob Hall Pier	665435	3026212	museum rec. TAMUK-1503	
Sistrurus catenatus tergeminus	1968	5 mi. S. Bob Hall Pier	672688	3045949	museum rec. TAMUK-1725	
Sistrurus catenatus tergeminus	1969	Ranger Station	668394	3037018	museum rec. TAMUK-114	
Sistrurus catenatus	no date	Caffey Bombing Target	unk	unk	museum rec. NPS-231	
Tantilla gracilis	9/3/1985	Rang. Sta-behind Carp. Shop	668422	3036903	Mus. Record - NPS-2613	
Tantilla gracilis	5/24/2002	Trap 2	667853	3037393	trapped - photos - released	
Tantilla gracilis	5/12/2002	Trap 5	665409	3030707	trapped-specimen-PAIS-010	
Tantilla gracilis	6/15/02	Trap 8	660094	2997316	trapped-released	
Tantilla gracilis	1983	Ranger Station	668453	3036996	mus. rec. - TAMUK-5262	
Thamnophis marcianus	7/5/1962	5 mi. S. Bob Hall Pier	671939	3046025	Mus. Record TCWC-18997	
Thamnophis marcianus	1975	1 mi. S. of Bob Hall Pier	674825	3050881	Museum Record-NPS-1780	
Thamnophis marcianus	1984	Betw. Rang. Sta. and BIB	668753	3038006	Museum Rec.-NPS2604	
Thamnophis marcianus	1978	3 mi. N. of Visitor Center	669328	3039864	Museum Rec.-NPS-1896	
Thamnophis marcianus	6/6/05?	BIB Rd.	668460	3039016	Museum Rec-NPS-2606	
Thamnophis marcianus	7/3/2003	BIB Rd. just past pond	667175	3039232	observation- very decomposed	
Thamnophis marcianus	5/3/2002	Near Trap 1	667355	3039201	observed	
Thamnophis marcianus	7/4/2003	BIB Rd. ~1 km W Pk Rd 22	667931	3039388	DOR - PAIS-112	
Thamnophis proximus orarius	7/4/2003	1 km N. of Entrance Station	669767	3041038	DOR - PAIS-111	
Thamnophis proximus orarius	7/4/2002	PR 22 - in front of Ranger Sta	668336	3037170	DOR - PAIS-029	
Thamnophis proximus orarius	7/18/2002	In front of Visitor Center	667951	3034921	DOR - PAIS-027	
Thamnophis proximus orarius	5/18/02	BIB Rd. ~600 m from PR 22	668357	3039201	DOR - PAIS-028	
Thamnophis proximus orarius	7/25/2002	~600 m SW of V.C. on PR 22	667590	3034193	DOR - PAIS-018	
Thamnophis proximus orarius	7/30/2002	~1 km NNW of VC	667922	3035648	DOR - PAIS-045	
Thamnophis proximus orarius	9/24/2002	BIB Rd. ~700 m from PR 22	668244	3039243	DOR - PAIS-030	
Thamnophis proximus orarius	5/10, 5/30, 6/2/2002	Trap 4	667348	3033686	trapped - released	
Thamnophis proximus orarius	5/15/2002	Trap 5	665395	3030715	trapped - released	
Thamnophis proximus orarius	1978	3 mi. N. of Visitor Center	669135	3039555	museum record - NPS-1896	
Thamnophis proximus orarius	1985	1 mi. N. Ranger Station	668821	3038678	museum record-TAMUK-5527	
Thamnophis proximus orarius	7/4/2002	30 m. North of Ent. Sta.	669478	3040104	DOR - PAIS-120	
Trachemys scripta elegans	5/1/1978	1 mi. N. Ranger Station	668813	3038491	mus. spec - NPS 1910	
Trachemys scripta elegans	5/1/1978	1 mi. N. Ranger Station	668801	3038516	mus. spec. NPS-1911	
Trachemys scripta elegans	2/22/1981	Sewage Lagoon	667186	3034229	mus. spec. NPS-2201	
Trachemys scripta elegans	7/3/2002	near visitor center on road	667947	3035043	observation	
Trachemys scripta elegans	5/6/2002	~1 mi S. Ranger Sta.	667982	3035629	observation	
Trachemys scripta elegans	6/28/2002	~1/2 mi S. Ranger Sta.	667991	3036579	observation	
Trachemys scripta elegans	7/14/2002	BIB Rd near permanent pond	668150	3039274	observation	
Trachemys scripta elegans	6/1/2002	on beach near end of pk rd 22	667789	3033283	observation	
Trachemys scripta elegans	5/19/2002	Waste Water Treatment pond	667222	3034178	observation	

SPECIES	DATE(S)	Location	Easting	Northing	Type of Record	Comments
Trachemys scripta elegans	5/22--5/26/2003	Trap T1	667229	3034191	trapped-photos	
Trachemys scripta elegans	5/22--5/26/2003	Trap T2	668029	3036620	trapped-photos	
Trachemys scripta elegans	5/22--5/26/2003	Trap T3	668101	3039226	trapped-photos	
Tropidoclonion lineatum	1980	South Bird Island	667394	3042108	museum rec.- TAMUK4892	haven't confirmed this spec.

Appendix 2. Trap data for reptile and amphibian survey of Padre Island National Seashore; May 2002 – October 2002.

Date	Trap #	Genus	Species	Subspecies	Comments
5/3/2002	1	Thamnophis	marcianus	marcianus	specimen
5/3/2002					open traps 1-4
5/4/2002	1	Ophisaurus	attenuatus	attenuatus	Specimen collected
5/4/2002	1	Scaphiopus	hurterii		Specimen collected
5/4/2002	1	Scaphiopus	hurterii		Specimen collected
5/4/2002	1	Scaphiopus	hurterii		released
5/4/2002	2	Scaphiopus	hurterii		released
5/4/2002	4	Reithrodontomys	fulvescens		released-photo
5/5/2002	2	Aspidoscelis	sexlineatus	sexlineatus	Specimen collected
5/5/2002	3	Holbrookia	propinqua	propinqua	Specimen collected
5/5/2002	4	Scincella	lateralis		Specimen collected
5/6/2002	1	Masticophis	flagellum	testaceus	specimen collected
5/6/2002	4	Geomys			released
5/6/2002	4	Masticophis	flagellum	testaceus	released
5/6/2002	4	Masticophis	flagellum	testaceus	released
5/6/2002	17	Crab			photos
5/6/2002	17	Dipodomys	sp.		
5/6/2002	17	Holbrookia	propinqua	propinqua	photos
5/6/2002	17	Holbrookia	propinqua	propinqua	photos
5/6/2002	17	Holbrookia	propinqua	propinqua	photos
5/6/2002	17	Holbrookia	propinqua	propinqua	photos
5/6/2002	17	Holbrookia	propinqua	propinqua	photos
5/6/2002	17	Masticophis	flagellum	testaceus	released
5/6/2002	17	mouse			photos
5/6/2002					open trap 17
5/7/2002	4	Scaphiopus	hurterii		desiccated
5/7/2002					close trap 17
5/7/2002					open trap 5
5/8/2002	1	Masticophis	flagellum		released
5/8/2002	4	Dipodomys			released
5/8/2002	5	Scaphiopus	hurterii		released-photo
5/8/2002	5	Scaphiopus	hurterii		desiccated
5/8/2002	5	Scincella	lateralis		released-photo
5/9/2002	5	Dipodomys	sp.		released-photo
5/10/2002	1	Scaphiopus	hurterii		dead
5/10/2002	2	Scincella	sp.		
5/10/2002	3	Holbrookia	propinqua	propinqua	released
5/10/2002	3	Holbrookia	propinqua	propinqua	Dead-desiccated
5/10/2002	3	Holbrookia	propinqua	propinqua	released
5/10/2002	4	Scaphiopus	hurterii		dead
5/10/2002	4	Scaphiopus	hurterii		dead
5/10/2002	4	Thamnophis	proximus	orarius	released
5/11/2002	3	Holbrookia	propinqua	propinqua	released
5/11/2002	5	Aspidoscelis	sexlineatus		holding
5/11/2002	5	Masticophis	flagellum	testaceus	released
5/12/2002	1	Scincella	lateralis		released
5/12/2002	5	Tantilla	gracilis		collected
5/13/2002	2	Ophisaurus	attenuatus	attenuatus	released
5/13/2002	4	Scincella	lateralis		released-photo
5/13/2002	5	Scincella	lateralis		dead
5/13/2002	6	Aspidoscelis	sexlineatus		collected
5/14/2002	4	Scaphiopus	hurterii		Specimen collected
5/14/2002	6	Scincella	lateralis		released-photo
5/15/2002	1	Dipodomys	sp.		released
5/15/2002	3	Holbrookia	propinqua	propinqua	released
5/15/2002	5	Pantherophis	emoryi		photo-released
5/15/2002	5	Thamnophis	proximus	orarius	released
5/16/2002	5	Aspidoscelis	sexlineatus	stephensae?	photo-released
5/17/2002	4	Scaphiopus	hurterii		released
5/17/2002	6	Ophisaurus	attenuatus	attenuatus	released

Date	Trap #	Genus	Species	Subspecies	Comments
5/18/2002	1	Scaphiopus	hurterii		released
5/18/2002	1	Scaphiopus	hurterii		released
5/18/2002	1	Scaphiopus	hurterii		released
5/18/2002	1	Scaphiopus	hurterii		released
5/18/2002	4	Scaphiopus	hurterii		released
5/18/2002	4	Scaphiopus	hurterii		dead
5/19/2002	1	Scaphiopus	hurterii		dead
5/19/2002	4				mouse-unidentified
5/21/2002	3	Holbrookia	propinqua	propinqua	dead
5/22/2002	3	Holbrookia	propinqua	propinqua	dead-collected
5/23/2002	1	Masticophis	flagellum	testaceus	released
5/23/2002	5	Holbrookia	propinqua	propinqua	photo-released
5/24/2002	1	Scincella	lateralis		released
5/24/2002	1	Scincella	lateralis		released
5/24/2002	2	Scincella	lateralis		released
5/24/2002	2	Tantilla	gracilis		released
5/24/2002	5	Scaphiopus	hurterii		dead
5/24/2002	5	Scaphiopus	hurterii		dead
5/24/2002	6	Scincella	lateralis		released
5/25/2002	4	Ophisaurus	attenuatus	attenuatus	photo-released
5/26/2002	1	Scaphiopus	hurterii		dead
5/27/2002	7	Aspidoscelis	sexlineatus	sexlineatus	photo-released
5/29/2002	4	Scaphiopus	hurterii		dead
5/29/2002	9	Aspidoscelis	sexlineatus	sexlineatus	photo-released
5/30/2002	1	Scaphiopus	hurterii		released
5/30/2002	1	Scaphiopus	hurterii		released
5/30/2002	2	Scaphiopus	hurterii		released
5/30/2002	4	Scaphiopus	hurterii		released
5/30/2002	4	Scincella	lateralis		photo?-released
5/30/2002	4	Thamnophis	proximus	orarius	released
5/30/2002	5	Scincella	lateralis		released
5/30/2002	6	Sceloporus	aquaticus		eastern mole; released
5/31/2002	2	Scincella	lateralis		released
5/31/2002	6	Scincella	lateralis		released
5/31/2002	9	Eumeces	obsoletus		released
5/31/2002	9	Eumeces	obsoletus		released
6/1/2002	1	Masticophis	flagellum	testaceus	released
6/1/2002	1	Scaphiopus	hurterii		released
6/1/2002	1	Scaphiopus	hurterii		released
6/1/2002	1	Scaphiopus	hurterii		released
6/1/2002	1	Sistrurus	catenatus		released
6/1/2002	5	Ophisaurus	attenuatus	attenuatus	dead
6/2/2002	3	Aspidoscelis	sexlineatus	sexlineatus	released
6/2/2002	3	Holbrookia	propinqua	propinqua	released
6/2/2002	4	Scincella	lateralis		released
6/2/2002	4	Thamnophis	proximus	orarius	released
6/3/2002	1	Scaphiopus	hurterii		released
6/3/2002	2	Scaphiopus	hurterii		dead
6/3/2002	3	Holbrookia	propinqua	propinqua	released
6/3/2002	9	Aspidoscelis	sexlineatus	stephansae?	released (camera jam-5/30/2002)
6/5/2002	5	Dipodomys	sp.		kangaroo rat-released
6/5/2002	7	Holbrookia	propinqua	propinqua	dead-ants
6/6/2002	5	Aspidoscelis	sexlineatus	sexlineatus	released
6/6/2002	5	Pantherophis	emoryi		photo-released
6/7/2002	1	Scaphiopus	hurterii		released
6/7/2002	1	Scaphiopus	hurterii		released
6/7/2002	4	Pantherophis	emoryi		released
6/7/2002	7	Eumeces	obsoletus		collected
6/7/2002	7	Holbrookia	propinqua	propinqua	released
6/7/2002	7	Ophisaurus	attenuatus		released
6/8/2002	5	Masticophis	flagellum		released
6/8/2002	7	Holbrookia	propinqua		released

Date	Trap #	Genus	Species	Subspecies	Comments
6/10/2002	5	Lampropeltis	triangulum	annulata	collected
6/10/2002	9	Aspidoscelis	sexlineatus	sexlineatus	released
6/10/2002	9	Aspidoscelis	sexlineatus	sexlineatus	released
6/12/2002	7	Dipodomys	sp.		kangaroo rat-released
6/13/2002	1	Aspidoscelis	sexlineatus	sexlineatus	released
6/13/2002	4	Lampropeltis	triangulum	annulata	collected-dead
6/14/2002	8	Aspidoscelis	sexlineatus	sexlineatus	released
6/15/2002	8	Eumeces	obsoletus		
6/15/2002	8	Tantilla	gracilis		released
6/17/2002	11	Aspidoscelis	sexlineatus	sexlineatus	released
6/18/2002	5	Masticophis	flagellum		released
6/18/2002	11	Holbrookia	propinqua		released
6/18/2002	11	Holbrookia	propinqua		released
6/19/2002	4	Ophisaurus	attenuatus		released
6/19/2002	6	Ophisaurus	attenuatus		collected-dead-in freezer
6/20/2002	4	Masticophis	flagellum	testaceus	released
6/20/2002	5	Scincella	lateralis		released
6/20/2002	5	Scincella	lateralis		released
6/20/2002	7	Holbrookia	propinqua	propinqua	Dead-desiccated-discarded
6/20/2002	7	Holbrookia	propinqua	propinqua	released
6/20/2002	9	Aspidoscelis	sexlineatus	sexlineatus	released
6/20/2002	10	Masticophis	flagellum	testaceus	released
6/20/2002	10	Masticophis	flagellum	testaceus	released
6/20/2002	11	Aspidoscelis	sexlineatus	sexlineatus	released
6/20/2002	11	Aspidoscelis	sexlineatus	sexlineatus	released
6/20/2002	11	Holbrookia	propinqua		released
6/20/2002	12	Aspidoscelis	sexlineatus	sexlineatus	released
6/20/2002	12	Ophisaurus	attenuatus		released
6/21/2002	9	Ophisaurus	attenuatus		released
6/21/2002	11	Holbrookia	propinqua	propinqua	released
6/21/2002	12	Holbrookia	propinqua	propinqua	dead-discarded
6/22/2002	1	Aspidoscelis	sexlineatus	sexlineatus	released
6/22/2002	4	Sistrurus	catenatus	edwardsi	released
6/22/2002	7	Holbrookia	propinqua		released
6/22/2002	9	Aspidoscelis	sexlineatus	sexlineatus	released
6/22/2002	9	Eumeces	obsoletus		DIT - Collected
6/22/2002	11	Scincella	lateralis		released
6/22/2002	12	Aspidoscelis	sexlineatus	sexlineatus	released
6/22/2002	13	Aspidoscelis	sexlineatus	sexlineatus	dead
6/23/2002	1	Scincella	lateralis		released
6/23/2002	2	Ophisaurus	attenuatus		released
6/23/2002	7	Holbrookia	propinqua		released
6/23/2002	9	Eumeces	obsoletus		released
6/23/2002	10	Eumeces	obsoletus		released
6/24/2002	2	Ophisaurus	attenuatus		released
6/24/2002	7	Holbrookia	propinqua		released
6/24/2002	7	Holbrookia	propinqua		released
6/24/2002	13	Aspidoscelis	sexlineatus	sexlineatus	released
6/24/2002	Bk. Is. Rd.	Ophisaurus	attenuatus		dead/collected/in freezer (large!)
6/25/2002	7	Holbrookia	propinqua		released
6/25/2002	8	Scincella	lateralis		released
6/25/2002	11	Aspidoscelis	sexlineatus	sexlineatus	released
6/25/2002	11	Scincella	lateralis		released
6/25/2002	12	Ophisaurus	attenuatus		released
6/26/2002	3	Holbrookia	propinqua		released
6/26/2002	5	Dipodomys	sp.		released
6/26/2002	12	Ophisaurus	attenuatus		released
6/27/2002	3	Eumeces	obsoletus		released
6/27/2002	7	Eumeces	obsoletus		DIT-specimen
7/18/2002	5	Holbrookia	propinqua	propinqua	photo-released
7/18/2002	5	Star nose mole			released
7/18/2002	15	Holbrookia	propinqua		released

Date	Trap #	Genus	Species	Subspecies	Comments
7/18/2002	16	Holbrookia	propinqua		released
7/18/2002	17	Masticophis	flagellum		released
7/20/2002	11	Holbrookia	propinqua		released
7/20/2002	13	Aspidoscelis	sexlineatus		released
7/20/2002	14	Masticophis	flagellum		released
7/20/2002	15	Holbrookia	propinqua		released
7/20/2002	15	Holbrookia	propinqua		released
7/20/2002	16	Holbrookia	propinqua		released
7/20/2002	16	Holbrookia	propinqua		released
7/20/2002	16	Holbrookia	propinqua		released
7/20/2002	16	Holbrookia	propinqua		released
7/20/2002	17	Aspidoscelis	sexlineatus		released
7/20/2002	17	Holbrookia	propinqua		released
7/21/2002	14	Rana	berlandieri		collected
7/22/2002	10	Aspidoscelis	sexlineatus		released
7/22/2002	15	Holbrookia	propinqua		released
7/22/2002	16	Holbrookia	propinqua		released
7/22/2002	16	Holbrookia	propinqua		released
7/22/2002	16	Holbrookia	propinqua		released
7/23/2002	10	Cemophora	coccinea		photo-released
7/24/2002	11	Holbrookia	propinqua		released
7/24/2002	13	Aspidoscelis	sexlineatus		released
7/24/2002	13	Aspidoscelis	sexlineatus		released
7/24/2002	13	Aspidoscelis	sexlineatus		released
7/24/2002	15	Holbrookia	propinqua		released
7/24/2002	15	Holbrookia	propinqua		released
7/24/2002	16	Holbrookia	propinqua		released
7/25/2002	10	Heterodon	platirhinos		released
7/25/2002	10	lizard			unk lizard skeleton
7/25/2002	11	Aspidoscelis	sexlineatus		
7/25/2002	11	Holbrookia	propinqua		
7/25/2002	12	Holbrookia	propinqua		
7/25/2002	13	crabs			Five
7/25/2002	13	lizard			DIT - unk lizard skeleton -fire ants
7/25/2002	15	Holbrookia	propinqua		
7/25/2002	15	Holbrookia	propinqua		
7/25/2002	15	Holbrookia	propinqua		
7/25/2002	15	Holbrookia	propinqua		
7/25/2002	15	Holbrookia	propinqua		
7/25/2002	16	Holbrookia	propinqua		photos
7/25/2002	16	Holbrookia	propinqua		photos
7/25/2002	16	Holbrookia	propinqua		photos
7/25/2002	16	Holbrookia	propinqua		photos
7/25/2002	16	Holbrookia	propinqua		photos
7/25/2002	16	Holbrookia	propinqua		photos
7/25/2002	17	Holbrookia	propinqua		
7/25/2002	17	Holbrookia	propinqua		
7/26/2002	13	Aspidoscelis	sexlineatus	sexlineatus	released
7/26/2002	13	Masticophis	flagellum		
7/26/2002	14	Masticophis	flagellum		
7/26/2002	15	Holbrookia	propinqua	propinqua	
7/26/2002	16	Holbrookia	propinqua	propinqua	
7/27/2002	10	Holbrookia	propinqua	propinqua	
7/28/2002	13	Aspidoscelis	sexlineatus		
7/28/2002	12	Holbrookia	propinqua	propinqua	
7/30/2002	13	Aspidoscelis	sexlineatus		
7/30/2002	15	Holbrookia	propinqua		
7/30/2002	15	Holbrookia	propinqua		
7/30/2002	16	Holbrookia	propinqua		
7/30/2002	17	Aspidoscelis	sexlineatus		
7/30/2002	17	Eumeces	obsoletus		DIT-eaten by crabs
7/30/2002	17	Holbrookia	propinqua		

Date	Trap #	Genus	Species	Subspecies	Comments
7/31/2002	13	Aspidoscelis	sexlineatus		
7/31/2002	13	Masticophis	flagellum		
7/31/2002	15	Holbrookia	propinqua		
7/31/2002	15	Holbrookia	propinqua		
7/31/2002	15	Holbrookia	propinqua		
7/31/2002	16	Holbrookia	propinqua		
7/31/2002	16	Holbrookia	propinqua		
7/31/2002	16	Holbrookia	propinqua		
7/31/2002	16	Holbrookia	propinqua		
7/31/2002	17	Aspidoscelis	sexlineatus		
7/31/2002	17	Holbrookia	propinqua		
7/31/2002	17	Holbrookia	propinqua		
7/31/2002	17	Holbrookia	propinqua		
8/1/2002	10	Aspidoscelis	sexlineatus		
8/1/2002	10	Eumeces	obsoletus		
9/17/2002	4	Masticophis	flagellum		released
9/17/2002	7	Holbrookia	propinqua		released
9/17/2002					close all traps
10/2/2002					open traps #'s 10-17
10/2/2002	14	Masticophis	flagellum		released
10/4/2002	10	Heterodon	platirhinos		released
10/4/2002	10	Masticophis	flagellum		released
10/4/2002	11	Holbrookia	propinqua		released
10/4/2002	14	Masticophis	flagellum		released
10/4/2002	15	Holbrookia	propinqua		released
10/4/2002	15	Holbrookia	propinqua		released
10/4/2002	15	Holbrookia	propinqua		released
10/6/2002	11	Holbrookia	propinqua		released
10/6/2002	15	Aspidoscelis	sexlineatus		released
10/6/2002	15	Holbrookia	propinqua		released
10/9/2002	10	Aspidoscelis	sexlineatus		released
10/9/2002	11	Aspidoscelis	sexlineatus		released
10/9/2002	11	Holbrookia	propinqua		released
10/9/2002	13	Masticophis	flagellum		released
10/9/2002	15	Holbrookia	propinqua		released
10/9/2002	15	Holbrookia	propinqua		released
10/9/2002					close all traps - NPS directive
5/22/2003	T1	Trachemys	scripta	elegans	released-photos
5/22/2003	T1	Trachemys	scripta	elegans	released-photos
5/22/2003	T2	Trachemys	scripta	elegans	released-photos
5/22/2003	T2	Trachemys	scripta	elegans	released-photos
5/22/2003	T2	Trachemys	scripta	elegans	released-photos
5/22/2003	T3	Trachemys	scripta	elegans	released-photos
5/22/2003	T3	Trachemys	scripta	elegans	released-photos
5/22/2003	T3	Trachemys	scripta	elegans	released-photos
5/23/2003	T1	Trachemys	scripta	elegans	released-photos
5/23/2003	T2	Trachemys	scripta	elegans	released-photos
5/23/2003	T2	Trachemys	scripta	elegans	released-photos
5/23/2003	T3	Trachemys	scripta	elegans	released-photos
5/24/2003	T1	Blue Crab			released-photos
5/24/2003	T1	Trachemys	scripta	elegans	released-photos
5/24/2003	T2	Trachemys	scripta	elegans	released-photos
5/24/2003	T3	Trachemys	scripta	elegans	released-photos
5/25/2003	T2	Trachemys	scripta	elegans	released-photos
5/25/2003	T2	Trachemys	scripta	elegans	released-photos
5/26/2003	T1	Trachemys	scripta	elegans	released-photos
5/26/2003	T1	Trachemys	scripta	elegans	released-photos
5/26/2003	T2	Trachemys	scripta	elegans	released-photos
5/26/2003	T3	Trachemys	scripta	elegans	released-photos
5/27/2003	T2	Trachemys	scripta	elegans	released-photos
5/27/2003	T3	Trachemys	scripta	elegans	released-photos

Appendix 3. Major visual encounter surveys routes and results for reptile and amphibian inventory conducted at Padre Island National Seashore January 2002 – October 2003. (These data condensed somewhat from original data sheets – more data on original data sheets).

DATE	SPECIES	Beginning Easting	Beginning Northing	End Easting	End Northing	Site #	General Locations	Surveyors
7/30/2002		667382.14	3039265.43	667382.14	3039265.43	1		Brent Koza
7/28/2002	Nothing	667382.14	3039265.43	667382.14	3039265.43	1		Brent Koza
7/30/2002	Scaphiopus hurterii	667382.14	3039265.43	667382.14	3039265.43	1	approx. 140 m South (Juvenile)	Brent Koza
7/30/2002	Scaphiopus hurterii	667382.14	3039265.43	667382.14	3039265.43	1	approx. 175 m South (Adult)	Brent Koza
7/30/2002	Scaphiopus hurterii	667382.14	3039265.43	667382.14	3039265.43	1	approx. 176 m South (Adult)	Brent Koza
7/30/2002	Lampropeltis triangulum	667382.14	3039265.43	667382.14	3039265.43	1	Approx. 20 m South (Large)	Brent Koza
7/31/2002	Nothing...flooded	667839.29	3037371.85	667839.29	3037371.85	2		Brent Koza
8/1/2002	Holbrookia propinqua	669305.44	3037657.05	669305.44	3037657.05	3	approx. 350 m N (1)	Brent Koza
8/1/2002	Holbrookia propinqua	669305.44	3037657.05	669305.44	3037657.05	3	about 10	Brent Koza
8/1/2002	Ophisaurus attenuatus	667328.95	3033677.31	667328.95	3033677.31	4	1 m N of trap 4...along drift fence	Brent Koza
8/1/2002	Holbrookia propinqua	667328.95	3033677.31	667328.95	3033677.31	4		Brent Koza
8/2/2002	Ophisaurus attenuatus	665374.62	3030679.98	665374.62	3030679.98	5	approx. 350 m East of Trap 5	Brent Koza
8/28/2002	Ophisaurus attenuatus	662233.00	3019252.44	662233.00	3019252.44	6	100 m S of trap site	Mike Duran, Brent Koza
8/28/2002	Scincella lateralis?	662233.00	3019252.44	662233.00	3019252.44	6	400 m E of trap site	Mike Duran, Brent Koza
8/28/2002	Scincella?	662233.00	3019252.44	662233.00	3019252.44	6	25 m W...not entered in GIS	Mike Duran, Brent Koza
8/28/2002	Nothing	662233.00	3019252.44	662233.00	3019252.44	6	North Quadrant	Mike Duran, Brent Koza
8/4/2002	Holbrookia propinqua	660679.41	2998907.96	660679.41	2998907.96	7	(2) approx. 200 m East near beach	Brent Koza
8/4/2002	Holbrookia propinqua	660679.41	2998907.96	660679.41	2998907.96	7	(1) Approx. 175 m East	Brent Koza
8/4/2002	Holbrookia propinqua	660679.41	2998907.96	660679.41	2998907.96	7	(1) Approx. 175 m East	Brent Koza
8/4/2002	Cnemidophorus sexlineatus	660679.41	2998907.96	660679.41	2998907.96	7	approx. 30 m West	Brent Koza
5/20/2003	No herps	660088.81	2997299.56	660088.81	2997299.56	8	wetlands	Mike Duran, Mark Gallyoun
5/20/2003	No herps	660016.87	2996134.97	660016.87	2996134.97	9	Nothing seen during this survey	Mike Duran, Mark Gallyoun
5/20/2003	Cnemidophorus sexlineatus	661477.93	2978276.56	661477.93	2978276.56	10	approx. 50 m east	Mike Duran, Mark Gallyoun
5/20/2003	Holbrookia propinqua	661477.93	2978276.56	661477.93	2978276.56	10	(3) 80 -100 m East	Mike Duran
5/20/2003	Holbrookia propinqua	661477.93	2978276.56	661477.93	2978276.56	10	(12) between 150 and 450 m North	Mike Duran, Mark Gallyoun
5/26/2002	Holbrookia propinqua	661658.69	2977428.69	661658.69	2977428.69	11	(2) near trap site	Mike Duran, Brianna Young
5/26/2002	Holbrookia propinqua	661658.69	2977428.69	661658.69	2977428.69	11	(2) 50-100 m East	Mike Duran
5/26/2002	Holbrookia propinqua	661658.69	2977428.69	661658.69	2977428.69	11	(10) 50-500 m South	Mike Duran
5/26/2002	Holbrookia propinqua	661658.69	2977428.69	661658.69	2977428.69	11	(8) 50-500 m North	Mike Duran
5/26/2002	Cnemidophorus sexlineatus	661658.69	2977428.69	661658.69	2977428.69	11	about 100 m West	Mike Duran
5/26/2002	Holbrookia propinqua	661697.64	2975713.19	661697.64	2975713.19	12	about 300 m East	Mike Duran
5/25/2002	Holbrookia propinqua	664476.77	2961740.41	664476.77	2961740.41	13	(3) approx. 150 m East	Mike Duran
5/25/2002	Cnemidophorus sexlineatus	664476.77	2961740.41	664476.77	2961740.41	13	approx. 150 m East	Mike Duran
5/25/2002	Cnemidophorus sexlineatus	664476.77	2961740.41	664476.77	2961740.41	13	approx. 350 m South	Mike Duran
5/25/2002	Cnemidophorus sexlineatus	664476.77	2961740.41	664476.77	2961740.41	13	approx. 200 m North	Mike Duran
5/20/2003	Holbrookia propinqua	666247.21	2954917.08	666247.21	2954917.08	14	(2) 200 m East	Mike Duran
5/20/2003	Holbrookia propinqua	666247.21	2954917.08	666247.21	2954917.08	14	(2) 400 m East	Mike Duran

DATE	SPECIES	Beginning Easting	Beginning Northing	End Easting	End Northing	Site #	General Locations	Surveyors
5/20/2003	Bufo woodhousii	666247.21	2954917.08	666247.21	2954917.08	14	approximately 125 m E of trap (	Mike Duran
5/25/2002	Holbrookia propinqua	667216.54	2951061.72	667216.54	2951061.72	15	(about 10) all in a long route	Mike Duran
5/26/2002	Holbrookia propinqua	667216.54	2951061.72	667216.54	2951061.72	15	(3) at trap site	Mike Duran
5/26/2002	Holbrookia propinqua	667216.54	2951061.72	667216.54	2951061.72	15	approx. 50 m east	Mike Duran
5/26/2002	Holbrookia propinqua	667216.54	2951061.72	667216.54	2951061.72	15	(2) approx. 200 m East	Mike Duran
5/26/2002	Holbrookia propinqua	667216.54	2951061.72	667216.54	2951061.72	15	(10+) approx. 200-500 m East	Mike Duran
5/26/2002	Cnemidophorus sexlineatus	667216.54	2951061.72	667216.54	2951061.72	15	approx. 400 m East	Mike Duran
5/26/2002	Cnemidophorus sexlineatus	667216.54	2951061.72	667216.54	2951061.72	15	approx. 500 m East	Mike Duran
5/26/2002	Holbrookia propinqua	667216.54	2951061.72	667216.54	2951061.72	15	(2) approx. 50 m West	Mike Duran
5/26/2002	Holbrookia propinqua	667216.54	2951061.72	667216.54	2951061.72	15	(2) approx. 200 m West	Mike Duran
5/26/2002	Holbrookia propinqua	667216.54	2951061.72	667216.54	2951061.72	15	(4) approx. 100-200 m North	Mike Duran
5/26/2002	Holbrookia propinqua	667216.54	2951061.72	667216.54	2951061.72	15	(5) approx. 200-500 m North	Mike Duran
5/26/2002	Holbrookia propinqua	667216.54	2951061.72	667216.54	2951061.72	15	(1) 100 m South	Mike Duran
5/26/2002	Holbrookia propinqua	667216.54	2951061.72	667216.54	2951061.72	15	(2) approx. 500 m S Holbrookia	Mike Duran
5/26/2002	Holbrookia propinqua	669610.42	2944209.30	669610.42	2944209.30	16	(3) near trap site	Mike Duran
5/26/2002	Holbrookia propinqua	669610.42	2944209.30	669610.42	2944209.30	16	(6) near beach. Approx. 250 m East	Mike Duran
5/26/2002	Holbrookia propinqua	669610.42	2944209.30	669610.42	2944209.30	16	(2) approx. 100 m East	Mike Duran
5/26/2002	Holbrookia propinqua	669610.42	2944209.30	669610.42	2944209.30	16	approx. 50 m West	Mike Duran
5/26/2002	Holbrookia propinqua	669610.42	2944209.30	669610.42	2944209.30	16	approx. 175 m West	Mike Duran
5/26/2002	Holbrookia propinqua	669610.42	2944209.30	669610.42	2944209.30	16	(2) approx. 350 m West	Mike Duran
5/26/2002	Holbrookia propinqua	669610.42	2944209.30	669610.42	2944209.30	16	approx. 150 m South	Mike Duran
5/26/2002	Holbrookia propinqua	669610.42	2944209.30	669610.42	2944209.30	16	(2) approx. 270 m South	Mike Duran
5/26/2002	Holbrookia propinqua	669610.42	2944209.30	669610.42	2944209.30	16	approx. 360 m South	Mike Duran
5/26/2002	Holbrookia propinqua	669610.42	2944209.30	669610.42	2944209.30	16	approx. 400 m North	Mike Duran
5/26/2002	Holbrookia propinqua	669610.42	2944209.30	669610.42	2944209.30	16	so many Holbrookia, hard to count	Mike Duran
4/24/2002	Holbrookia propinqua	671384.47	2939604.81	671384.47	2939604.81	17	(3) at trap site	Mike Duran
4/24/2002	Holbrookia propinqua	671384.47	2939604.81	671384.47	2939604.81	17	(3) approx. 50 m East	Mike Duran
4/24/2002	Holbrookia propinqua	671384.47	2939604.81	671384.47	2939604.81	17	(3) approx. 50 m South	Mike Duran
4/24/2002	Holbrookia propinqua	671384.47	2939604.81	671384.47	2939604.81	17	(2) approx. 100 m South	Mike Duran
4/24/2002	Holbrookia propinqua	671384.47	2939604.81	671384.47	2939604.81	17	(1) approx. 50 m West	Mike Duran
4/24/2002	Holbrookia propinqua	671384.47	2939604.81	671384.47	2939604.81	17	(4) approx. 250-350 m North	Mike Duran
6/27/2002	Ophisaurus attenuatus	698454.23	2988008.14	698454.23	2988008.14		27.462866 -97.283832	Mike Duran
7/26/2002	Nothing	698454.23	2988008.14	698454.23	2988008.14			Mike Duran
6/28/2002	Bufo woodhousii	1369825.16	3353121.87	1369825.16	3353121.87		Audio and Specimen	Mike Duran, Brianna Young
6/28/2002	Hyla cinerea	1369825.16	3353121.87	1369825.16	3353121.87		Ephemeral pond. Recorded	Mike Duran, Brianna Young
6/24/2002	No Herps	698454.23	2988008.14	698454.23	2988008.14			Mike Duran
5/9/2002	Cnemidophorus sexlineatus	698454.23	2988008.14	698454.23	2988008.14		27.36426 -97.35129	Mike Duran
5/9/2002	Holbrookia propinqua	698454.23	2988008.14	698454.23	2988008.14		at several sandy locations	Mike Duran
5/27/2003	Hyla cinerea						Tadpoles. bird photos	Mike Duran
6/27/2002	Ophisaurus attenuatus	698454.23	2988008.14	698454.23	2988008.14		Willow thicket and "oak motte”	Mike Duran
2/12/2002	No herps observed							Mike Duran

DATE	SPECIES	Beginning Easting	Beginning Northing	End Easting	End Northing	Site #	General Locations	Surveyors
5/12/2002	No herps	698454.23	2988008.14	698454.23	2988008.14		Fish and crabs but no herps	Mike Duran, Brent Koza
2/15/2002	Holbrookia propinqua						26.568012 -97.298232	Mike Duran
2/15/2002	Holbrookia propinqua						26.56827 -97.27885	Mike Duran
8/2/2002	Arizona Elegans						3.5 mi down- 1 km West (inland)	Brent Koza
5/12/2002	No herps	698454.23	2988008.14	698454.23	2988008.14		Fish and crabs but no herps	Mike Duran, Brent Koza
5/12/2002	No herps	698454.23	2988008.14	698454.23	2988008.14		Fish and crabs but no herps	Mike Duran, Brent Koza
5/12/2002	No herps	698454.23	2988008.14	698454.23	2988008.14		Fish and crabs but no herps	Mike Duran, Brent Koza
5/12/2002	No herps	698454.23	2988008.14	698454.23	2988008.14		Fish and crabs but no herps	Mike Duran, Brent Koza
5/12/2002	No herps	698454.23	2988008.14	698454.23	2988008.14		Fish and crabs but no herps	Mike Duran, Brent Koza
5/12/2002	No herps	698454.23	2988008.14	698454.23	2988008.14		Fish and crabs but no herps	Mike Duran, Brent Koza
5/12/2002	No herps	698454.23	2988008.14	698454.23	2988008.14		Fish and crabs but no herps	Mike Duran, Brent Koza
5/12/2002	No herps	698454.23	2988008.14	698454.23	2988008.14		Fish and crabs but no herps	Mike Duran, Brent Koza
5/12/2002	No herps	698454.23	2988008.14	698454.23	2988008.14		Fish and crabs but no herps	Mike Duran, Brent Koza

Appendix 4. Road kills and other casual observations at PAIS during herpetological inventory January 2002-October 2003

Date	Genus-Species-Subspecies	General Location-Comment
3/18/2002	Alligator mississippiensis	sewage treatment pond
4/3/2002	Holbrookia propinqua	near trapsite 17
4/15/2002	Masticophis flag	1 mi N of entrance station DOR -badly decomposed
4/19/2002	Alligator mississippiensis	sewage treatment pond
4/24/2002	Cnemidophorus	near trapsite 7
5/1/2002	Sistrurus catenatus edwardsi	near trapsite 4-in deep grass-collected
5/3/2002	Trachemys scripta elegans	crossing Pk Rd 22 near VC
5/6/2002	Trachemys scripta elegans	between VC & Ranger Station Pk Rd 22
5/7/2002	Holbrookia propinqua	many various at beach foredunes on the way to Trap 17
5/7/2002	Holbrookia propinqua	many various at beach foredunes on the way to Trap 16
5/7/2002	Holbrookia propinqua	many various at beach foredunes on the way to Trap 15
5/7/2002	Holbrookia propinqua	many various at beach foredunes on the way to Trap 14
5/7/2002	Holbrookia propinqua	many various at beach foredunes on the way to Trap 13
5/7/2002	Holbrookia propinqua	many various at beach foredunes on the way to Trap 12
5/7/2002	Holbrookia propinqua	many various at beach foredunes on the way to Trap 11
5/7/2002	Holbrookia propinqua	many various at beach foredunes on the way to Trap 10
5/7/2002	Holbrookia propinqua	many various at beach foredunes on the way to Trap 7
5/7/2002	Holbrookia propinqua	by gate along road- many-Trap 6
5/7/2002	Holbrookia propinqua	Many along road by gate...Trap 5
5/7/2002	Holbrookia propinqua	in dunes on beachside-many-Trap 4
5/7/2002	Holbrookia propinqua	on foredunes and at Trapsite 3
5/7/2002	Masticophis flagellum	approx. 5 mi N of entrance station. Badly decomposed
5/18/2002	Thamnophis proximus orarius	BIB Rd. approx. 600 m W of Pk Rd 22
6/8/2002	Ophisaurus attenuatus	B I Rd approx. 22 mi marker DOR
6/14/2002	Heterodon platyrhinos	200m S of entrance station DOR
6/14/2002	Sistrurus catenatus edwardsi	BI about -on way to Trap 6?
6/15/2002	Sistrurus catenatus edwardsi	near entrance station DOR
6/20/2002	Cnemidophorus sexlineatus	
6/20/2002	Cnemidophorus sexlineatus	(6 individuals) on the road to trap 6
6/30/2002	Hemidactylus turcicus	Ranger Station Photo
7/9/2002	Alligator mississippiensis	sewage treatment pond
7/14/2002	Thamnophis proximus orarius	Pk Rd 22 in front of Ranger Station
7/15/2002	Bufo woodhousii	Gate to WWT-Photo
7/15/2002	Rana berlandieri	20 m S of Rd (Gate) to WWT Plant
7/18/2002	Thamnophis proximus orarius	Pk Rd 22 in front of Visitor Center
7/25/2002	Cnemidophorus sexlineatus	About 200 m SE Trap 14
7/25/2002	Thamnophis proximus orarius	600 m SW of Visitor Center- Pk Rd 22
7/30/2002	Thamnophis proximus orarius	Pk Rd 22 between Visitors Station and Rangers Station
8/2/2002	American elegans	RD @ 3.5 mi marker-1 km W (Brent Koza)
9/24/2002	Holbrookia (various)	(at least 10) Gate going to trap 5
5/19/2003	Bufo woodhousii	(40) About 250 m ESE of trap 4/about 175 m WNW beach
5/19/2003	Holbrookia propinqua	About 250 m ESE of trap 4/about 175 m WNW beach
5/20/2003	Coluber constrictor oaxaca	2 miles down island in foredunes os beach-Nicky observed?
6/5/2003	Bufo woodhousii	VC Parking lot
6/7/2003	Lampropeltis triangulum annulata	BIB Road
6/14/2003	Ophisaurus attenuatus	200 m S entrance station Pk Rd 22
7/3/2003	Thamnophis marcianus	BIB Rd. Photos
7/4/2003	Bufo woodhousii	BIB Rd
7/4/2003	Coluber constrictor oaxaca	about 11 km N of entrance station DOR-spec
7/4/2003	Hyla cinerea	Near station DOR
7/4/2003	Rana berlandieri	near entrance station DOR
7/4/2003	Rana berlandieri	1 near BIB Rd/Pk Rd 22
7/4/2003	Rana berlandieri	1 near gate to WWT Plant
7/4/2003	Rana berlandieri	2 on BIB Rd
7/4/2003	Thamnophis proximus orarius	1 km N entrance station
7/4/2003	Thamnophis proximus orarius	4 m S of NPS sign DOR spec
7/8/2003	Rana berlandieri	BIB Rd.
7/8/2003	Rana berlandieri	BIB Rd.
7/8/2003	Rana berlandieri	200 m N of entrance station

Appendix 5. Results of auditory surveys during herpetological inventory at Padre Island National Seashore, February 2002 – October 2003. (BUWO = *Bufo woodhousii*; RABE = *Rana berlandieri*; HYCI = *Hyla cinerea*; SCHU = *Scaphiopus hurterii*; PSCL = *Pseudacris clarkii*; BUNE = *Bufo nebulifer*).

Date	Location	BUWO	RABE	HYCI	SCHU	PSCL	BUVA	Comments
7/9/2003	1 mi. S of CL sign	0	0	3	0	0	0	Gastrophryne? DM10158
7/8/2003	1/2 mi. S of City Limit	0	0	3	0	0	0	G. olivaceous X carolensis? DM10121
7/8/2003	1/2 mile S of CL sign to end of PR 22	0	3	0	0	0	0	in almost all locations
7/9/2003	100 m S of CL sign	0	2	3	0	3	0	H. squirrella? DM10161
7/15/2002	3.5 mi down island	2	0	0	0	0	0	
7/9/2002	across PR 22 from VC	0	0	3	0	0	0	
7/3/2003	along PR 22 1/3 mi N of Ranger Station	0	0	3	0	0	0	
9/24/2003	along PR 22 inside park	0	0	3	0	0	0	
9/24/2003	approx. 300 mi N of VC	0	0	0	0	3	0	
7/8/2003	Behind WW Treatment Plant	0	2	0	0	0	0	
7/9/2003	Behind WW Treatment Plant	0	2	3	0	0	0	
3/1/2002	BIB Pond	0	1	0	0	0	0	
3/18/2002	BIB Pond	0	0	0	0	1	0	
4/1/2002	BIB Pond	0	0	0	0	0	0	saw 4 Nerodia
4/19/2002	BIB Pond	0	0	1	0	0	0	tape
4/28/2002	BIB Pond	0	0	0	0	0	0	
5/16/2002	BIB Pond	0	0	1	0	0	0	
7/1/2002	BIB Pond	1	1	3	0	0	0	
2/15/2003	BIB Pond	1	1	0	0	0	0	
4/7/2003	BIB Pond	0	0	3	0	0	0	
5/27/2003	BIB Pond	0	0	1	0	0	0	
6/5/2003	BIB Pond	0	0	3	0	0	0	unk frog DM10107.dss
6/6/2003	BIB Pond	0	0	3	0	0	0	unk frog DM10109.d55
7/3/2003	BIB Pond	0	0	3	0	0	0	
7/4/2003	BIB Pond	1	1	3	0	0	0	
7/8/2003	BIB Pond	0	1	0	0	0	0	can’t here BUWO on tape
7/9/2003	BIB Pond	0	0	0	0	0	0	unk frog good record DM10155
7/9/2003	BIB Pond	0	0	3	0	0	0	DM 10154
9/24/2003	BIB Pond	0	1	3	0	0	0	
4/7/2003	BIB Road .4 mi from int. w/ PR 22	1	0	0	0	0	0	
6/28/2002	Ephemeral locations along PR 22-Rec. near VC	0	0	0	3	0	0	
3/1/2002	Ephemeral Wetland W of WW Treatment Pond	0	0	0	0	0	0	
3/18/2002	Ephemeral Wetland W of WW Treatment Pond	0	0	0	0	0	0	
4/1/2002	Ephemeral Wetland W of WW Treatment Pond	0	0	0	0	0	0	
4/19/2002	Ephemeral Wetland W of WW Treatment Pond	0	0	0	0	0	0	
4/28/2002	Ephemeral Wetland W of WW Treatment Pond	0	0	0	0	0	0	
5/16/2002	Ephemeral Wetland W of WW Treatment Pond	0	0	0	0	0	0	
7/1/2002	Ephemeral Wetland W of WW Treatment Pond	1	0	2	0	0	0	
2/15/2003	Ephemeral Wetland W of WW Treatment Pond	0	0	0	0	0	0	
4/7/2003	Ephemeral Wetland W of WW Treatment Pond	1	0	3	0	0	0	
5/27/2003	Ephemeral Wetland W of WW Treatment Pond	0	0	2	0	0	0	
6/5/2003	Ephemeral Wetland W of WW Treatment Pond	0	0	0	0	0	0	
7/9/2003	good recording	0	0	0	0	0	0	Gastrophryne? DM10160
4/7/2003	multiple locations along PR 22 inside Park	0	0	3	0	0	0	
7/8/2003	N. side of causeway Flour Bluff Drive near SPID	0	0	0	0	0	1	
9/24/2003	Near N boundary-E of PR 22	0	3	0	0	0	0	
7/8/2003	near CL sign	0	0	0	0	0	0	Hyla squirrella DM10146
9/24/2003	near Sea Pines Rd @ PR 22	0	0	2	0	3	0	unk frog recording
3/1/2002	Pond about .25 mi S of RS	0	0	0	0	0	0	
3/18/2002	Pond about .25 mi S of RS	0	0	0	0	0	0	
4/1/2002	Pond about .25 mi S of RS	0	0	0	0	0	0	
4/19/2002	Pond about .25 mi S of RS	0	0	0	0	0	0	
4/28/2002	Pond about .25 mi S of RS	0	0	0	0	0	0	
5/16/2002	Pond about .25 mi S of RS	0	0	0	0	0	0	

Date	Location	BUWO	RABE	HYCI	SCHU	PSCL	BUVA	Comments
7/1/2002	Pond about .25 mi S of RS	0	0	0	0	0	0	
2/15/2003	Pond about .25 mi S of RS	0	0	0	0	0	0	
4/7/2003	Pond about .25 mi S of RS	0	0	0	0	0	0	
5/27/2003	Pond about .25 mi S of RS	0	0	0	0	0	0	
6/5/2003	Pond about .25 mi S of RS	0	0	0	0	0	0	
5/27/2003	PR 22 - 1/2 mi S of BIB int.	0	0	2	0	0	0	
5/27/2003	PR 22 - near gate to WW Treatment Pond	0	0	3	0	0	0	
7/9/2003	SAA - good recording	0	0	0	0	0	0	Gastrophryne? DM10159
2/11/2002	wetlands west of WW Treatment Plant	1	0	0	0	0	0	? Could not get on tape
3/1/2002	WW Treatment Pond	0	0	0	0	0	0	
3/18/2002	WW Treatment Pond	0	0	0	0	0	0	
4/1/2002	WW Treatment Pond	0	0	0	0	0	0	
4/19/2002	WW Treatment Pond	0	0	0	0	0	0	
4/28/2002	WW Treatment Pond	0	0	0	0	0	0	
5/16/2002	WW Treatment Pond	0	0	0	0	0	0	
7/1/2002	WW Treatment Pond	0	0	0	0	0	0	
2/15/2003	WW Treatment Pond	0	0	0	0	0	0	
4/7/2003	WW Treatment Pond	0	0	0	0	0	0	
5/27/2003	WW Treatment Pond	0	0	0	0	0	0	
6/5/2003	WW Treatment Pond	0	0	0	0	0	0	

Appendix 6. Specimens Collected During Herpetological Inventory of Padre Island National Seashore – February 2002 – March 2003.

Entry #	Cat #	Date	Genus	Species	Subspecies	General Location	Easting	Northing	Comments	Collector
4	PAIS004	5/4/2002	Scaphiopus	hurterii		Trap # 1 - PAIS	667382	3039265	Photos	M. Duran
5	PAIS005	5/4/2002	Scaphiopus	hurterii		Trap # 1 - PAIS	667382	3039265	collected/photos	M. Duran
9	PAIS009	5/2/2002	Sistrurus	catenatus		PAIS near trap #4	667381	3033739		M. Duran
10	PAIS010	5/12/2002	Tantilla	gracilis		Trap # 5 - PAIS	665375	3030680		M. Duran
13	PAIS013	5/22/2002	Holbrookia	propinqua	propinqua	Trap # 7 - PAIS	660679	2998908	DIT	M. Duran
15	PAIS015	5/1/2002	Holbrookia	propinqua	propinqua	Trap # 3 - PAIS	669305	3037657	DIT	M. Duran
16	PAIS016	6/27/2002	Eumeces	obsoletus		Trap # 7 - PAIS	660679	2998908	collected	M. Duran
18	PAIS018	7/25/2002	Thamnophis	proximus	orarius	park rd. 22 - ~600 m SW of visitor center	667590	3034193	DOR	M. Duran
19	PAIS019	5/5/2002	Aspidoscelis	sexlineatus		Trap # 2 - PAIS	667839	3037372	collected	M. Duran
20	PAIS020	6/13/2002	Lampropeltis	triangulum	annulata	Trap # 4 - PAIS	667329	3033677	DIT	M. Duran
21	PAIS021	6/19/2002	Ophisaurus	attenuatus		Trap # 6 - PAIS	662233	3019252	DIT	M. Duran
24	PAIS024	5/6/2002	Holbrookia	propinqua	propinqua	Trap # 3 - PAIS	669305	3037657	DIT	M. Duran
25	PAIS025	7/21/2002	Rana	berlandieri		Trap # 14 - PAIS	666247	2954917	DIT	M. Duran
26	PAIS026	7/15/2002	Rana	berlandieri		0.1 mi south of visitors center	666226	2954886	DOR	M. Duran
27	PAIS027	7/18/2002	Thamnophis	proximus	orarius	Pk. Rd. 22, near VC	667951	3034920	DOR	M. Duran
28	PAIS028	5/18/2002	Thamnophis	proximus	orarius	BIB Road ~ 600 m W. of Pk Rd 22	668357	3039201	DOR	M. Duran
29	PAIS029	7/4/2002	Thamnophis	proximus	orarius	Pk. Rd. 22, near Ranger Sta.	668335	3037170	DOR	M. Duran
30	PAIS030	9/24/2002	Thamnophis	proximus	orarius	Rd. to BIB ~700m from PR 22	668244	3039243	DOR	M. Duran
31	PAIS031	May/June 2002	Scaphiopus	hurteri		Trap # 1 - PAIS	667382	3039265	DIT 5 - desiccated	M. Duran
0	PAIS036	6/15/2002	Sistrurus	catenatus		Park Rd 22 near entrance	669482	3040079	DOR	M. Duran
37	PAIS037	6/22/2002	Aspidoscelis	sexlineatus		Trap # 13 PAIS	664477	2961740	DIT	M. Duran
38	PAIS038	6/8/2002	Ophisaurus	attenuatus		Back Island Rd about 22 mile marker	659703	2998652	DOR	D. Gonzales
39	PAIS039	6/22/2002	Eumeces	obsoletus		Trap # 9 - PAIS	660017	2996135	DIT	M. Duran
40	PAIS040	6/10/2002	Lampropeltis	triangulum	annulata	Trap # 5 - PAIS	665375	3030680	Collected	M. Duran
45	PAIS045	7/30/2002	Thamnophis	proximus	orarius	Park Rd. 22 - betw. VC and Rang. Sta	667922	3035648	DOR	M. Duran
51	PAIS051	7/15/2002	Scaphiopus	hurterii		Pk. Rd. 22 by PAIS entrance	667984	3035536	DOR - (2) Specimens	M. Duran
52	PAIS051	7/15/2002	Scaphiopus	hurterii		Pk. Rd. 22 by PAIS entrance	667984	3035536	DOR - (2) Specimens	M. Duran
53	PAIS053	6/7/2002	Eumeces	obsoletus		Trap # 7 - PAIS	660679	2998908	DIT-specimen	M. Duran
55	PAIS055	7/15/2002	Bufo	woodhousii	woodhousii	ephemeral pond west of firing range	666849	3034391		M. Duran
58	PAIS058	5/11/2002	Aspidoscelis	sexlineatus		Trap # 5 - PAIS	665375	3030680	DIT	M. Duran
59	PAIS059	6/1/2002	Aspidoscelis	sexlineatus		Trap # 10 - PAIS	661478	2978277	DIT	M. Duran
60	PAIS060	5/5/2002	Scincella	lateralis		Trap # 4 - PAIS	667329	3033677		M. Duran
67	PAIS067	6/17/2002	Heterodon	platirhinos		PAIS - near visitor center	668068	3034363		B. Young
71	PAIS071	5/15/2002	Elaphe	emoryi		Pk Rd 22 ~100 m from beach	667719	3033871		M. Duran
73	PAIS073	5/6/2002	Masticophis	flagellum	testaceus	Trap # 1 - PAIS	667382	3039265		M. Duran
75	PAIS075	7/16/2002	Hyla	cinerea		near gate to waste water treatment	667611	3034483		M. Duran
9	PAIS099	6/14/2003	Heterodon	platirhinos		200 meters south of ente station Pk Rd 22	669174	3039633	DOR	M. Duran
100	PAIS100	6/14/2003	Ophisaurus	attenuatus		200 m south of entrance sta Pk Rd 22	669075	3039475	DOR	M. Duran
109	PAIS109	7/4/2003	Rana	berlandieri		near entrance sta.	669640	3040327	DOR	M. Duran
110	PAIS110	7/4/2003	Colubre	constrictor	oaxaca	near CC city limits	672685	3048224	DOR	M. Duran
30	PAIS111	7/4/2002	Thamnophis	proximus	orarius	1 km N. of entrance sta.	669767	3041038	DOR	M. Duran
112	PAIS112	7/4/2003	Thamnophis	marcianus	marcianus	BIB Road ~ 1 km W. of Pk Rd 22	667930	3039388	DOR	M. Duran
113	PAIS113	9/24/2003	Pseudacris	clarkii		~150 m N of visitor center parking lot	668196	3035072	collected	M. Duran
111	PAIS120	7/4/2003	Thamnophis	proximus	orarius	30 m north of entrance station	669478	3040104	DOR	M. Duran

Appendix 7. Global Ranks, State Ranks, Federal and State Status Categories and Abbreviations.

Global Rank	Description
G1	Critically imperiled globally, extremely rare, 5 or fewer occurrences. (Critically endangered throughout range.)
G2	Imperiled globally, very rare, 6 to 20 occurrences. (Endangered throughout range.)
G3	Very rare and local throughout range or found locally in restricted range, 21 to 100 occurrences. (Threatened throughout range.)
G4	Apparently secure globally.
G5	Demonstrably secure globally.
G?	Not ranked to date.
G#?	Rank uncertain.
G#G#	Ranked within a range as status uncertain.
G#NA	Accidental in North America.
G#NE	An exotic species established in North America.
G#T#	"G" = species rank; "T" = rank of variety or subspecies.
GH	Of historical occurrence throughout its range; may be rediscovered.
GU	Possibly in peril rangewide, but status uncertain; need more information.
GX	Believed to be extinct throughout range; little or no expectation of rediscovery.
Q	Qualifier denoting questionable taxonomic status.
C	Captive population exists.
State Rank	
S1	Critically imperiled in state, extremely rare, very vulnerable to extirpation, 5 or fewer occurrences.
S2	Imperiled in state, very rare, vulnerable to extirpation, 6 to 20 occurrences.
S3	Rare or uncommon in state, 21 to 100 occurrences.
S4	Apparently secure in state.
S5	Demonstrably secure in state.
SA	Accidental in state.
SE	An exotic species established in state.
SH	Of historical occurrence in state; may be rediscovered.
SN	Regularly occurring, non-breeding status.
SP	Potential occurrence in state.
SR	Reported, but without conclusive evidence to accept or reject report.
SRF	Reported in error, but error persists in literature.
SU	Possibly in peril in state, but status uncertain.
SX	Apparently extirpated from state.
SZ	Migratory/transient in state to irregular/dispersed locations.
S#?	Rank uncertain.
S?	Not ranked to date or denoting uncertain rank.
C	Captive population exists.
Federal Status	
LE	Listed endangered
LT	Listed threatened
PE	Proposed endangered
PT	Proposed threatened
C	Candidate
PDL	Proposed for delisting
E(S/A) or T(S/A)	Listed because of similarity of appearance
XE	Essential experimental population
XN	Nonessential experimental population
State Status	
E	State Endangered
T	State Threatened

Appendix 8. All collections, observations, and museum records collected during a reptile and amphibian inventory of San Antonio National Missions Historical Park; March 2002 – October 2003**.**

SPECIES	DATES	LOCATION	Easting	Northing	TYPE RECORD	COMMENTS
Agkistrodon piscivorus	6/05/2001	acequia Espada - N. Ashley rd	552540.40	3245257.33	Observation	Brett Carré
Acris crepitans blanchardi	06212003/	near Picosa ck & SA River	581258.11	3219102.11	Observation	hundreds - usually every time
Acris crepitans blanchardi	06212003	near Picosa ck & SA River	581264.07	3219103.30	Observation	hundreds - usually every time
Acris crepitans blanchardi	06212003	near Picosa ck & SA River	581270.03	3219102.11	Observation	hundreds - usually every time
Acris crepitans blanchardi	06212003	near Picosa ck & SA River	581275.99	3219099.72	Observation	hundreds - usually every time
Acris crepitans blanchardi	06212003	near Picosa ck & SA River	581283.14	3219098.53	Observation	hundreds - usually every time
Acris crepitans blanchardi	09262002	Picosa Creek near SA River	581289.10	3219090.19	Observation	hundreds - usually every time
Acris crepitans blanchardi	09262002	Picosa Creek near SA River	581287.90	3219080.65	Observation	hundreds - usually every time
Acris crepitans blanchardi	09262002	Picosa Creek near SA River	581290.29	3219069.93	Observation	hundreds - usually every time
Acris crepitans blanchardi	09262002	Picosa Creek near SA River	581289.10	3219061.58	Observation	hundreds - usually every time
Acris crepitans blanchardi	09262002	Picosa Creek near SA River	581289.10	3219054.43	Observation	hundreds - usually every time
Acris crepitans blanchardi	09262002	Picosa Creek near SA River	581289.10	3219049.67	Observation	hundreds - usually every time
Acris crepitans blanchardi	09262002	Picosa Creek near SA River	581289.10	3219036.56	Observation	hundreds - usually every time
Acris crepitans blanchardi	09262002	Picosa Creek near SA River	581290.29	3219025.83	Observation	hundreds - usually every time
Acris crepitans blanchardi	09262002	Picosa Creek near SA River	581289.10	3219019.87	Observation	hundreds - usually every time
Acris crepitans blanchardi	09262002	Picosa Creek near SA River	581289.10	3219010.34	Observation	hundreds - usually every time
Acris crepitans blanchardi	09262002	Picosa Creek near SA River	581290.29	3218998.42	Observation	hundreds - usually every time
Acris crepitans blanchardi	10312002	Picosa Creek near SA River	581289.10	3218988.88	Observation	hundreds - usually every time
Acris crepitans blanchardi	10312002	confluence SA River-Picosa Cr.	581291.48	3218980.54	Observation	hundreds - usually every time
Acris crepitans blanchardi	10312002	confluence SA River-Picosa Cr.	581289.10	3218967.43	Observation	hundreds - usually every time
Acris crepitans blanchardi	10/31/2002	confluence SA River-Picosa Cr.	581292.67	3218956.70	Observation	hundreds - usually every time
Acris crepitans blanchardi	10/31/2002	confluence SA River-Picosa Cr.	581291.48	3218943.59	Observation	hundreds - usually every time
Acris crepitans blanchardi	04/05/2003	confluence SA River-Picosa Cr.	581274.79	3218931.67	1 spec/photos-SAAN-079	hundreds - usually every time
Acris crepitans blanchardi	04/05/2003	SA River S. of Picosa Cr.	581262.88	3218904.26	one specimen + photos	hundreds - usually every time
Acris crepitans blanchardi	04/05/2003	SA River S. of Picosa Cr.	581267.64	3218913.80	one specimen + photos	hundreds - usually every time
Acris crepitans blanchardi	04/05/2003	SA River S. of Picosa Cr.	581272.41	3218922.14	one specimen + photos	hundreds - usually every time
Acris crepitans blanchardi	04/05/2003	SA River S. of Picosa Cr.	581261.68	3218891.15	one specimen + photos	hundreds - usually every time
Acris crepitans blanchardi	04/05/2003	SA River S. of Picosa Cr.	581260.49	3218879.23	one specimen + photos	hundreds - usually every time
Acris crepitans blanchardi	04/05/2003	SA River S. of Picosa Cr.	581261.68	3218872.08	one specimen + photos	hundreds - usually every time
Acris crepitans blanchardi	04/05/2003	SA River S. of Picosa Cr.	581261.68	3218867.32	one specimen + photos	hundreds - usually every time
Acris crepitans blanchardi	04/05/2003	SA River S. of Picosa Cr.	581261.68	3218854.21	one specimen + photos	hundreds - usually every time
Acris crepitans blanchardi	04/05/2003	SA River S. of Picosa Cr.	581261.68	3218843.48	one specimen + photos	hundreds - usually every time
Acris crepitans blanchardi	04/05/2003	SA River S. of Picosa Cr.	581262.88	3218836.33	one specimen + photos	hundreds - usually every time
Acris crepitans blanchardi	04/05/2003	SA River S. of Picosa Cr.	581264.07	3218825.60	one specimen + photos	hundreds - usually every time
Acris crepitans blanchardi	04/05/2003	SA River S. of Picosa Cr.	581264.07	3218814.87	one specimen + photos	hundreds - usually every time
Acris crepitans blanchardi	04/05/2003	SA River S. of Picosa Cr.	581265.26	3218807.72	one specimen + photos	hundreds - usually every time
Acris crepitans blanchardi	04/05/2003	SA River S. of Picosa Cr.	581264.07	3218799.38	one specimen + photos	hundreds - usually every time
Acris crepitans blanchardi	04/05/2003	SA River S. of Picosa Cr.	581264.07	3218793.42	one specimen + photos	hundreds - usually every time
Acris crepitans blanchardi	04/05/2003	SA River S. of Picosa Cr.	581280.75	3218938.83	one specimen + photos	hundreds - usually every time
Acris crepitans blanchardi	03/19/2002	Picosa Cr. @ N boundary NPS	581330.28	3219326.44	observation	saw several
Acris crepitans blanchardi	03/19/2002	Picosa Cr. @ N boundary NPS	581334.58	3219347.30	observation	saw several
Acris crepitans blanchardi	3/19/2002	Picosa Cr. @ N boundary NPS	581356.78	3219352.52	observation	saw several

SPECIES	DATES	LOCATION	Easting	Northing	TYPE RECORD	COMMENTS
Acris crepitans blanchardi	03/19/2002	Picosa Cr. @ N boundary NPS	581377.55	3219352.10	Observation	saw several
Acris crepitans blanchardi	04/17/2003	SA River - 1 km N. San Juan	552530.62	3245766.78	heard - recorded	heard - recorded
Acris crepitans blanchardi	04/17/2003	SA River - 1 km N. San Juan	552474.06	3245728.75	heard - recorded	heard - recorded
Acris crepitans blanchardi	04/17/2003	SA River - 1 km N. San Juan	552473.86	3245771.92	heard - recorded	heard - recorded
Acris crepitans blanchardi	04/17/2003	SA River - 1 km N. San Juan	552478.40	3245812.42	heard - recorded	heard - recorded
Acris crepitans blanchardi	04/15/2003	Picosa Creek near SA River	581288.73	3218983.90	heard - recorded	heard - recorded
Acris crepitans blanchardi	04/15/2003	Picosa Creek near SA River	581287.92	3218994.54	heard - recorded	heard - recorded
Acris crepitans blanchardi	04/15/2003	Picosa Creek near SA River	581288.33	3219005.46	heard - recorded	heard - recorded
Acris crepitans blanchardi	04/15/2003	Picosa Creek near SA River	581286.77	3219017.48	heard - recorded	heard - recorded
Acris crepitans blanchardi	04/15/2003	Picosa Creek near SA River	581286.69	3219029.24	heard - recorded	heard - recorded
Acris crepitans blanchardi	04/15/2003	Picosa Creek near SA River	581284.87	3219042.10	heard - recorded	heard - recorded
Aspidoscelis gularis	7/12/2002	on rocks by monument	581082.66	3218802.14	observed	on rocks by monument
Aspidoscelis gularis	4/17, 5/15/2003	Trap GR 2	581167.62	3218828.65	trapped twice-SAAN-101	trapped twice
Aspidoscelis gularis	5/15, 6/22/2003	Trap GR 3	581283.78	3219076.92	trapped twice	trapped twice
Anolis carolinensis	3/19/2002	200 m east of Picosa creek	581460.52	3219061.76	observed	goat ranch
Anolis carolinensis	5/31/2002	behind Mission Espada wall	553356.10	3243415.39	observed-captured/released	mission espada
Anolis carolinensis	5/31/2002	behind Mission Espada wall	553373.38	3243415.47	observed	mission espada
Anolis carolinensis	5/31/2002	behind Mission San Juan	552855.24	3244929.32	observed	behind mission san juan
Anolis carolinensis	6/02/2002	Labores Espada	552561.47	3244234.01	observed	labores espada
Anolis carolinensis	4/17/2003	labores espada	552772.11	3243994.25	observed	labores espada
Anolis carolinensis	4/6/2003	across rd from M. San Jose	550492.30	3248288.90	observed	very trashy altered area
Anolis carolinensis	9/27/2002	across rd from M. San Jose	552635.95	3245898.80	trapped - spec SAAN-057	
Apalone spinifera	6/2/2002	near labores de espada	552575.26	3244873.08	obs - photo	Inlet off of SA River
Apalone spinifera	6/2/2002	near labores de espada	552575.33	3244856.70	obs - photo	Inlet off of SA River
Apalone spinifera	6/2/2002	near labores de espada	552575.41	3244840.31	obs - photo	Inlet off of SA River
Apalone spinifera	6/3/2002	near Mission San Juan	552572.99	3244845.76	Obs - DOR - decomposed	SA River
Bufo nebulifer	10/31/2002	W. of Picosa Cr. by trap GR3	581279.32	3218999.55	Obs	Riparian
Bufo nebulifer	10/31/2002	W. of Picosa Cr. by trap GR3	581279.32	3219056.82	Obs	Riparian
Bufo nebulifer	6/3/2002	1 km N. Mission San Juan	552587.35	3245830.95	photo/spec - SAAN-006	Riparian
Bufo nebulifer	6/3/2002	1 km N. Mission San Juan	552596.53	3245832.74	photo/spec - SAAN-008	Riparian
Bufo nebulifer	6/3/2002	1 km N. Mission San Juan	552605.70	3245838.03	Obs - some photos	Riparian
Bufo nebulifer	6/3/2002	1 km N. Mission San Juan	552617.95	3245839.83	Obs - some photos	Riparian
Bufo nebulifer	6/3/2002	1 km N. Mission San Juan	552627.14	3245841.62	Obs	Riparian
Bufo nebulifer	6/3/2002	1 km N. Mission San Juan	552630.18	3245845.14	Obs	Riparian
Bufo nebulifer	6/3/2002	1 km N. Mission San Juan	552639.37	3245846.93	Obs	Riparian
Bufo nebulifer	6/3/2002	1 km N. Mission San Juan	552642.41	3245852.19	Obs	Riparian
Bufo nebulifer	6/3/2002	1 km N. Mission San Juan	552653.14	3245852.24	Obs	Riparian
Bufo nebulifer	6/3/2002	1 km N. Mission San Juan	552660.79	3245854.02	Obs	Riparian
Bufo nebulifer	6/3/2002	1 km N. Mission San Juan	552671.51	3245855.82	Obs	Riparian
Bufo nebulifer	6/3/2002	1 km N. Mission San Juan	552680.70	3245855.86	Obs	Riparian
Bufo nebulifer	6/3/2002	1 km N. Mission San Juan	552695.97	3245868.18	Obs	Riparian
Bufo nebulifer	6/3/2002	1 km N. Mission San Juan	552706.68	3245869.97	Obs	Riparian
Bufo nebulifer	6/3/2002	1 km N. Mission San Juan	552709.72	3245876.98	Obs	Riparian
Bufo nebulifer	6/3/2002	1 km N. Mission San Juan	552721.95	3245882.29	Obs	Riparian
Bufo nebulifer	6/3/2002	1 km N. Mission San Juan	552728.05	3245889.31	Obs	Riparian
Bufo nebulifer	6/3/2002	1 km N. Mission San Juan	552731.11	3245889.32	Obs	Riparian
Bufo nebulifer	6/3/2002	1 km N. Mission San Juan	552744.88	3245894.64	Obs	Riparian
Bufo nebulifer	6/3/2002	1 km N. Mission San Juan	552746.39	3245899.89	Obs	Riparian

SPECIES	DATES	LOCATION	Easting	Northing	TYPE RECORD	COMMENTS
Bufo nebulifer	6/3/2002	1 km N. Mission San Juan	552562.90	3245815.09	Obs	Riparian
Bufo nebulifer	6/3/2002	1 km N. Mission San Juan	552553.78	3245799.31	Obs	Riparian
Bufo nebulifer	6/3/2002	1 km N. Mission San Juan	552547.71	3245787.04	Obs	Riparian
Bufo nebulifer	7/12/2003	100 m NNE of monument GR	581122.47	3218926.86		upland - open area near ravine
Bufo nebulifer	9/26/2002	W. Picosa Cr. - near GR3	581276.59	3219036.03	Obs - photos	Riparian
Bufo nebulifer	6/21/2003	E. of Picosa Cr. - near trap GR	581299.72	3219016.93	Obs -photos	Riparian
Bufo nebulifer	6/19/2003	W. Picosa Cr. - near GR3	581276.78	3219012.81	obs	Riparian
Bufo nebulifer	various dates (6)	SAAN - GR-1 - various dates	580935.18	3219045.59	trap	upland mesquite woodland
Bufo nebulifer	various dates (7)	SAAN - GR-2 - various dates	581169.68	3218833.96	trap (SAAN-054, 065)	open scrub upland - old quarry
Bufo nebulifer	various dates (4)	SAAN-GR-3 - various dates	581282.82	3219075.10	trap	riparian woodland
Bufo nebulifer	04/11/2003	SAAN - Trap 1 - various dates	552879.69	3243856.62	trap	upland woodland
Bufo nebulifer	6/26/2003	SAAN - Trap 2 - various dates	553037.12	3244391.37	trap	old field - former riparian WL
Bufo nebulifer	various dates (4)	SAAN - Trap 3 - various dates	552641.83	3245892.11	trap (SAAN-056)	riparian woodland-very altered
Bufo nebulifer	7/13/2002	1 km N. M. San Juan - SA River	552489.67	3245825.18	heard - recorded-dm-10011	river/creek bank
Bufo nebulifer	7/13/2002	1 km N. M. San Juan - SA River	552482.71	3245793.72	heard - recorded-dm-10011	river/creek bank
Bufo nebulifer	7/13/2002	1 km N. M. San Juan - SA River	552529.87	3245777.71	heard - recorded-dm-10011	river/creek bank
Bufo nebulifer	7/13/2002	1 km N. M. San Juan - SA River	552536.02	3245792.95	heard - recorded-dm-10011	river/creek bank
Bufo nebulifer	7/13/2002	1 km N. M. San Juan - SA River	552549.45	3245769.69	heard - recorded-dm-10011	river/creek bank
Bufo nebulifer	7/13/2002	1 km N. M. San Juan - SA River	552479.32	3245757.20	heard - recorded	river/creek bank
Chelydra serpentina	6/24/2003	creek N of Mission Rd	552329.17	3245511.49	trapped - photos - released	flowing creek
Chelydra serpentina	6/24/2003	creek N of Mission Rd	552358.78	3245499.72	trapped - photos - released	flowing creek
Chelydra serpentina	6/24/2003	creek N of Mission Rd	552313.50	3245515.39	trapped - photos - released	flowing creek
Chelydra serpentina	5/15/2003	pond 1 km N. of M. San Juan	552758.43	3245932.19	trapped - photos - released	ponded former(?) creek
Chelydra serpentina	5/15/2003	pond 1 km N. of M. San Juan	552760.25	3245914.34	trapped - photos - released	ponded former(?) creek
Chelydra serpentina	6/3/2002	SA River 300 m W. Trap 3	552475.58	3245811.82	Observed	San Antonio River
Crotalus atrox	4/05/2003	betw. traps GR-2 and GR-3	581186.60	3218961.47	Observation	almost stepped on
Crotalus atrox	9/23/02; 4/15, 6/24, 4/15/03	SAAN - Trap 1	552893.86	3243855.34	photos, spec SAAN-049	SAAN-049
Crotalus atrox	9/27(2), 9/28/02; 4/14/03(2)	SAAN - Goat Ranch - GR-1	580941.36	3219053.34	Trapped-usually photo	
Crotalus atrox	9/11/2002	SAJU - acequia @ S. Presa	553217.78	3245153.70	specimen # SAAN-081	by Ramon from B. Carre
Pantherophis emoryi	6/03/2002	1 km N. of Mission San Juan	552607.25	3245834.54	DOR? - Spec. SAAN-011	dying - run over? specimen
Pantherophis emoryi	7/14/2002	Hwy 97@Picosa Ck-DOR	579809.05	3219870.62	DOR - Spec. SAAN-001	DOR - Hwy 97 -specimen
Pantherophis emoryi	6/20/2003	right by trap GR3	581282.99	3219070.31	Obs	right by trap array GR3
Pantherophis emoryi	4/6/2003	GR1	580943.57	3219063.28	trapped - photo	SAAN - Goat Ranch - GR-1
Pantherophis emoryi	6/20/2003	GR2	581165.73	3218843.33	trapped - photo	SAAN - Goat Ranch - GR-2
Pantherophis emoryi	7/14/2003	Trap 1	552889.68	3243857.94	trapped - photo	SAAN - Trap 1
Pantherophis obsoleta	9/26/2002	SAAN - GR1	580933.82	3219057.18	Trapped-photos	upland woodland
Pantherophis obsoleta	9/23/2002; 5/14, 5/15/2003	Trap 1	552888.88	3243849.90	Trapped-photos	upland woodland
Pantherophis obsoleta	9/23/2002	Trap 2	553031.84	3244401.31	Trapped-photos	old field (formerly riparian?)
Gastrophryne olivacea	4/8/2003	SAAN - Trap 1	552893.35	3243849.55	DIT spec - SAAN-070	also photos
Gastrophryne olivacea	4/17/2003	SAAN - Trap 2	553058.38	3244407.84	trapped -some photos	also photos
Gastrophryne olivacea	9/26/03 (3)	SAAN - Trap 3	552635.97	3245892.97	trapped - some photos	also photos
Gastrophryne olivacea	9/22, 27/02(4); 6/21--26/03(4)	SAAN - Goat Ranch - GR-1	580942.92	3219058.36	DIT spec - SAAN-069, 083	also photos
Gastrophryne olivacea	4/4, 6/22/2003	SAAN - Goat Ranch - GR-2	581167.01	3218836.36	trapped	also photos
Gopherus berlandieri	5/13/2003	~100m S. of fence near GR1	580885.38	3219003.69	Observation - Photos	crossing road- photos
Gopherus-berlandieri	6/20/2003	betw. trap GR2 & GR3	581181.47	3218955.87	Observation - Photos	betw. trap GR2 & GR3-photos
Gopherus-berlandieri	9/26/2003	betw. trap GR2 & GR3	581178.94	3218949.24	Observation - Photos	eating coyote scat?
Gopherus-berlandieri	3/17/2004	S.E. of M. San Juan	552979.69	3244811.64	Observation	Greg Mitchell
Hemidactylus turcicus	05302002 & 06212003	Mission San Juan	552876.15	3244909.85	Observation	At night with flashlight

SPECIES	DATES	LOCATION	Easting	Northing	TYPE RECORD	COMMENTS
Hemidactylus turcicus	05302002 & 06212003	Mission San Juan	552880.97	3244928.05	Observation	At night with flashlight
Hemidactylus turcicus	6/21/2003	Mission San Jose	550477.18	3248253.28	Observation	At night with flashlight
Hemidactylus turcicus	6/21/2003	Mission San Jose	550528.24	3248219.32	Observation	At night with flashlight
Hemidactylus turcicus	6/21/2003	Mission San Jose	550495.39	3248198.66	Observation	At night with flashlight
Hemidactylus turcicus	6/21/2003	Mission Concepción	549381.69	3251411.28	Observation	At night with flashlight
Hemidactylus turcicus	10/1/2002	~500 m ESE M. S.Juan-Pooley	553424.59	3244894.33	Specimen - SAAN-084	Brett Carré
Hemidactylus turcicus	10/25/2002	Mission San Jose - Gristmill	550504.07	3248236.91	Specimen - SAAN-085	Brett Carré
Hyla cinerea	5/31/2002	behind Mission Espada	553333.66	3243508.53	heard	very brief call
Hyla cinerea	6/21/2003	SA River @ Picosa Ck	581252.89	3218889.54	heard	very brief call
Lampropeltis getula splendida	6/22/2003	SAAN - Goat Ranch - GR1	580942.36	3219052.82	Trapped-photos	did not collect
Leptotyphlops dulcis dulcis	9/27,28/02; 4/16, 6/24,26/2003	SAAN- Goat Ranch - GR1	580941.75	3219052.13	photo/spec SAAN-118	SAAN-111
Leptotyphlops dulcis dulcis	5/15/2003	SAAN- Goat Ranch - GR2	581168.84	3218836.37	photo/spec SAAN-090	SAAN-090
Leptotyphlops dulcis dulcis	6/24/2003	SAAN- Trap 2	553051.77	3244386.99	trapped - photo	
Leptotyphlops dulcis dulcis	4/8/2003	SAAN - Trap 3	552635.65	3245912.16	trapped - photo	
Masticophis flagellum testaceus	05122003	100 m S. of sign - Goat Ranch	580793.78	3219105.54	Observation	
Masticophis flagellum testaceus	6/21,24/2003	SAAN - Trap 2	553048.96	3244408.61	trapped-photos	
Masticophis flagellum testaceus	9/28/02, 6/26/03	SAAN - Goat Ranch - GR-1	580937.49	3219056.46	photo/spec - SAAN-072	
Masticophis schotti	6/18/2002	Villamain Rd - 900 m N of 410	553355.74	3244578.70	DOR - SPECI-SAAN-002	DOR - SPECIMEN
Masticophis schotti	7/14/2002	Hwy 97 @ Picosa Creek DOR	579825.37	3219894.55	DOR - SPEC.-SAAN-065	DOR - SPECIMEN
Masticophis schotti	9/26/2002; 6/24/2003	SAAN - Trap 1	552885.04	3243859.60	Trapped - photos	trapped - photos - several
Masticophis schotti	4/6/2003	SAAN - Trap 2	553057.15	3244393.20	Trapped - photos	trapped - photos
Micrurus fulvius	11/7/2002	grounds of Mission San Juan	552863.22	3244967.60	spec-SAAN-086; mower	killed by mower
Nerodia erythrogaster transversa	prior to 1986	Espada Park/Dam	551626.92	3246715.21	Vermersch, 1986	observed "100s"
Nerodia rhombifer	6/21/2003	SA River,430 m. ENE Picosa Cr.	581673.60	3219142.23	obs only	dropped into river from bank
Nerodia rhombifer	7/14/2002	Hwy 97 @ Picosa ck.	579786.28	3219862.63	DOR - Specimen SAAN-003	DOR - specimen
Nerodia rhombifer	9/2/2002	Mission Rd. @ SA River-SAJU	552848.78	3245181.99	DOR - Specimen SAAN-095	from Brett Carré
Nerodia rhombifer	9/26/2002	Hwy 97 @ Picosa Cr.	579811.59	3219888.42	DOR - Specimen SAAN-048	DOR - Specimen
Phrynosoma cornutum	June 2001	Goat Ranch near north fence	581015.27	3219297.69	observation	Brett Carré
Pseudemys texana	5/15/2003	SA River @ Picosa Cr.	581285.39	3218927.59	trapped - PHOTOS	
Pseudemys texana	5/15/2003	SA River @ Picosa Cr.	581307.01	3218943.33	trapped - PHOTOS	
Pseudemys texana	6/21/2003	SA River, 200 m ENE Picosa Cr.	581467.97	3219023.94	trapped - PHOTOS	
Pseudemys texana	6/21/2003	SA River, 200 m ENE Picosa Cr.	581489.93	3219032.78	trapped - PHOTOS	
Rana catesbeiana	9/22/2002	In old quarry, right by trap GR	581154.94	3218826.24	specimen - SAAN-062	from David Ribble – SPEC.
Salvadora grahamiae lineata	4/17, 6/24/2003	SAAN - Goat Ranch - GR-1	580940.68	3219060.14	Trapped, Spec - SAAN-098	
Salvadora grahamiae lineata	9/26/2002	SAAN - Trap 1	552893.48	3243858.49	Trapped, Spec - SAAN-047	
Scaphiopus couchii	9/27/2002	SAAN - GR-1	580945.54	3219058.26	trapped-spec - SAAN-064	
Sceloporus olivaceus	6/22/2002	behind the acequia dam	552286.80	3244855.33	observation	
Sceloporus olivaceus	9/27/02; 4/6, 5/15/2003	Trap 1	552890.17	3243861.95	Spec. DIT-SAAN-080	
Sceloporus olivaceus	4/11, 16, 6/20/2003	Trap 2	553061.02	3244407.08	trapped - 1 Specimen-DIT	
Sceloporus olivaceus	9/27/2002	Trap 3	552636.97	3245910.70	trapped - photos-SAAN-063	
Sceloporus olivaceus	9/22/2002	GR-2	581161.81	3218836.27	trapped - photos	
Sceloporus olivaceus	4/11 -- 6/24/2003 (6)	GR-3	581283.33	3219077.41	trapped - photos	
Sceloporus olivaceus	9/18/2002	~40 m W. Picosa - near GR-3	581236.24	3219075.67	Speci- acc. killed-SAAN-050	
Sceloporus olivaceus	4/17/2003	near trap 1	552920.49	3243830.96	observation	
Scincella lateralis	5/29/2002	north of Mission Rd.	552489.73	3245419.92	Observation	
Scincella lateralis	5/29/2002	north of Mission Rd.	552456.47	3245458.38	Observation	
Scincella lateralis	5/29/2002	north of Mission Rd.	552411.90	3245501.09	Observation	
Scincella lateralis	5/29/2002	north of Mission Rd.	552351.68	3245515.40	Observation	

SPECIES	DATES	LOCATION	Easting	Northing	TYPE RECORD	COMMENTS
Scincella lateralis	6/22/2002	labores espada	552598.27	3244037.56	Observation	
Scincella lateralis	6/22/2002	labores espada	552331.23	3244863.76	Observation	
Scincella lateralis	6/03/2002	1 km N. of M. San Juan	552672.97	3245869.82	Observation	
Scincella lateralis	6/03/2002	1 km N. of M. San Juan	552790.84	3245566.07	Observation	
Scincella lateralis	6/21/2003	300 m E. of Picosa creek	581539.64	3219113.37	Observation	Under log
Scincella lateralis	6/21/2003	near GR-3	581266.30	3219000.53	Observation	along path to GR3
Scincella lateralis	5/15/2003	GR-3	581283.27	3219076.08	spec./photo; SAAN-091	SAAN-091
Sonora semiannulata	9/26/2002	SAAN-traps GR-2	581165.78	3218833.42	trapped - escaped-photo	check photo ???
Storeria dekayi texana	7/13/2002	~100 w. - near trap GR2	581175.72	3218850.04	Spec., Photo - SAAN-041	
Eleutherodactylus cystignathoides campi	6/2/2002	north part of labores espada	552381.87	3244779.34	photo/spec -SAAN-007	SAAN-007
Eleutherodactylus cystignathoides campi	6/19/2003	by trap 1- 75m N. of 410	552888.23	3243852.32	obs. photo.	under bucket
Eleutherodactylus cystignathoides campi	6/3/2002	Padre Dr., .8 km N. Mission rd	552535.44	3245806.01	DOR - discarded	very bad specimen
Thamnophis marcianus	5/15, 6/22/2003	SAAN -Trap GR-2	581166.42	3218837.31	Specimen-SAAN-087	specimen from 5/15
Thamnophis marcianus	9/28/2002	SAAN - Trap 1	552889.78	3243851.99	Trapped - released	
Thamnophis proximus rubrilineatus	4/05/1995	M. SAJO - pit near mill	550572.36	3248221.59	observation	park employee
Trachemys scripta elegans	6/21/2003	SA River,~300m from Picosa Cr.	581473.95	3219016.27	Trapped - Photos	
Trachemys scripta elegans	6/21/2003	SA River,~300m from Picosa Cr.	581463.78	3219017.16	Trapped - Photos	
Trachemys scripta elegans	6/21/2003	SA River,~300m from Picosa Cr.	581458.68	3219020.02	Trapped - Photos	
Trachemys scripta elegans	6/21/2003	SA River,~300m from Picosa Cr.	581489.16	3219021.20	Trapped - Photos	
Trachemys scripta elegans	6/21/2003	SA River,~300m from Picosa Cr.	581482.29	3219035.61	Trapped - Photos	
Trachemys scripta elegans	6/3/2002	SA River ~1 km N. M. San Juan	552466.77	3245783.32	Observed basking	
Trachemys scripta elegans	6/3/2002	SA River ~1 km N. M. San Juan	552464.74	3245752.38	Observed basking	
Virginia striatula	9/22/2002	SAAN - Trap GR-1	580934.24	3219058.16	Trap - released	
Virginia striatula	9/26,27,28/2002	SAAN - Trap GR-2	581164.03	3218833.41	Spec-photo--SAAN-061	
Virginia striatula	9/18/2002	SA Hdqts	550400.05	3250179.00	SAAN-093	from Brett Carré

Appendix 9. Trapping results during reptile and amphibian inventory of San Antonio Missions National Historical Park; March 2002 – October 2003.

Date	Trap #	Genus	Species	Subspecies	Comment
9/20/02	3	Bufo	valliceps		
9/22/02	GR1	Baiomys	taylori		
9/22/02	GR1	Bufo	valliceps		
9/22/02	GR2	Bufo	valliceps		
9/22/02	GR1	Gastrophryne	olivacea		
9/22/02	GR2	Sceloporus	olivaceus		poor specimen; undulatus?
9/22/02	GR1	Virginia	striatula		escaped
9/23/02	3	Anolis	carolinensis		
9/23/02	3	Bufo	valliceps		
9/23/02	GR1	Bufo	valliceps		
9/23/02	GR2	Bufo	valliceps		
9/23/02		Bufo	valliceps		
9/23/02		Bufo	valliceps		
9/23/02	1	Crotalus	atrox		photos - specimen
9/23/02	1	Pantherophis	obsoleta		
9/26/02	GR2	Baiomys	taylori		spec. to D. Ribble
9/26/02	GR1	Bufo	valliceps		
9/26/02	GR2	Bufo	valliceps		
9/26/02	GR2	Bufo	valliceps		
9/26/02	GR2	Cryptotis	parva		spec. to D. Ribble
9/26/02	GR1	Pantherophis	obsoleta		
9/26/02	3	Gastrophryne	olivacea		
9/26/02	3	Gastrophryne	olivacea		
9/26/02	3	Gastrophryne	olivacea		
9/26/02	GR2	Geomys	bursarius		personatus? Spec to D. Ribble
9/26/02	1	Masticophis	schotti	schotti	
9/26/02	1	Salvadora	grahamiae	lineata	poor specimen, DIT
9/26/02	GR2	Sonora	semiannulata	semiannulata	Was this changed to Virginia/??
9/26/02	2	Sylvilagus	floridanus		
9/27/02	2	Baiomys	taylori		
9/27/02	GR2	Baiomys	taylori		DIT
9/27/02	GR1	Bufo	valliceps		
9/27/02	GR1	Bufo	valliceps		
9/27/02	GR2	Bufo	valliceps		
9/27/02	GR2	Bufo	valliceps		
9/27/02	GR1	Crotalus	atrox		photo
9/27/02	GR1	Crotalus	atrox		photo - this snake killed my dog
9/27/02	2	Cryptotis	parva		
9/27/02	GR1	Gastrophryne	olivacea		
9/27/02	GR1	Gastrophryne	olivacea		
9/27/02	GR1	Gastrophryne	olivacea		
9/27/02	GR1	Leptotyphlops	dulcis	dulcis	specimen - escaped
9/27/02	GR1	Scaphiopus	couchii		
9/27/02	1	Sceloporus	olivaceus		
9/27/02	3	Sceloporus	olivaceus		
9/27/02	1	unk			snake skeleton - eaten by ants in 1 day
9/27/02	GR2	Virginia	striatula		Specimen
9/28/02	3	Bufo	valliceps		
9/28/02	GR1	Bufo	valliceps		
9/28/02	GR1	Crotalus	atrox		photo
9/28/02	GR1	Leptotyphlops	dulcis	dulcis	escaped!
9/28/02	GR1	Masticophis	flagellum	testaceus	spec
9/28/02	1	Thamnophis	marcianus	marcianus	
9/28/02	GR2	Virginia	striatula		
9/28/02	GR2	Virginia	striatula		
9/28/02	GR2	Virginia	striatula		
9/28/02					Ordered to close traps by NPS
10/26/02		Rana	catesbeiana		from D. Ribble
4/4/03	GR2	Cryptotis	parva		

Date	Trap #	Genus	Species	Subspecies	Comment
4/4/03	GR2	Gastrophryne	olivacea		
4/4/03	GR2	Peromyscus	leucopus		photo
4/5/03	2	Cryptotis	parva		
4/5/03	2	Cryptotis	parva		
4/5/03	GR1	Cryptotis	parva		
4/5/03	GR1	Cryptotis	parva		
4/5/03	GR2	Cryptotis	parva		
4/5/03	2	Masticophis	schotti	schotti	
4/6/03	3	Bufo	valliceps		
4/6/03	2	Cryptotis	parva		
4/6/03	GR1	Cryptotis	parva		
4/6/03	GR1	Cryptotis	parva		
4/6/03	GR1	Cryptotis	parva		
4/6/03	GR2	Cryptotis	parva		
4/6/03	GR1	Pantherophis	emoryi		
4/6/03	1	Sceloporus	olivaceus		
4/8/03	2	Cryptotis	parva		
4/8/03	2	Cryptotis	parva		
4/8/03	GR1	Cryptotis	parva		
4/8/03	GR1	Cryptotis	parva		
4/8/03	GR2	Cryptotis	parva		
4/8/03	1	Gastrophryne	olivacea		
4/8/03	GR2	Geomys	bursarius		
4/8/03	3	Leptotyphlops	dulcis	dulcis	Specimen - photos-SAAN-090
4/8/03	GR1	Mus	musculus		photos
4/8/03	1	Thryothorus	ludovicianus		released
4/8/03	1	Thryothorus	ludovicianus		released
4/11/03	1	Bufo	valliceps		released
4/11/03	2	Cryptotis	parva		released
4/11/03	GR2	Cryptotis	parva		released
4/11/03	GR1	Reithrodontomys	humilus		this can't be right? Photos
4/11/03	2	Sceloporus	olivaceus		
4/11/03	GR3	Sceloporus	olivaceus		
4/11/03	GR3	Sceloporus	olivaceus		
4/15/03	1	Crotalus	atrox		photo
4/15/03	GR1	Crotalus	atrox		photo
4/15/03	GR1	Crotalus	atrox		photo
4/15/03	1	Cryptotis	parva		
4/15/03	2	Cryptotis	parva		
4/15/03	GR3	Sceloporus	olivaceus		
4/16/03	1	Crotalus	atrox		photo
4/16/03	GR2	Cryptotis	parva		
4/16/03	GR1	Leptotyphlops	dulcis	dulcis	DIT-specimen-SAAN-117
4/16/03	2	Sceloporus	olivaceus		
4/17/03	GR2	Aspidoscelis	gularis	gularis	photos/specimen
4/17/03	2	Gastrophryne	olivacea		
4/17/03	GR1	Salvadora	grahamiae	lineata	photos/specimen
4/17/03	2	Sigmodon	hispidus		
5/13/03	GR1	Rhinocheilus	lecontei	tessellatus	photos/specimen
5/14/03	2	Cryptotis	parva		
5/14/03	1	Pantherophis	emoryi		
5/14/03	1	Pantherophis	obsoleta		photos
5/14/03	2	Peromyscus	leucopus		
5/15/03	GR2	Aspidoscelis	gularis	gularis	photos
5/15/03	GR3	Aspidoscelis	gularis	gularis	
5/15/03	GR2	Bufo	valliceps		
5/15/03	GR3	Bufo	valliceps		
5/15/03	T2	Chelydra	serpentina		100 m East of Trap 3
5/15/03	GR1	Cryptotis	parva		
5/15/03	1	Pantherophis	obsoleta		
5/15/03	GR2	Leptotyphlops	dulcis	dulcis	
5/15/03	GR2	Mus	musculus		photos ID?

Date	Trap #	Genus	Species	Subspecies	Comment
5/15/03	GR2	Mus	musculus		photos ID?
5/15/03	T1	Pseudemys	texana		SA River @ Picosa Creek
5/15/03	T1	Pseudemys	texana		SA River @ Picosa Creek
5/15/03	1	Sceloporus	olivaceus		
5/15/03	GR3	Sceloporus	olivaceus		
5/15/03	GR3	Scincella	lateralis		specimen
5/15/03	GR2	Thamnophis	marcianus	marcianus	photos/specimen
5/15/03					Traps Closed 5/15
6/19/03					Traps Opened 6/19/03
6/20/03	GR3	Cryptotis	parva		
6/20/03	GR2	Pantherophis	emoryi		
6/20/03	2	Sceloporus	olivaceous		looks a little like undulatus
6/20/03	GR1	unk frog			desiccated
6/21/03	GR3	Cryptotis	parva		
6/21/03	2	Pantherophis	obsoleta		
6/21/03	GR1	Gastrophryne	olivacea		
6/21/03	GR1	Gastrophryne	olivacea		
6/21/03	T3	Lepisosteus	oculatus		San Antonio River, 200 m upstream of Picosa Creek
6/21/03	T3	Lepisosteus	oculatus		San Antonio River, 200 m upstream of Picosa Creek
6/21/03	T3	Lepisosteus	oculatus		San Antonio River, 200 m upstream of Picosa Creek
6/21/03	T3	Lepisosteus	oculatus		San Antonio River, 200 m upstream of Picosa Creek
6/21/03	2	Masticophis	flagellum		
6/21/03	T3	Pseudemys	texana		San Antonio River, 200 m upstream of Picosa Creek
6/21/03	T3	Pseudemys	texana		San Antonio River, 200 m upstream of Picosa Creek
6/21/03	T3	Pterygoplichthys	anisitsi		San Antonio River, 200 m upstream of Picosa Creek
6/21/03	T3	Trachemys	scripta	elegans	San Antonio River, 200 m upstream of Picosa Creek
6/21/03	T3	Trachemys	scripta	elegans	San Antonio River, 200 m upstream of Picosa Creek
6/21/03	T3	Trachemys	scripta	elegans	San Antonio River, 200 m upstream of Picosa Creek
6/21/03	T3	Trachemys	scripta	elegans	San Antonio River, 200 m upstream of Picosa Creek
6/21/03	T3	Trachemys	scripta	elegans	San Antonio River, 200 m upstream of Picosa Creek
6/22/03	GR3	Aspidoscelis	gularis		photo
6/22/03	GR3	Bufo	valliceps		photo
6/22/03	GR3	Cryptotis	parva		
6/22/03	2	Pantherophis	obsoleta		
6/22/03	GR2	Gastrophryne	olivacea		
6/22/03	GR1	Lampropeltis	getula	splendida	
6/22/03	GR3	Sceloporus	olivaceous		
6/22/03	2	Sigmodon	hispidus		
6/22/03	GR2	Thamnophis	marcianus		photo
6/24/03	T4	Chelydra	serpentina		In acequia just N. of Ashton Rd.
6/24/03	T4	Chelydra	serpentina		In acequia just N. of Ashton Rd.
6/24/03	T4	Chelydra	serpentina		In acequia just N. of Ashton Rd.
6/24/03	1	Crotalus	atrox		photo
6/24/03	GR1	Gastrophryne	olivacea		photo
6/24/03	2	Leptotyphlops	dulcis		photo
6/24/03	GR1	Leptotyphlops	dulcis		photo
6/24/03	2	Masticophis	flagellum	testaceus	photo
6/24/03	1	Masticophis	schotti		photo
6/24/03	3	Mus	musculus		ID? - (B. taylori?) photo
6/24/03	GR1	Salvadora	grahamiae		photo
6/24/03	GR3	Sceloporus	olivaceous		photo
6/24/03	2	Sigmodon	hispidus		photo
6/24/03	2	Sigmodon	hispidus		DIT
6/26/03	2	Bufo	valliceps		
6/26/03	GR1	Gastrophryne	olivacea		
6/26/03	GR1	Leptotyphlops	dulcis		
6/26/03	GR1	Leptotyphlops	dulcis		
6/26/03	GR1	Leptotyphlops	dulcis		
6/26/03	GR1	Leptotyphlops	dulcis		
6/26/03	GR1	Masticophis	flagellum	testaceus	
6/26/03	GR1	Neotoma	micropus?		ID? photo (floridana?)

Appendix 10. Results and locations of visual encounter surveys conducted during reptile and amphibian inventory of San Antonio Missions National Historical Park; March 2002 – October 2003.

Date	Species	Begin Easting	Begin Northing	End Easting	End Northing	Location	Comments	Surveyor(s)
3/19/2002	Anolis carolinensis					all around Mission Espada	3 behind misssion (captured 1)	Mike Duran
3/19/2002	Anolis carolinensis	552865	3244931	552799	3244746	Behind Mission San Juan and along SA River	just behind mission near board walk (29.332345 - 98.455490)	Mike Duran
3/19/2002	no herps observed					strip along San Jose Dr.	no herps observed	Mike Duran
3/19/2002	no herps observed					wooded strip along edges of Mission Concepcion	no herps observed	Mike Duran
3/19/2002	Anolis carolinensis (1)					walked perimeter of Rancho de las Cabras including across Picosa Creek	E of Picosa Ck near SA River	Mike Duran, Brette Carre
3/19/2002	Acris crepitans					walked perimeter of Rancho de las Cabras including across Picosa Creek	at crossing of Picosa Creek	Mike Duran, Brette Carre
4/11/2002	no herps observed	552690	3245853	552684	3245536	1 km N of Mission San Juan-E of Mission Rd	no herps observed	Mike Duran, Lynne Duran
5/28/2002	nothing observed	580017	3218351	580850	3219101	Strip entering Goat Ranch, from Gate to sign	no herps observed	Mike Duran, Lynne Duran
5/29/2002	Scinella lateralis (4)	552598	3245244	552424	3245915	W across river from Mission Juan N of Mission Ashley Rd.	along walking trail -SW side of survey area Riparian	Mike Duran
5/29/2002	Anolis carolinensis	552598	3245244	552424	3245915	W across river from Mission Juan N of Mission Ashley Rd.	just behind misssion - just off of boardwalk	Mike Duran
5/29/2002	Hemidactylus turcicus (2)	552598	3245244	552424	3245915	W across river from Mission Juan N of Mission Ashley Rd.	on wall of main building	Mike Duran
5/31/2002	Anolis carolinensis (2)					Ground around Mission Espada	N edge of mission grounds-riparian	Mike Duran
5/31/2002	Hyla cinerea (1)					Ground around Mission Espada	heard- wet area at N edge of Mission grounds	Mike Duran
6/2/2002	Scinella lateralis - (2)	552829	3243820	552559	3244857	From Hwy 410 near SW corner of the L Espada, NW to creek on N edge of this block, E to SA property boundary and back to SE w/ numerous side trips to explore likely looking cover objects etc.	near old acequia SW part of survey area	Mike Duran
6/2/2002	Anolis carolinensis	552829	3243820	552559	3244857	From Hwy 410 near SW corner of the L Espada, NW to creek on N edge of this block, E to SA property boundary and back to SE w/ numerous side trips to explore likely looking cover objects etc.		Mike Duran
6/2/2002	Eleutherodactylus cystignathoides campi	552829	3243820	552559	3244857	From Hwy 410 near SW corner of the L Espada, NW to creek on N edge of		Mike Duran

Date	Species	Begin Easting	Begin Northing	End Easting	End Northing	Location	Comments	Surveyor(s)
						this block, E to SA property boundary and back to SE w/ numerous side trips to explore likely looking cover objects etc.		
6/2/2002	Apalone spinifera (8-10)	552829	3243820	552559	3244857	From Hwy 410 near SW corner of the L Espada, NW to creek on N edge of this block, E to SA property boundary and back to SE w/ numerous side trips to explore likely looking cover objects etc.		Mike Duran
6/2/2002	Sceloporus olivaceus	552829	3243820	552559	3244857	From Hwy 410 near SW corner of the L Espada, NW to creek on N edge of this block, E to SA property boundary and back to SE w/ numerous side trips to explore likely looking cover objects etc.		Mike Duran
6/3/2002	Elaphe emoryi	552688	3246230	552684	3245536	1 km N of Mission San Juan-E of Mission Rd		Mike Duran, Lynne Duran
6/3/2002	Bufo nebulifer	552688	3246230	552684	3245536	1 km N of Mission San Juan-E of Mission Rd		Mike Duran, Lynne Duran
6/3/2002	Scincella lateralus	552688	3246230	552684	3245536	1 km N of Mission San Juan-E of Mission Rd		Mike Duran, Lynne Duran
6/3/2002	Eleutherodactylus cystignathoides campi	552688	3246230	552684	3245536	1 km N of Mission San Juan-E of Mission Rd		Mike Duran, Lynne Duran
7/13/2002	Bufo nebulifer					Goat Ranch - most of uplands early. Uplands N of monument area late. Put out coverboards		Mike Duran, Lynne Duran
7/13/2002	Aspidoscelis gularis					Goat Ranch - most of uplands early. Uplands N of monument area late. Put out coverboards		Mike Duran, Lynne Duran
7/13/2002	Storeria dekayi texana					Goat Ranch - most of uplands early. Uplands N of monument area late. Put out coverboards		Mike Duran, Lynne Duran
9/26/2002	Bufo nebulifer					Riparian Area W of Picosa Creek (on GIS same as 10/31/02)		Mike Duran
9/26/2002	Acris crepitans					Riparian Area W of Picosa Creek (on GIS same as 10/31/02)		Mike Duran
10/31/2002	Bufo nebulifer - in 2 places					From behind monument to most of area inside park, W of Picosa Creek up to the old fence, or where the partk levels off...riparian area		Mike Duran
10/31/2002	Acris crepitans blanchardi					From behind monument to most of area inside park, W of Picosa Creek up		Mike Duran

Date	Species	Begin Easting	Begin Northing	End Easting	End Northing	Location	Comments	Surveyor(s)
						to the old fence, or where the partk levels off...riparian area		
4/5/2003	Acris crepitans blanchardi (50-100)	581155	3218834			From trap GR 2 to confluance of Picosa Creek along SA River S to property boundary then back N- a little further up the slope to the beginning		Mike Duran
4/5/2003	Crotalus atrox	581155	3218834			From trap GR 2 to confluance of Picosa Creek along SA River S to property boundary then back N- a little further up the slope to the beginning		Mike Duran and Lynne Duran
4/6/2003	Anolis carolinsis	550516	3248304			Crisscrossed the small patch just N across Mission Rd from Mission San jose		Mike Duran
4/7/2003	Anolis carolinensis	552829	3243820	552559	3244857	From Hwy 410 near SW corner of the L Espada, NW to creek on N edge of this block, E to SA property boundary and back to SE w/ numerous side trips to explore likely looking cover objects etc.		Mike Duran
4/7/2003	Sceloporus olivaceus	552829	3243820	552559	3244857	From Hwy 410 near SW corner of the L Espada, NW to creek on N edge of this block, E to SA property boundary and back to SE w/ numerous side trips to explore likely looking cover objects etc.		Mike Duran
6/21/2003	Hemidactylus turcicus					Looked on walls of Missions Concepcion, San Jose, San Juan, and Espada		Mike Duran and Lynne Duran
6/21/2003	Nerodia rhombifer	581283	3219050	581727	3219268	Cross Picosa Creek near Trap GR3- Proceed E along edge of old field to river then back along slpe and down to river, back to beginning		Mike Duran, Lynne Duran
6/21/2003	Scincella lateralus	581283	3219050	581727	3219269	Cross Picosa Creek near Trap GR3- Proceed E along edge of old field to river then back along slpe and down to river, back to beginning		Mike Duran, Lynne Duran
6/21/2003	Hyla cinerea	581283	3219050	581727	3219269	Cross Picosa Creek near Trap GR3- Proceed E along edge of old field to river then back along slpe and down to river, back to beginning		Mike Duran, Lynne Duran
6/21/2003	Bufo nebulifer	581283	3219050	581727	3219269	Cross Picosa Creek near Trap GR3- Proceed E along edge of old field to river then back along slpe and down to		Mike Duran, Lynne Duran

Date	Species	Begin Easting	Begin Northing	End Easting	End Northing	Location	Comments	Surveyor(s)
						river, back to beginning		
6/21/2003	Acris crepitans	581283	3219050	581727	3219269	Cross Picosa Creek near Trap GR3- Proceed E along edge of old field to river then back along slpe and down to river, back to beginning		Mike Duran, Lynne Duran
5/29/2002	no herps observed	552598	3245244	552424	3245915	W across river from Mission Juan N of Mission Ashley Rd.		Mike Duran

Appendix 11. Road kills and other casual observations made during the reptile and amphibian inventory of San Antonio Missions National Historical Park; March 2002 – October 2003.

Date	Genus-Species-Subspecies	General Location-Comment
6/3/2002	Apalone spinifera	DOR near Mission San Juan- SA River
6/3/2002	Chelydra serpentina	SA River - 1 km NNW of Mission San Juan
6/3/2002	Trachemys scripta (2)	SA River - 1 km NNW of Mission San Juan
7/14/2002	Nerodia rhombifer	Picosa Cr. @ hwy 97 -DOR - Spec
7/14/2002	Pantherophis guttata	Picosa Cr. @ hwy 97 -DOR
7/14/2002	Masticophis schotti	Picosa Cr. @ hwy 97
9/22/2002	Rana catesbeiana	Goat Ranch - via David Ribble (spec)
5/12/2003	Masticophis flagellum testaceus	on rd ...150 m S of NPS sign (right turn)
5/13/2003	Gopherus berlandieri	on rd ...20 m S of trap GR 1
6/19/2003	Eleutherodactylus cystignathoides campi	at trap site one - photos-esc
6/19/2003	Bufo nebulifer	near trap GR3. along Picosa Cr.
6/19/2003	Gopherus berlandieri	at top of ridge between GR2 and GR3
6/20/2003	Scincella lateralis	along path near GR3
9/26/2003	Gopherus berlandieri	at top of ridge between GR2 and GR3
6/20/2003	Pantherophis guttata	right by GR3-about 3' from S bucket
6/18/2002	Masticophis schotti	DOR by gate to Trap 2 Villamain Rd.
9/18/2002	Sceloporus olivaceus	on slope above Picosa (died in capture)

Appendix 12. Results of auditory surveys from reptile and amphibian inventory conducted of San Antonio National Missions Historical Park; March 2002 – October 2003. (BUNE = Bufo nebulifer; ACCR = Acris crepitans)

Date	Location	BUNE	ACCR	Comments
7/13/2002	near Picosa ck. & SA River	0	0	
7/13/2002	along trib to SA River - 1 km N of Mission San Juan	1	0	City
6/4/2002	Rancho de las Cabras (SAAN)	0	0	
6/3/2002	Pond off of Presa	0	0	
7/15/2002	Pond off of Presa	0	0	
4/5/2003	Pond off of Presa	0	0	
4/6/2003	Pond off of Presa	0	0	
4/17/2003	Pond off of Presa	0	0	
5/12/2003	Pond off of Presa	0	0	
6/20/2003	Pond off of Presa	0	0	
6/3/2003	Near SA River - l km N of Mission San Juan	1	0	
7/13/2003	Near SA River - l km N of Mission San Juan	1	0	
4/6/2003	Near Mission San Juan-SAAN	0	0	
4/17/2003	SA River 300 mi N of Mission San Juan	1	2	DM10074.wav DM10075.wav
4/17/2003	SA River - N. Mission San Juan	1	1	
4/17/2003	Pool- 1 km N of Mission San Juan	0	0	
4/15/2003	near SA River and Picosa Creek SAAN Goat Ranch)	0	2	DM10072.wav DM10073.wav

Appendix 13. List of Specimens Collected During 2002-2003 Herpetological Inventory of San Antonio Missions National Historic Park.

Entry#	Cat #	Date	Genus	Species	Subspecies	General Location	Easting	Northing	Comments	Collector
1	SAAN001	7/14/2002	Elaphe	emoryi		Hwy 97 at Picosa Creek	579809	3219870	DOR	M. Duran
2	SAAN002	7/14/2002	Masticophis	schotti		Hwy 97 at Picosa Creek	579826	3219895	DOR	M. Duran
3	SAAN003	7/14/2002	Nerodia	rhombifer		Hwy 97 at Picosa Creek	579826	3219895	DOR	M. Duran
6	SAAN006	6/3/2002	Bufo	nebulifer		~1 km North Mission San Juan	552732	3245525	Photos	M. Duran
7	SAAN007	6/2/2002	Eleutherodactylus	cystignathoides	campi	Labores Espada SAAN	552428	3244669	under log	M. Duran
8	SAAN008	6/2/2002	Bufo	nebulifer		~1 km North Mission San Juan	552732	3245536	in creek bed	M. Duran
11	SAAN011	6/3/2002	Elaphe	emoryi		1 km north of Mission San Juan	552608	3245834	dying when found	M. Duran
41	SAAN041	7/13/2002	Storeria	dekayi	texana	Near old quarry - Goat Ranch - on river bank - 30 m from trap GR2	581176	3218850	Collected	M. Duran
47	SAAN047	9/26/2002	Salvadora	grahamiae	lineata	Trap # 1-SAAN	580933	3219057	DIT-Poor Specimen	M. Duran
48	SAAN048	9/26/2002	Nerodia	rhombifer		Hwy 97 at Picosa Creek	579826	3219895	DOR	M. Duran
49	SAAN049	9/23/2002	Crotalus	atrox		Trap # 1 -SAAN	580933	3219057	Collected	M. Duran
50	SAAN050	9/18/2002	Sceloporus	olivaceus		near trap GR3 on slope above Picosa Cr.	581237	3219076	poor juvenile specimen	M. Duran
54	SAAN054	9/23/2002	Bufo	nebulifer		Trap # GR2 - SAAN	553043	3244399	DIT	M. Duran
56	SAAN056	9/23/2002	Bufo	nebulifer		Trap # 3 - SAAN	581283	3219076	DIT	M. Duran
57	SAAN057	9/23/2002	Anolis	carolinensis		Trap # 3 - SAAN	581283	3219076	DIT	M. Duran
61	SAAN061	9/27/2002	Virginia	striatula		Trap # GR2 - SAAN	553043	3244399		M. Duran
62	SAAN062	10/26/2002	Rana	catesbeiana		near Trap GR2 - Goat Ranch	553043	3244399		D. Ribble
63	SAAN063	9/27/2002	Sceloporus	olivaceus		Trap # 3 - SAAN	581283	3219076	DIT	M. Duran
64	SAAN064	9/27/2002	Scaphiopus	couchii		Trap # GR1 - SAAN	552890	3243852	DIT	M. Duran
65	SAAN065	9/27/2002	Bufo	nebulifer		Trap # GR2 - SAAN	553043	3244399	DIT	M. Duran
68	SAAN068	6/18/2002	Masticophis	schotti		Villamain Rd. near gate to trap # 2	553356	3244579		M. Duran
69	SAAN069	9/22/2002	Gastrophryne	olivacea		Trap # GR1 - SAAN	552890	3243852	DIT	M. Duran
70	SAAN070	9/22/2002	Gastrophryne	olivacea		Trap # 1 - SAAN	580933	3219057	DIT - poor specimens, desicated, eaten by ants	M. Duran
72	SAAN072	9/28/2002	Masticophis	flagellum	testaceus	Trap # GR1 - SAAN	552890	3243852		M. Duran
79	SAAN079	4/5/2003	Acris	crepitans	blanchardi	Picosa Creek near San Antonio River	581275	3218932		M. Duran
80	SAAN080	4/6/2003	Sceloporus	olivaceus		Trap # 1 - SAAN	580933	3219057	DIT	M. Duran
81	SAAN081	9/11/2002	Crotalus	atrox		SAJU-acequia @ S. Pressa	553217	3245153	DOR	by Ramon from B. Carre
83	SAAN083	4/17/2003	Gastrophryne	olivacea		Trap # GR1 - SAAN	552890	3243852	DIT	M. Duran
84	SAAN084	10/1/2002	Hemidactylus	turcicus		Pooley Property-500 m ESE of M. San Juan	550504	3248237		B. Carre
85	SAAN085	10/25/2002	Hemidactylus	turcicus		Mission San Jose-Gristmill	553425	3244894		B. Carre
86	SAAN086	11/7/2002	Micrurus	fulvius	tener	Grounds of Mission San Juan	552863	3244968		B. Carre
87	SAAN087	5/15/2003	Thamnophis	marcianus	marcianus	Trap # GR2 - SAAN	553043	3244399		M. Duran
90	SAAN090	5/15/2003	Leptotyphlops	dulcis	dulcis	Trap # GR2 - SAAN	553043	3244399	DIT	M. Duran
91	SAAN091	5/15/2003	Scincella	lateralis		Trap # GR3 - SAAN	552636	3245900		M. Duran
93	SAAN093	9/18/2002	Virginia	striatula		SA Hdgts	550400	3250179		B. Carre
95	SAAN095	9/2/2002	Nerodia	rhombifer		Mission Rd. @ SA River - SAJU	552848	3245181	DOR	B. Carre
98	SAAN098	4/17/2003	Salvadora	grahamiae	lineata	Trap # GR1 - SAAN	552890	3243852		M. Duran
101	SAAN101	4/17/2003	Aspidoscelis	gularis	gularis	Trap # GR2 - SAAN	553043	3244399		M. Duran
106	SAAN106	5/13/2003	Rhinocheilus	lecontei	tessellatus	Trap # GR1 - SAAN	552890	3243852	collected	M. Duran
118	SAAN118	4/16/2003	Leptotyphlops	dulcis	dulcis	Trap # GR1 - SAAN	552890	3243852		
119	SAAN119	9/24/2003	Sceloporus	variabilis	marmoratus	Trap # 1 - SAAN	580933	3219057	sitting on trap	

Appendix 14. All collections, observations, and museum records collected during a reptile and amphibian inventory of Palo Alto Battlefield National Historic Site; March 2002 – October 2003.

SPECIES	DATES	LOCATION	Easting	Northing	TYPERECORD	COMMENTS
Coluber constrictor oaxaca	3/26, 4/6, 4/24/2003(2)	Trap 1	652166.33	2879335.87	Trapped-Spec/ PAAL-096	
Coluber constrictor oaxaca	4/5, 5/15, 6/2/2002	Trap 2	652333.29	2879022.85	Trapped/photos	
Coluber constrictor oaxaca	3/26/2003	Coverboard 11	652431.68	2879922.32	observation	
Aspidoscelis gularis	4/26/2003	In Sacatal in central NE area	653654.29	2879884.26	Observation - some photos	
Aspidoscelis gularis	4/26/2003	In Sacatal in central NE area	653662.30	2879834.98	Observation - some photos	
Aspidoscelis gularis	4/26/2003	In Sacatal in central NE area	653616.25	2879957.87	Observation - some photos	
Aspidoscelis gularis	4/26/2003	In Sacatal in central NE area	653556.87	2879948.94	Observation - some photos	
Aspidoscelis gularis	4/30/2003	In oldfield- NW area	653594.95	2880188.04	Observation - some photos	
Aspidoscelis gularis	4/30/2003	In oldfield- NW area	653556.67	2880282.22	Observation - some photos	
Aspidoscelis gularis	4/30/2003	In oldfield- NW area	653445.03	2880293.25	Observation - some photos	
Aspidoscelis gularis	4/30/2003	In oldfield- NW area	653378.61	2880251.33	Observation - some photos	
Aspidoscelis gularis	4/30/2003	In oldfield- NW area	653431.61	2880169.66	Observation - some photos	
Aspidoscelis gularis	4/30/2003	In oldfield- NW area	653331.11	2880497.64	Observation - some photos	
Aspidoscelis gularis	4/30/2003	In oldfield- NW area	653486.97	2880520.05	Observation - some photos	
Aspidoscelis gularis	4/30/2003	along old fence road N central	653198.95	2880039.38	observation	
Aspidoscelis gularis	4/30/2003	near old barn in central area	652935.11	2880032.17	Observation - some photos	
Aspidoscelis gularis	4/30/2003	near old barn in central area	652893.89	2880060.49	Observation - some photos	
Aspidoscelis gularis	4/26/2003	near old barn in central area	652867.20	2880117.78	Observation - some photos	
Aspidoscelis gularis	6/1/2003	ecotone-300 m NW Trap 3	652670.96	2880104.90	Observation - some photos	
Aspidoscelis gularis	6/1/2003	by old resaca-400 m NW barn	652564.73	2880260.72	Observation - some photos	
Aspidoscelis gularis	6/1/2003	fenceline-400 m NW old barn	652661.70	2880324.09	Observation - some photos	
Aspidoscelis gularis	6/1/2003	fenceline-400 m NW old barn	652663.61	2880275.21	Observation - some photos	
Aspidoscelis gularis	6/1/2003	fenceline-400 m NW old barn	652681.52	2880232.45	Observation - some photos	
Aspidoscelis gularis	6/1/2003	just N of old barn	652869.52	2880067.22	Observation - some photos	
Aspidoscelis gularis	7/1/2003	~50 m E of middle gate	652095.24	2878735.04	Observation - some photos	
Aspidoscelis gularis	4/26, 4/28/2003	Trap 2	652332.67	2879025.85	photos-spec-PAAL-102	
Aspidoscelis gularis	5/16/2003	Trap 3	652579.80	2879774.19	trapped-photos	
Aspidoscelis gularis	8/9/2002	by old barn	652886.09	2880072.07	observation	
Bufo nebulifer	8/9/2002	just W. of trap 3 in oldfield	652681.38	2879900.55	observation-photos	in hole
Bufo nebulifer	3/10/2003	on road just south of trap 2	652476.88	2878841.72	observation	
Bufo nebulifer	9/22/2003	SW part resaca by hwy 1837	652104.34	2879101.57	audio-recording	on 1-3 scale, calling = "2"
Bufo nebulifer	9/22/2003	N. boundary off of hwy 1837	652251.88	2881401.77	audio-recording	on 1-3 scale, calling = "3"
Bufo nebulifer	10/1/2003	~70 m W. of overlook	652745.21	2879042.80	audio-recording	on 1-3 scale, calling = "3"
Bufo nebulifer	5/28/2003	trap 3	652580.51	2879775.35	trapped -specimen - PAAL-092	Died in Trap - PAAL-092
Bufo nebulifer	8/9/2002	oldfield 200 m east of trap 3	652726.22	2879777.06	photos	on 1-3 scale, calling = "2"
Bufo nebulifer	9/22/2003	SW part resaca by hwy 1837	652081.45	2879053.95	audio-recording	on 1-3 scale, calling = "2"
Bufo nebulifer	9/22/2003	SW part resaca by hwy 1837	652106.44	2879144.83	audio-recording	on 1-3 scale, calling = "2"
Bufo nebulifer	9/22/2003	SW part resaca by hwy 1837	652106.28	2879222.24	audio-recording	on 1-3 scale, calling = "2"
Bufo nebulifer	9/22/2003	SW part resaca by hwy 1837	652127.01	2879294.95	audio-recording	on 1-3 scale, calling = "2"
Bufo nebulifer	9/22/2003	SW part resaca by hwy 1837	652103.65	2879192.56	audio-recording	on 1-3 scale, calling = "2"
Bufo nebulifer	10/1/2003	~70 m W. of overlook	652717.56	2879021.48	audio-recording	on 1-3 scale, calling = "3"
Bufo nebulifer	10/1/2003	~70 m W. of overlook	652709.08	2878982.67	audio-recording	on 1-3 scale, calling = "3"

SPECIES	DATES	LOCATION	Easting	Northing	TYPERECORD	COMMENTS
Bufo nebulifer	10/1/2003	~70 m W. of overlook	652674.35	2878962.50	audio-recording	on 1-3 scale, calling = "3"
Bufo nebulifer	10/1/2003	~70 m W. of overlook	652651.11	2878913.64	audio-recording	on 1-3 scale, calling = "3"
Bufo nebulifer	10/1/2003	~70 m W. of overlook	652747.23	2879092.65	audio-recording	on 1-3 scale, calling = "3"
Bufo nebulifer	10/1/2003	~70 m W. of overlook	652779.38	2879143.26	audio-recording	on 1-3 scale, calling = "3"
Bufo nebulifer	10/1/2003	~70 m W. of overlook	652779.55	2879191.85	audio-recording	on 1-3 scale, calling = "3"
Bufo nebulifer	9/22/2003	N. boundary off of hwy 1837	652239.18	2881406.33	audio-recording	on 1-3 scale, calling = "3"
Bufo nebulifer	9/22/2003	N. boundary off of hwy 1837	652248.17	2881408.43	audio-recording	on 1-3 scale, calling = "3"
Bufo nebulifer	9/22/2003	N. boundary off of hwy 1837	652247.44	2881393.45	audio-recording	on 1-3 scale, calling = "3"
Bufo nebulifer	9/22/2003	N. boundary off of hwy 1837	652263.57	2881402.62	audio-recording	on 1-3 scale, calling = "3"
Bufo nebulifer	9/22/2003	N. boundary off of hwy 1837	652277.16	2881396.79	audio-recording	on 1-3 scale, calling = "3"
Bufo nebulifer	9/22/2003	N. boundary off of hwy 1837	652276.16	2881404.77	audio-recording	on 1-3 scale, calling = "3"
Crotalus atrox	6/1/2003	thornscrub NE of middle gate	652205.53	2878874.59	snake skin	
Crotalus atrox	3/10/2003	mesquital between traps 1 & 3	652488.65	2879615.54	observation - photos	HUGE snake
Crotalus atrox	3/19/2003	just SW of old barn/corral	652923.79	2880000.85	observation - photos	observed on several occasions
Crotalus atrox	5/16/2003	trail from 1837 to trap 3	652360.09	2879917.67	observation - photos	
Crotalus atrox	5/28/2003	trail from 1837 to trap 3	652250.12	2879950.09	observation - photos	2 adults
Crotalus atrox	5/28/2003	trail from 1837 to trap 3	652443.40	2879909.66	observation - photos	2 adults
Crotalus atrox	4/27/2003	trail from 1837 to trap 3	652465.88	2879896.44	observation - photos	
Crotalus atrox	4/3/2003	Trap 1	652164.93	2879335.83	trapped - specimen PAAL-097	PAAL-097
Crotalus atrox	3/20/2003	Trap 3	652580.94	2879775.36	trapped - photos	
Drymarchon corais erebennus	5/3/2003	Trap 1	652165.37	2879337.99	Trapped - Photos	
Pantherophis emoryi	4/27/2003	~175 m N. of trap 3	652608.44	2879953.01	Observation	Kristi Fazioli
Pantherophis emoryi	5/1, 5/8, 5/16 (2) /2003	Trap 1	652165.54	2879338.20	trapped - photos	
Pantherophis emoryi	5/2/2003	Trap 2	652333.40	2879025.67	trapped - photos	
Pantherophis emoryi	3/28/2003	Trap 3	652580.99	2879777.83	trapped - photos	
Gastrophryne olivacea	3/9--6/2/2003 (15)	Trap 3	652581.05	2879778.35	trapped - 1 spec-PAAL-115	15 indiv.- 1 spec. - Photos
Gastrophryne olivacea	9/22/2003	SW part of resaca	652099.88	2879088.55	heard- recorded	calling on 1-3 scale = "1"
Gastrophryne olivacea	9/22/2003	NW corner of property	652228.68	2881407.71	heard- recorded	calling on 1-3 scale = "2"
Gastrophryne olivacea	9/22/2003	NW corner of property	652243.79	2881397.40	heard- recorded	calling on 1-3 scale = "2"
Gopherus berlandieri	8/9/2002	250 m SW of trap 3	652419.85	2879576.55	observation - photos	
Gopherus berlandieri	8/9/2002	150 m SW of trap 3	652515.37	2879641.60	observation - photos	
Gopherus berlandieri	6/2/2003	~300 m E. of H. 1837-S. trp 2	652362.18	2878804.82	observation - photos	
Gopherus berlandieri	5/16/2003	on trail to trap 3	652310.79	2879918.98	observation - photos	Adult
Gopherus berlandieri	5/15/2003	on trail to trap 3	652392.76	2879918.30	observation - photos	Adult
Gopherus berlandieri	5/26,27,28/2003	by trap 3	652587.98	2879766.11	observation - photos	
Gopherus berlandieri	6/1/2003	in thornscrub, south of Trap 2	652213.45	2878894.63	observation - photos	
Gopherus berlandieri	5/16/2003	on trail to trap 3	652476.05	2879894.31	observation - photos	Juvenile
Kinosternon flavescens	10/3/03	pond on E. side	653601.82	2879099.90	carapace plastron parts spec.	ID uncertain - PAAL-117
Kinosternon flavescens	2001	upper part of resaca	652976.46	2879690.65	trapped - released	trapped by Frank Judd
Kinosternon flavescens	8/9/2002	middle part of resaca	652421.41	2879223.28	pieces of carapace	discarded
Masticophis ruthveni	3/18/2003	460 m SW of north gate	652610.32	2880711.69	observed - anecdote	per Rolando Garza
Masticophis ruthveni	4/3/2003	hwy 1837, W of trap 3	652138.92	2880042.39	DOR - specimen - PAAL-094	
Masticophis ruthveni	5/7/2003	Trap 2	652331.87	2879026.30	trapped photos	
Masticophis ruthveni	4/26, 5/16, 5/31/2003	Trap 3	652580.62	2879776.46	trapped - photos	
Masticophis flagellum testaceus	5/20/2003	Trap 1	652163.55	2879334.51	trapped - photos	
Masticophis flagellum testaceus	5/17/2003	Trap 2	652332.33	2879025.19	trapped - specimen-PAAL-105	also photos
Phrynosoma cornutum	4/26/2003	75 m SSE of overlook	652803.42	2878914.64	observed - photos	during VES

SPECIES	DATES	LOCATION	Easting	Northing	TYPERECORD	COMMENTS
Phrynosoma cornutum	8/9/2002	in oldfield E. of trap 3	652695.54	2879856.55	observed - photos	
Phrynosoma cornutum	4/26/2003	sacatal NE of overlook	653648.21	2879768.98	observed - some photos	
Phrynosoma cornutum	4/26/2003	sacatal NE of overlook	653657.42	2879933.67	observed - some photos	
Phrynosoma cornutum	4/26/2003	sacatal NE of overlook	653537.04	2879738.87	observed - some photos	
Phrynosoma cornutum	4/26/2003	sacatal NE of overlook	653364.52	2879868.51	observed - some photos	
Phrynosoma cornutum	4/26/2003	sacatal NE of overlook	653479.69	2880190.80	observed - some photos	
Phrynosoma cornutum	4/26/2003	sacatal NE of overlook	653397.00	2880268.00	observed - some photos	
Phrynosoma cornutum	4/30/2003	old field ENE of old barn	653297.32	2880209.23	observed - some photos	
Phrynosoma cornutum	4/30/2003	old field ENE of old barn	653186.40	2880158.55	observed - some photos	
Phrynosoma cornutum	4/30/2003	old field ENE of old barn	653229.07	2880323.63	observed - some photos	
Phrynosoma cornutum	4/30/2003	old field ENE of old barn	653209.43	2880413.92	observed - some photos	
Phrynosoma cornutum	4/30/2003	old field ENE of old barn	653227.05	2880179.60	observed - some photos	
Phrynosoma cornutum	4/30/2003	old field ENE of old barn	653001.63	2880065.86	observed - some photos	
Phrynosoma cornutum	4/30/2003	old field ENE of old barn	652940.86	2880176.25	observed - some photos	
Phrynosoma cornutum	4/30/2003	old field ENE of old barn	652854.31	2880265.75	observed - some photos	
Phrynosoma cornutum	4/30/2003	old field ENE of old barn	653042.85	2880354.37	observed - some photos	
Phrynosoma cornutum	5/30/2003	300 m SE of north gate	652450.90	2880785.67	observed - some photos	
Phrynosoma cornutum	5/30/2003	300 m east of north gate	652518.36	2880987.79	observed - some photos	
Phrynosoma cornutum	6/1/2003	300 m E. of middle gate	652327.87	2878800.81	observed - photos	
Phrynosoma cornutum	3/1/2003	350 m E. of middle gate	652382.76	2878805.63	observed - photos	
Phrynosoma cornutum	3/1/2003	350 m E. of middle gate	652390.82	2878806.07	observed - photos	
Phrynosoma cornutum	6/1/2003	just N. of old Barn	652836.53	2880140.92	observed - some photos	
Phrynosoma cornutum	6/1/2003	just N. of old Barn	652847.39	2880127.71	observed - some photos	
Phrynosoma cornutum	6/1/2003	on W. side of old barn	652918.19	2880026.30	observed - some photos	
Phrynosoma cornutum	8/9/2003	oldfield E. of Trap 3	652696.96	2879796.27	found desiccated specimen	
Phrynosoma cornutum	3/25, 4/2, 4/4/2003 (3)	Trap 1	652167.15	2879335.23	trapped - photos	3 individuals
Phrynosoma cornutum	3/19/2003	on middle road S. of trap 2	652295.04	2878807.74	observed - photos	
Phrynosoma cornutum	3/19/2003	on middle road S. of trap 2	652306.20	2878805.82	observed - photos	
Phrynosoma cornutum	4/27/2003	on road to trap 3,~200 m-gate	652358.48	2880851.41	observed - photos	
Phrynosoma cornutum	4/27/2003	just w. of pond on E. side	653608.94	2880617.38	observed - photos	
Phrynosoma cornutum	4/30/2003	on road to trap 3,~100 m-gate	652293.88	2880897.93	observed - photos	
Phrynosoma cornutum	4/30/2003	on road to trap 3,~700 m-gate	652418.15	2880510.93	observed - photos	
Phrynosoma cornutum	4/30/2003	on road to trap 3,~800 m-gate	652364.94	2880456.88	observed - photos	
Pituophis catenifer sayi	5/24/2003	Trap 2	652331.57	2879026.83	Trapped - photos	
Pseudacris clarkii	10/1/2003	resaca-~70 m W. of overlook	652623.85	2878911.65	audio/spec/photo-PAAL-108	PAAL-108 - Many calling (3)
Pseudacris clarkii	10/1/2003	resaca-~70 m W. of overlook	652665.37	2878923.66	audio	Many calling "3" on scale 1-3
Pseudacris clarkii	10/1/2003	resaca-~70 m W. of overlook	652688.66	2878968.41	audio	Many calling "3" on scale 1-3
Pseudacris clarkii	10/1/2003	resaca-~70 m W. of overlook	652720.26	2879002.54	audio	Many calling "3" on scale 1-3
Pseudacris clarkii	10/1/2003	resaca-~70 m W. of overlook	652729.98	2879061.95	audio	Many calling "3" on scale 1-3
Pseudacris clarkii	10/1/2003	resaca-~70 m W. of overlook	652767.38	2879108.50	audio	Many calling "3" on scale 1-3
Pseudacris clarkii	10/1/2003	resaca-~70 m W. of overlook	652768.23	2879162.87	audio	Many calling "3" on scale 1-3
Pseudacris clarkii	10/1/2003	resaca-~70 m W. of overlook	652796.19	2879190.37	audio	Many calling "3" on scale 1-3
Pseudacris clarkii	10/1/2003	resaca-~70 m W. of overlook	652801.49	2879245.61	audio	Many calling "3" on scale 1-3
Pseudacris clarkii	10/1/2003	resaca-~70 m W. of overlook	652826.45	2879274.72	audio	Many calling "3" on scale 1-3
Rana berlandieri	6/1/2003	just SW of old barn/corral	652940.21	2879974.70	visual-photo(not good)	several frogs in mud puddle
Rana berlandieri	9/22/2003	SW part of resaca by hw1837	652103.49	2879122.07	heard	could not get recording
Rana berlandieri	6/1/2003	just SW of old barn/corral	652932.57	2879972.12	visual-photo(not good)	several frogs in mud puddle

SPECIES	DATES	LOCATION	Easting	Northing	TYPERECORD	COMMENTS
Rana berlandieri	6/1/2003	just SW of old barn/corral	652941.69	2879963.24	visual-photo(not good)	several frogs in mud puddle
Rana berlandieri	6/1/2003	Trap 3	652578.68	2879775.34	trap-specs - DIT-PAAL-088,089	DIT - PAAL-088; PAAL-089
Salvadora grahamiae lineata	3/22/2003	Trap 1	652164.46	2879338.33	Trapped /spec-PAAL-104	
Salvadora grahamiae lineata	5/1, 7/1/2003	Trap 2	652330.43	2879024.86	Trapped - photos	
Salvadora grahamiae lineata	7/1/2003	Trap 3	652581.44	2879776.83	Trapped	very large snake
Scaphiopus couchii	3/23--7/2/2003	Trap 3	652574.28	2879766.31	trapped - PAAL-082 & 078	PAAL-082 & 078
Scaphiopus couchii	10/1/2003	Hwy 1837 @ canal	652178.10	2880953.43	DOR spec. PAAL-114	PAAL-114
Sceloporus olivaceus	8/9/2002	fence post south of old barn	652959.69	2879960.38	observation	on fence post
Sceloporus olivaceus	8/9/2002	fence post south of old barn	652987.56	2879929.42		on fence post
Sceloporus olivaceus	8/10/2002	fence post south of old barn	653019.55	2879886.07	collected spec. - PAAL-043	on fence post
Sceloporus olivaceus	4/26/2003	near E. bound - E of overlook	653305.98	2878837.97		in mesquite
Sceloporus olivaceus	8/9/2002	~300 m NW of old barn	652669.02	2880254.90	collected spec - PAAL-042	thought it was undulatus
Sceloporus olivaceus	4/30/2003	~80 m E. of North Gate	652263.04	2880915.04	observed	
Sceloporus olivaceus	4/30/2003	~200 m N. of N. Gate	652374.37	2880842.35	observed	
Sceloporus olivaceus	5/28/2003	Trap 1	652165.39	2879336.49	trapped - photos	
Sceloporus olivaceus	3/10/2002	Trap 2	652330.58	2879024.99	trapped - photos	
Sceloporus olivaceus	3/8 -- 5/6/2003 (5)	Trap 3	652581.77	2879777.06	trapped 5 - photos most	5 individuals
Sceloporus variabilis marmoratus	3/21/2002	around thornscrub SW corner	652157.93	2878509.61	observation	
Sceloporus variabilis marmoratus	3/21/2002	around thornscrub SW corner	652132.46	2878289.81	observation	
Sceloporus variabilis marmoratus	3/21/2002	around thornscrub SW corner	652833.03	2880467.34	observation	
Sceloporus variabilis marmoratus	8/10/2002	resaca/edges of thornscrub	652772.21	2880494.03	observation	
Sceloporus variabilis marmoratus	8/10/2002	resaca/edges of thornscrub	652575.06	2880418.65	observation	
Sceloporus variabilis marmoratus	8/10/2002	resaca/edges of thornscrub	652501.55	2880353.86	observation	
Sceloporus variabilis marmoratus	8/10/2002	resaca/edges of thornscrub	652577.15	2880239.05	observation	
Sceloporus variabilis marmoratus	8/10/2002	resaca/edges of thornscrub	652649.08	2880203.36	observation	
Sceloporus variabilis marmoratus	8/10/2002	resaca/edges of thornscrub	652696.34	2880161.29	observation	
Sceloporus variabilis marmoratus	8/10/2002	resaca/edges of thornscrub	652804.66	2880071.22	observation	
Sceloporus variabilis marmoratus	8/10/2002	resaca/edges of thornscrub	652879.52	2880020.34	observation	
Sceloporus variabilis marmoratus	8/10/2002	resaca/edges of thornscrub	652723.03	2880466.05	observation	
Sceloporus variabilis marmoratus	8/10/2002	resaca/edges of thornscrub	652800.21	2880451.73	observation	
Sceloporus variabilis marmoratus	8/9/2002	resaca/edges of thornscrub	653007.25	2879908.28	collected - PAIS-044	PAIS-044
Sceloporus variabilis marmoratus	8/9/2002	resaca/edges of thornscrub	653018.74	2879641.40	observation	
Sceloporus variabilis marmoratus	8/9/2002	resaca/edges of thornscrub	653000.41	2879562.03	observation	
Sceloporus variabilis marmoratus	8/9/2002	resaca/edges of thornscrub	652971.19	2879473.39	observation	
Sceloporus variabilis marmoratus	8/9/2002	resaca/edges of thornscrub	652933.40	2879412.06	observation	
Sceloporus variabilis marmoratus	8/9/2002	resaca/edges of thornscrub	652901.04	2879356.88	observation	
Sceloporus variabilis marmoratus	8/9/2002	resaca/edges of thornscrub	652855.53	2879249.79	observation	
Sceloporus variabilis marmoratus	8/9/2002	resaca/edges of thornscrub	652826.17	2879173.33	observation	
Sceloporus variabilis marmoratus	8/9/2002	resaca/edges of thornscrub	652818.98	2879081.91	observation	
Sceloporus variabilis marmoratus	8/9/2002	resaca/edges of thornscrub	652745.76	2878992.77	observation	
Sceloporus variabilis marmoratus	8/9/2002	resaca/edges of thornscrub	652705.14	2878937.49	observation	
Sceloporus variabilis marmoratus	8/9/2002	resaca/edges of thornscrub	652675.53	2878882.34	observation	
Sceloporus variabilis marmoratus	8/9/2002	resaca/edges of thornscrub	652535.40	2878868.53	observation	
Sceloporus variabilis marmoratus	8/9/2002	resaca/edges of thornscrub	652523.08	2878981.03	observation	
Sceloporus variabilis marmoratus	8/9/2002	resaca/edges of thornscrub	652525.01	2879051.08	observation	
Sceloporus variabilis marmoratus	8/9/2002	resaca/edges of thornscrub	652532.06	2879154.67	observation	
Sceloporus variabilis marmoratus	8/9/2002	resaca/edges of thornscrub	652484.80	2879196.74	observation	

SPECIES	DATES	LOCATION	Easting	Northing	TYPERECORD	COMMENTS
Sceloporus variabilis marmoratus	8/9/2002	resaca/edges of thornscrub	652412.48	2879265.92	observation	
Sceloporus variabilis marmoratus	8/9/2002	resaca/edges of thornscrub	652320.93	2879331.84	observation	
Sceloporus variabilis marmoratus	8/9/2002	resaca/edges of thornscrub	652246.67	2879330.97	observation	
Sceloporus variabilis marmoratus	8/9/2002	resaca/edges of thornscrub	652197.27	2879321.26	observation	
Sceloporus variabilis marmoratus	8/9/2002	resaca/edges of thornscrub	652373.58	2879298.96	observation	
Sceloporus variabilis marmoratus	8/9/2002	resaca/edges of thornscrub	652443.51	2879199.31	observation	
Sceloporus variabilis marmoratus	8/9/2002	resaca/edges of thornscrub	652516.23	2879096.64	observation	
Sceloporus variabilis marmoratus	8/9/2002	East of (future) overlook	652772.62	2879047.88	observation	
Sceloporus variabilis marmoratus	04262003	East of (future) overlook	652996.04	2878995.69	observation	
Sceloporus variabilis marmoratus	04262003	East of (future) overlook	653356.17	2878780.71	observation	
Sceloporus variabilis marmoratus	04262003	East of (future) overlook	653298.62	2878761.77	observation	
Sceloporus variabilis marmoratus	04262003	East of (future) overlook	653224.25	2878770.03	observation	
Sceloporus variabilis marmoratus	04262003	East of (future) overlook	653163.78	2878766.27	observation	
Sceloporus variabilis marmoratus	04262003	East of (future) overlook	653132.49	2878619.77	observation	
Sceloporus variabilis marmoratus	04262003	East of (future) overlook	653621.58	2879188.51	observation	
Sceloporus variabilis marmoratus	04262003	East of (future) overlook	653634.85	2879324.45	observation	
Sceloporus variabilis marmoratus	04262003	East of (future) overlook	653259.58	2880574.98	observation	
Sceloporus variabilis marmoratus	04262003	East of (future) overlook	653201.95	2880417.95	observation	
Sceloporus variabilis marmoratus	04262003	East of (future) overlook	653099.76	2880256.28	observation	
Sceloporus variabilis marmoratus	04262003	East of (future) overlook	652874.87	2880097.30	observation	
Sceloporus variabilis marmoratus	04262003	East of (future) overlook	652810.92	2880162.38	observation	
Sceloporus variabilis marmoratus	5/30/2003	Edge of thornscrub - N bound.	652691.78	2880826.65	observation	
Sceloporus variabilis marmoratus	5/30/2003	Edge of thornscrub - N bound.	652442.11	2880947.77	observation	
Sceloporus variabilis marmoratus	6/1/2003	near to and E. of old barn	652369.56	2878900.23	observation	
Sceloporus variabilis marmoratus	6/1/2003	near to and E. of old barn	652655.17	2879852.83	observation	
Sceloporus variabilis marmoratus	6/1/2003	near to and E. of old barn	652699.19	2880208.95	observation	
Sceloporus variabilis marmoratus	6/1/2003	near to and E. of old barn	652910.00	2880039.54	observation	
Sceloporus variabilis marmoratus	3/10/2003 and others	betw traps 1 & 2	652316.06	2879315.47	observation	
Sceloporus variabilis marmoratus	3/10/2003 and others	betw traps 1 & 2	652298.58	2879322.67	observation	
Sceloporus variabilis marmoratus	3/10/2003 and others	betw traps 1 & 2	652275.75	2879328.33	observation	
Sceloporus variabilis marmoratus	3/10/2003 and others	betw traps 1 & 2	652222.14	2879333.63	observation	
Sceloporus variabilis marmoratus	3/8/2003 and other dates	in resaca betw. traps 1 & 2	652325.47	2879312.61	observation	during trap install-3/5-3/9/03
Sceloporus variabilis marmoratus	3/8/2003 and other dates	in resaca betw. traps 1 & 2	652309.35	2879316.87	observation	during trap install-3/5-3/9/03
Sceloporus variabilis marmoratus	3/8/2003 and other dates	in resaca betw. traps 1 & 2	652290.49	2879327.02	observation	during trap install-3/5-3/9/03
Sceloporus variabilis marmoratus	3/8/2003 and other dates	in resaca betw. traps 1 & 2	652263.69	2879329.67	observation	during trap install-3/5-3/9/03
Sceloporus variabilis marmoratus	3/8/2003 and other dates	in resaca betw. traps 1 & 2	652235.49	2879336.75	observation	during trap install-3/5-3/9/03
Sceloporus variabilis marmoratus	3/8/2003 and other dates	in resaca betw. traps 1 & 2	652212.74	2879336.49	observation	during trap install-3/5-3/9/03
Sceloporus variabilis marmoratus	3/8/2003 and other dates	in resaca betw. traps 1 & 2	652206.05	2879336.41	observation	during trap install-3/5-3/9/03
Sceloporus variabilis marmoratus	3/8/2003 and other dates	in resaca betw. traps 1 & 2	652196.69	2879334.82	observation	during trap install-3/5-3/9/03
Sceloporus variabilis marmoratus	3/8/2003 and other dates	in resaca betw. traps 1 & 2	652183.29	2879336.15	observation	during trap install-3/5-3/9/03
Sceloporus variabilis marmoratus	3/8/2003 and other dates	resaca north of trap 1	652169.77	2879347.84	observation	during trap install-3/5-3/9/03
Sceloporus variabilis marmoratus	3/8/2003 and other dates	resaca north of trap 1	652184.39	2879356.90	observation	during trap install-3/5-3/9/03
Sceloporus variabilis marmoratus	3/8/2003 and other dates	resaca north of trap 1	652193.72	2879359.97	observation	during trap install-3/5-3/9/03
Sceloporus variabilis marmoratus	3/8/2003 and other dates	near trap 2	652335.01	2879068.25	observation	during trap install-3/5-3/9/03
Sceloporus variabilis marmoratus	3/8/2003 and other dates	near trap 2	652330.72	2879091.90	observation	during trap install-3/5-3/9/03
Sceloporus variabilis marmoratus	3/8/2003 and other dates	near trap 2	652331.61	2879130.44	observation	during trap install-3/5-3/9/03
Sceloporus variabilis marmoratus	3/8/2003 and other dates	near trap 2	652344.01	2878985.38	observation	during trap install-3/5-3/9/03

SPECIES	DATES	LOCATION	Easting	Northing	TYPERECORD	COMMENTS
Sceloporus variabilis marmoratus	3/8/2003 and other dates	near trap 2	652349.67	2878958.77	observation	during trap install-3/5-3/9/03
Sceloporus variabilis marmoratus	3/8/2003 and other dates	near trap 2	652342.05	2879038.70	observation	during trap install-3/5-3/9/03
Sceloporus variabilis marmoratus	3/8/2003 and other dates	near trap 2	652315.26	2879039.87	observation	during trap install-3/5-3/9/03
Sceloporus variabilis marmoratus	3/8/2003 and other dates	near trap 2	652322.23	2879016.24	observation	during trap install-3/5-3/9/03
Sceloporus variabilis marmoratus	3/8/2003 and other dates	near trap 2	652331.75	2879003.02	observation	during trap install-3/5-3/9/03
Sceloporus variabilis marmoratus	3/8/2003 and other dates	near trap 2	652346.43	2879007.63	observation	during trap install-3/5-3/9/03
Sceloporus variabilis marmoratus	3/8/2003 and other dates	near trap 2	652335.10	2879174.93	observation	during trap install-3/5-3/9/03
Sceloporus variabilis marmoratus	3/8/2003 and other dates	near trap 2	652329.83	2879283.03	observation	during trap install-3/5-3/9/03
Sceloporus variabilis marmoratus	3/8/2003 and other dates	near trap 2	652377.39	2878877.60	observation	during trap install-3/5-3/9/03
Sceloporus variabilis marmoratus	3/8/2003 and other dates	near trap 2	652378.94	2878859.84	observation	during trap install-3/5-3/9/03
Sceloporus variabilis marmoratus	3/8/2003 and other dates	W. of trap 3	652224.09	2879970.78	observation	during trap install-3/5-3/9/03
Sceloporus variabilis marmoratus	3/8/2003 and other dates	W. of trap 3	652260.61	2879938.61	observation	during trap install-3/5-3/9/03
Sceloporus variabilis marmoratus	3/8/2003 and other dates	W. of trap 3	652287.62	2879918.18	observation	during trap install-3/5-3/9/03
Sceloporus variabilis marmoratus	3/8/2003 and other dates	W. of trap 3	652321.09	2879917.09	observation	during trap install-3/5-3/9/03
Sceloporus variabilis marmoratus	3/8/2003 and other dates	W. of trap 3	652345.20	2879915.89	observation	during trap install-3/5-3/9/03
Sceloporus variabilis marmoratus	3/8/2003 and other dates	W. of trap 3	652377.33	2879916.26	observation	during trap install-3/5-3/9/03
Sceloporus variabilis marmoratus	3/8/2003 and other dates	W. of trap 3	652409.45	2879916.64	observation	during trap install-3/5-3/9/03
Sceloporus variabilis marmoratus	3/8/2003 and other dates	W. of trap 3	652455.13	2879902.36	observation	during trap install-3/5-3/9/03
Sceloporus variabilis marmoratus	3/10/2003 and other dates	in mesquital betw. traps 2 & 3	652381.42	2879663.91	observations	not as common in here
Sceloporus variabilis marmoratus	3/10/2003 and other dates	in mesquital betw. traps 2 & 3	652381.26	2879515.80	observations	not as common in here
Sceloporus variabilis marmoratus	3/10/2003 and other dates	in mesquital betw. traps 2 & 3	652271.87	2879442.56	observations	not as common in here
Sceloporus variabilis marmoratus	3/10/2003 and other dates	in mesquital betw. traps 2 & 3	652574.88	2879720.40	observations	not as common in here
Sceloporus variabilis marmoratus	3/10/2003 and other dates	in mesquital betw. traps 2 & 3	652574.88	2879800.71	observations	
Sceloporus variabilis marmoratus	3/9/2003 -- 7/3/2003 (16)	trap 1	652162.86	2879335.95	trapped -some photos	16 individuals
Sceloporus variabilis marmoratus	3/9/2003 -- 7/3/2003	trap 3	652580.81	2879776.79	trapped -some photos	10 individuals
Sceloporus variabilis marmoratus	3/9/2003 -- 7/3/2003 (38)	trap 2	652332.31	2879027.11	trapped -some photos	38 individuals
Sceloporus variabilis marmoratus	3/19/2003	coverboard 10	652272.76	2879931.73	under coverboard	
Sceloporus variabilis marmoratus	3/19, 3/26/2003 (2)	coverboard 3	652200.52	2879338.47	under coverboard	2 individuals
Smilisca baudinii	9/22/2003	SW part of resaca by hwy 1837	652075.91	2879042.85	audio - captured - photos	call frequency, 1-3, = "1"
Smilisca baudinii	9/22/2003	SW part of resaca by hwy 1837	652084.51	2879078.89	audio - captured - photos	call frequency, 1-3, = "1"
Sonora semiannulata taylori	5/15, 5/26/2003	Trap 2	652332.22	2879025.88	trapped - 1 specimen	5/15 - PAAL-103
Tantilla nigriceps	3/12/2003	Trap 2	652332.21	2879026.88	trap, photos, spec - PAAL-076	PAAL-076
Tantilla nigriceps	4/29/2003	Trap 1	652164.46	2879338.33	trapped, photos	

Appendix 15. Trapping results during reptile and amphibian inventory of Palo Alto Battlefield National Historic Site; March 2003 – July 2003.

Date	Trap #	Genus	Species	Sub-species	Comments
3/6/2003	2	Baiomys	taylori		in bucket; released
3/7/2003	3	Cryptotis	parva		
3/8/2003	2	Baiomys	taylori		
3/8/2003	1	Cryptotis	parva		
3/8/2003	3	Sceloporus	olivaceus		
3/8/2003	2	Sceloporus	variabilis	marmoratus	
3/9/2003	3	Gastrophryne	olivacea		specimen
3/9/2003	1	Sceloporus	variabilis	marmoratus	
3/9/2003	2	Sceloporus	variabilis	marmoratus	
3/10/2003	1	Cryptotis	parva		specimen
3/10/2003	2	Peromyscus	leucopus		photos
3/10/2003	2	Sceloporus	olivaceus		photos
3/10/2003	2	Sceloporus	variabilis	marmoratus	photos
3/11/2003	3	Cryptotis	parva		
3/12/2003	2	Cryptotis	parva		photos
3/12/2003	2	Tantilla	nigriceps		specimen
3/13/2003					traps closed
3/18/2003	1	Sceloporus	variabilis	marmoratus	Specimen rosebelly?
3/18/2003					traps open
3/19/2003	3	Sceloporus	olivaceus		
3/19/2003	2	Sceloporus	variabilis	marmoratus	
3/19/2003	3	Sceloporus	variabilis	marmoratus	
3/19/2003	CB10	Sceloporus	variabilis	marmoratus	
3/19/2003	CB3	Sceloporus	variabilis	marmoratus	
3/20/2003	3	Crotalus	atrox		pictures, released
3/21/2003	1	Sceloporus	variabilis	marmoratus	
3/21/2003	2	Sceloporus	variabilis	marmoratus	
3/21/2003	2	Sceloporus	variabilis	marmoratus	
3/22/2003	1	Cryptotis	parva		
3/22/2003	1	Salvadora	grahamiae		specimen - PAAL-104
3/23/2003	2	Cryptotis	parva		dead in bucket, specimen
3/23/2003	2	Reithrodontomys	fulvescens		Pictures, released
3/23/2003	3	Scaphiopus	couchii		specimen, pictures
3/24/2003	2	Sceloporus	variabilis	marmoratus	
3/24/2003	3	Sceloporus	variabilis	marmoratus	
3/25/2003	1	Phrynosoma	cornutum		pictures
3/25/2003	2	Reithrodontomys	fulvescens		Pictures, released
3/25/2003	3				small dead frog specimen
3/26/2003	1	Coluber	constrictor	oaxaca	spec - photos
3/26/2003	CB11	Coluber	constrictor	oaxaca	
3/26/2003	3	Cryptotis	parva		dead
3/26/2003	3	Cryptotis	parva		dead
3/26/2003	3	Scaphiopus	couchii		
3/26/2003	3	Scaphiopus	couchii		
3/26/2003	CB3	Sceloporus	variabilis	marmoratus	
3/26/2003	2				fulvous harvest?
3/27/2003	3	Scaphiopus	couchii		
3/27/2003	3	Sceloporus	variabilis	marmoratus	
3/28/2003	3	Pantherophis	emoryi		photos
3/28/2003	3	Gastrophryne	olivacea		specimen/pictures
3/28/2003	3	Gastrophryne	olivacea		specimen
3/28/2003	1	Sceloporus	variabilis	marmoratus	
3/28/2003	1	Sceloporus	variabilis	marmoratus	
3/28/2003	1	Sceloporus	variabilis	marmoratus	
3/30/2003					traps closed
4/1/2003					traps open
4/2/2003	1	Phrynosoma	cornutum		pictures

Date	Trap #	Genus	Species	Sub-species	Comments
4/2/2003	1	Sceloporus	variabilis	marmoratus	no 'rose' belly; pictures
4/2/2003	1				small dead frog, specimen
4/2/2003	3				mouse sp.? Pictures
4/3/2003	1	Crotalus	atrox		specimen, pictures
4/3/2003	1	Sceloporus	variabilis	marmoratus	
4/3/2003	2	Sceloporus	variabilis	marmoratus	
4/3/2003	3				small dead frog; specimen
4/3/2003	3				dead frog; specimen
4/4/2003	3	Gastrophryne	olivacea		dead
4/4/2003	3	Gastrophryne	olivacea		picture/ released
4/4/2003	1	Phrynosoma	cornutum		
4/4/2003	1	Sceloporus	variabilis	marmoratus	
4/4/2003	2	Sceloporus	variabilis	marmoratus	
4/5/2003	2	Coluber	constrictor	oaxaca	pictures/ released
4/5/2003	2	Sceloporus	variabilis	marmoratus	
4/5/2003	3	Sceloporus	variabilis	marmoratus	
4/6/2003	1	Coluber	constrictor	oaxaca	pictures/ released
4/6/2003	1	Sceloporus	variabilis	marmoratus	
4/6/2003	1	Sceloporus	variabilis	marmoratus	
4/6/2003	3				dead frog; specimen
4/8/2003					traps closed
4/25/2003	1	Coluber	constrictor	oaxaca	pictures
4/25/2003	1	Coluber	constrictor	oaxaca	
4/25/2003	3				skeletal specimen
4/25/2003					traps open
4/26/2003	2	Aspidoscelis	gularis	gularis	specimen
4/26/2003	3	Masticophis	ruthveni		pictures/ released
4/26/2003	2	Sceloporus	variabilis	marmoratus	
4/27/2003	2	mouse			unk. Mouse photos
4/28/2003	2	Aspidoscelis	gularis	gularis	pictures
4/28/2003	3	Neotoma	micropus		
4/28/2003	3	Neotoma			DIT
4/28/2003	2	Sceloporus	variabilis	marmoratus	
4/29/2003	1	mouse			mouse sp.?
4/29/2003	3	Scaphiopus	couchii		
4/29/2003	1	Sigmodon	hispidus		
4/29/2003	2	Sigmodon	hispidus		
4/29/2003	1	Tantilla	nigriceps		
4/30/2003	3	Gastrophryne	olivacea		
4/30/2003	3	Gastrophryne	olivacea		
4/30/2003	3	Sceloporus	olivaceus		
4/30/2003	2	Sigmodon	hispidus		
5/1/2003	1	Pantherophis	emoryi		photos
5/1/2003	2	Salvadora	grahamiae	lineata	pictures
5/1/2003	1	Sceloporus	variabilis	marmoratus	
5/1/2003	2	Sceloporus	variabilis	marmoratus	
5/1/2003	2	Sceloporus	variabilis	marmoratus	
5/2/2003	2	Pantherophis	emoryi		pictures (same as 5/1)
5/2/2003	2	mouse			mouse sp.? Pictures
5/2/2003	1	Sceloporus	variabilis	marmoratus	
5/2/2003	3	Sceloporus	variabilis	marmoratus	
5/3/2003	2	Sceloporus	variabilis	marmoratus	
5/3/2003	2	Sigmodon	hispidus		picture
5/5/2003	1	Drymarchon	corais	erebennus	pictures/ specimen
5/5/2003	3	Sceloporus	olivaceus		
5/5/2003	2	Sceloporus	variabilis	marmoratus	
5/5/2003	2	Sceloporus	variabilis	marmoratus	
5/5/2003	2	Sceloporus	variabilis	marmoratus	
5/5/2003	2	Sigmodon	hispidus		small cotton rat?, pictures
5/6/2003	3	Aspidoscelis	gularis	gularis	
5/6/2003	3	Gastrophryne	olivacea		dead
5/6/2003	3	Sceloporus	variabilis	marmoratus	

Date	Trap #	Genus	Species	Sub-species	Comments
5/7/2003	2	Masticophis	ruthveni		pictures/ released
5/7/2003	1	mouse			mouse sp.? Pictures
5/7/2003	1	Sceloporus	variabilis	marmoratus	
5/7/2003	2	Sceloporus	variabilis	marmoratus	
5/8/2003	1	Pantherophis	emoryi		photos
5/8/2003	1	mouse			mouse sp.? Same as yesterday
5/8/2003	2	Sceloporus	variabilis	marmoratus	
5/10/2003					traps closed
5/14/2003					traps open
5/15/2003	2	Coluber	constrictor	oaxaca	pictures
5/15/2003	1	Sceloporus	variabilis	marmoratus	
5/15/2003	2	Sceloporus	variabilis	marmoratus	
5/15/2003	2	Sonora	semiannulata		Specimen/pictures
5/16/2003	1	Pantherophis	emoryi		photos
5/16/2003	1	Pantherophis	emoryi		photos
5/16/2003	3	Masticophis	ruthveni		pictures
5/16/2003	3	Sceloporus	olivaceus		
5/16/2003	3	Sceloporus	variabilis	marmoratus	
5/17/2003	2	Masticophis	flagellum	testaceus	specimen/ pictures
5/17/2003	2	Sceloporus	variabilis	marmoratus	
5/17/2003	1	Sigmodon	hispidus		
5/20/2003	1	Masticophis	flagellum	testaceus	pictures
5/20/2003	2	Sceloporus	variabilis	marmoratus	
5/20/2003	2	Sceloporus	variabilis	marmoratus	
5/22/2003	2	Sceloporus	variabilis	marmoratus	
5/24/2003	2	Neotoma	micropus		pictures
5/24/2003	2	Pituophis	catenifer	sayi	specimen/ pictures
5/24/2003	2	Pituophis	catenifer	sayi	specimen/ pictures
5/26/2003	3	Gopherus	berlandieri		next to trap - pictures
5/26/2003	2	Sonora	semiannulata		dead/ specimen
5/26/2003	3	Spermophilus	mexicanus		pictures
5/27/2003	3	Gopherus	berlandieri		next to trap
5/27/2003	3	Rattus	rattus		pictures
5/28/2003	3	Bufo	valliceps		DIT-specimen PAAL-092
5/28/2003	3	Gopherus	berlandieri		next to trap
5/28/2003	1	Sceloporus	olivaceus		
5/31/2003	3	Masticophis	ruthveni		
5/31/2003	1	Sceloporus	variabilis	marmoratus	
5/31/2003	3	Sigmodon	hispidus		
6/1/2003	3	Rana	berlandieri		
6/1/2003	3	Rana	berlandieri		
6/2/2003	2	Coluber	constrictor	oaxaca	
6/2/2003	3	Gastrophryne	olivacea		
6/2/2003	3	Gastrophryne	olivacea		
6/2/2003	3	Scaphiopus	couchii		
6/2/2003	3	Scaphiopus	couchii		
6/2/2003	3	Scaphiopus	couchii		
6/2/2003	3	Scaphiopus	couchii		
6/2/2003	2	Sceloporus	variabilis	marmoratus	
6/2/2003	3	Sceloporus	variabilis	marmoratus	
6/2/2003	3	Sceloporus	variabilis	marmoratus	photos
6/2/2003	3	Sceloporus	variabilis	marmoratus	
6/4/2003					traps closed
6/30/2003					traps open
7/1/2003	2	Salvadora	grahamiae	lineata	
7/1/2003	3	Salvadora	grahamiae	lineata	
7/1/2003	2	Sceloporus	variabilis	marmoratus	
7/1/2003	2	Sceloporus	variabilis	marmoratus	
7/2/2003	3	Gastrophryne	olivacea		photos
7/2/2003	3	Scaphiopus	couchii		DIT-spec
7/2/2003	3	Scaphiopus	couchii		photos

Date	Trap #	Genus	Species	Sub-species	Comments
7/3/2003	3	Gastrophryne	olivacea		
7/3/2003	3	Gastrophryne	olivacea		
7/3/2003	3	Gastrophryne	olivacea		
7/3/2003	3	Gastrophryne	olivacea		
7/4/2003					traps closed

Appendix 16. Visual encounter survey locations and results during reptile and amphibian inventory of Palo Alto Battlefield National Historic Site; March 2003 – July 2003.

Date	Species	begin Easting	begin Northing	end Easting	end Northing	Location	Comments	Surveyor(s)
8/9/2002	Aspidoscelis gularis	653039	2879706	652115	2879360	From dry resaca at site of Dr. Judds drift fences, along resaca following resaca back NW to Paredes Line Rd then N about 250 m, then E into the mesquital, back across an open field to starting point	by old barn	Mike Duran, Lynne Duran
4/26/2003	Aspidoscelis gularis (4)	653619	2879123	653230	2879954	from about 100 m N of pond on E side...spread out 100 m apart and walked about 800 m N then W then S to start point	in sacatal, around trees and ant beds in NE corner of survey area	Mike Duran, Lynne Duran, Kristi Fazioli
6/1/2003	Aspidoscelis gularis (8 to 10)	652579	2879778	652663	2880324	2-by old barn; others at various open areas	at least one or two could have been sexlineatus	Mike Duran
4/30/2003	Aspidoscelis gularis (8)	653059	2879877	653445	2880655	old fence line near old barn w/ spread about 100 m apart ENE about 700 m	on edges of shaded areas, but sometimes in open	Mike Duran, Lynne Duran, Kristi Fazioli
8/9/2002	Bufo valliceps	652969	2885685	652115	2879360	From dry resaca at site of Dr. Judd's drift fences, along resaca following resaca back NW to Paredes Line Rd then N about 250 m, then E into the mesquital, back across an open field to starting point	in oldfield (in a hole) just east of trap #3	Mike Duran, Lynne Duran
8/9/2002	Crotalus atrox	652969	2885685	652115	2879360	From dry resaca at site of Dr. Judd's drift fences, s along resaca following resaca back NW to Paredes Line Rd then N about 250 m, then E into the mesquital, back across an open field to starting point	skeleton except skull (26.031821 - 97.474052)	Mike Duran, Lynne Duran
6/1/2003	Crotalus atrox					inside thornscrub N of middle rd - S. of Trap 2	huge snake skin	Mike Duran
6/1/2003	Gopherus berlandieri					inside thornscrub N of middle rd - S. of Trap 2	juvenile - photos	Mike Duran
8/9/2002	Gopherus berlandieri	653039	2879706	652115	2879360	From dry resaca at site of Dr. Judd's drift fences, along resaca following resaca back NW to Paredes Line Rd then N about 250 m, then E into the mesquital, back across an open field to starting point	in mesquital near edge of old field	Mike Duran, Lynne Duran
8/9/2002	Kinosternon flavescens	652969	2885685	652205	2879361	From dry resaca at site of Dr. Judd's drift fences, sout along resaca following resaca back NW to Paredes Line Rd then N about 250 m, then E into the mesquital, back across an open field to starting point	collected carapace	Mike Duran, Lynne Duran
8/9/2002	Phrynosoma cornutum	653039	2879706	652115	2879360	From dry resaca at site of Dr. Judd's drift fences, sout along resaca following resaca back NW to Paredes Line Rd then N about 250 m, then E into the mesquital, back across an open field to	dead/desicated PAAL-116	Mike Duran, Lynne Duran

Date	Species	begin Easting	begin Northing	end Easting	end Northing	Location	Comments	Surveyor(s)
						starting point		
8/9/2002	Phrynosoma cornutum	653039	2879706	652115	2879360	From dry resaca at site of Dr. Judd's drift fences, sout along resaca following resaca back NW to Paredes Line Rd then N about 250 m, then E into the mesquital, back across an open field to starting point	26.029815 - 97.473915	Mike Duran, Lynne Duran
8/10/2002	Phrynosoma cornutum	653025	2879994	653133	2880650	From end of road near old barn-NW to resaca, to fence line and briefly across fence back E along resaca about 1/2 km, then back S to starting point	26.035064-97.470974 in old field	Mike Duran, Lynne Duran
4/26/2003	Phrynosoma cornutum (1)	652797	2879006	652600	2878629	3 surveyors walked 500 m E from pt where the road passes by overlook, then S 100 m and back west to starting longitude at 50 m intervals		Mike Duran, Lynne Duran, Kristi Fazioli
5/30/2003	Phrynosoma cornutum (2)	652218	2880962	652704	2880762	Near N gate off Paredes Line Rd.		Mike Duran
6/1/2003	Phrynosoma cornutum (3)	652579	2879778	652663	2880324	2-just N of old barn in open field: 1-right next to old barn		Mike Duran
4/26/2003	Phrynosoma cornutum (4)	653619	2879123	653230	2879954	from about 100 m N of pond on E side...spread out 100 m apart and walked about 800 m N then W then S to start point	in sacatal	Mike Duran, Lynne Duran, Kristi Fazioli
4/30/2003	Phrynosoma cornutum (8)	653059	2879877	653445	2880655	old fence line near old barn w/ spread about 100 m apart ENE about 700 m	in open areas near ants	Mike Duran, Lynne Duran, Kristi Fazioli
6/1/2003	Rana berlandieri (3)	652579	2879778	652663	2880324	in mud puddle by old barn		Mike Duran
8/10/2002	Sceloporus olivaceus	653039	2879706	652115	2879360	From dry resaca at site of Dr. Judd’s drift fences, along resaca following resaca back NW to Paredes Line Rd then N about 250 m, then E into the mesquital, back across an open field to starting point	on fence posts between old barn & starting point (collected 1 scel. oliv. Thought one was something else)	Mike Duran, Lynne Duran
4/26/2003	Sceloporus olivaceus (1)	652797	2879006	652600	2878629	3 surveyors walked 500 m E from pt where the road passes by overlook, then S 100 m and back west to starting longitude at 50 m intervals	97.46698 26.02036	Mike Duran, Lynne Duran, Kristi Fazioli
8/9/2002	Sceloporus olivaceus (5)	653025	2879994	653133	2880650	From end of road near old barn-NW to resaca, to fence line and briefly across fence back E along resaca about 1/2 km, then back S to starting point	along fence line north of old barn- collected - thought it was undulatus	Mike Duran, Lynne Duran
4/26/2003	Sceloporus variabilis (2)	653619	2879123	653230	2879954	from about 100 m N of pond on E side...spread out 100 m apart and walked about 800 m N then W then S to start point	SE part of survey area	Mike Duran, Lynne Duran, Kristi Fazioli
4/30/2003	Sceloporus variabilis (3)	653059	2879877	653445	2880655	old fence line near old barn w/ spread about 100 m apart ENE about 700 m	on edges between sacatal and coastal prairie	Mike Duran, Lynne Duran, Kristi Fazioli
5/30/2003	Sceloporus variabilis (3)	652218	2880962	652704	2880762	Near N gate off Paredes Line Rd.		Mike Duran
6/1/2003	Sceloporus variabilis (3)	652579	2879778	652663	2880324	1 by barn, 2 along edge between old field and mesquital		Mike Duran
4/26/2003	Sceloporus variabilis (6)	652797	2879006	652600	2878629	3 surveyors walked 500 m E from pt where the		Mike Duran,

Date	Species	begin Easting	begin Northing	end Easting	end Northing	Location	Comments	Surveyor(s)
						road passes by overlook, then S 100 m and back west to starting longitude at 50 m intervals		Lynne Duran, Kristi Fazioli
3/21/2002	Sceloporus variabilis marmoratus	652238	2878456	652055	2878100	Palo Alto Battlefield-from NE corner of thornscrub polygon in SW corner of property to FM511	sacatal (26.015548-97.49778)	Mike Duran
3/21/2002	Sceloporus variabilis marmoratus	652048	2878535	652246	2877759	Thrornscrub area in SW corner of property position below is beginning/end but many meanderings around those coordinates	in thornscrub on mesquite (26.01752-97.479487)	Mike Duran
3/21/2002	Sceloporus variabilis marmoratus	652048	2878535	652048	2878535	long survey that started in the PAAL parking lot off Paredes Line Rd, went W around the edge of thornscrub in the SW corner of the property then along FM 511 for about 400 m, then NE for about 1.5 km, then N about 1 km then W about 1 km then back along Parades Line Rd to starting pt.	26.01752-97.479487 and 1 @ 26.015548-97.479778	Mike Duran
3/22/2002	Sceloporus variabilis marmoratus	653042	2879735	653623	2880675	From edge of dry resaca	along wooded area 26.035119-97.472513 **too cold for reptiles that day. Survey done to familiarize area	Mike Duran
8/9/2002	Sceloporus v. m (25-30)	653039	2879706	652115	2879360	From dry resaca at site of Dr. Judd's drift fences, along resaca following resaca back NW to Paredes Line Rd then N about 250 m, then E into the mesquital, back across an open field to starting point	about 25-30 at numerous places along resaca and along fence (collected 1)	Mike Duran, Lynne Duran
8/10/2002	Sceloporus v. m. (25-35)	653025	2879994	653133	2880650	From end of road near old barn-NW to resaca, to fence line and briefly across fence back E along resaca about 1/2 km, then back S to starting point	along resaca and along wooded edge of old field	Mike Duran, Lynne Duran
6/1/2003	White tailed hawk					inside thornscrub N of middle rd - S. of Trap 2	on nest	Mike Duran

Appendix 17. Road kills and casual observation of species during reptile and amphibian inventory of Palo Alto Battlefield National Historic Site; March 2002 – October 2003.

Date	Genus	Species	General Location/Comment
4/30/2003	Aspidoscelis	gularis	(2) road to trap #3 700 m and 750 m
4/27/2003	Aspidoscelis	gularis	along road to trap #3 700 m from gate
5/1/2003	Aspidoscelis	gularis	mesquital SW trap 3...100 m
7/1/2003	Aspidoscelis	gularis	on middle rd to trap 2..60 m from gate
4/30/2003	Aspidoscelis	gularis	road to trap 3...600 m
4/30/2003	Aspidoscelis	gularis	road to trap 3...650 m
3/10/2003	Bufo	nebulifer	along middle rd (trap 2) near resaca
3/10/2003	Crotalus	atrox	Between traps 2 & 3 huge snake -Photos
3/19/2003	Crotalus	atrox	at end of road near old barn. HUGE
4/27/2003	Crotalus	atrox	on trail to trap 3
5/16/2003	Crotalus	atrox	on trail to trap 3
5/28/2003	Crotalus	atrox	on trail to trap 3
5/28/2003	Crotalus	atrox	on trail to trap 3
4/27/2003	Pantherophis	gutatta	approx. 125 m N of trap 3 on rd
4/30/2003	Gopherus	berlandieri	~800 m from north gate toward trap 3
5/15/2003	Gopherus	berlandieri	Adult on trail to trap 3
5/16/2003	Gopherus	berlandieri	Juv. On trail to trap 3
5/16/2003	Gopherus	berlandieri	Adult on trail to trap 3
5/26/2003	Gopherus	berlandieri	next to trap 3
5/27/2003	Gopherus	berlandieri	next to trap 3
5/28/2003	Gopherus	berlandieri	next to trap 3
6/2/2003	Gopherus	berlandieri	on middle rd (to trap 2) ..300 m from gate
6/1/2001	Kinosternon	flavescens	Frank Judd
8/9/2002	Kinosternon	flavescens	mid southernmost resaca east side
10/3/2003	Kinosternon	flavescens	Part of carapace - near east pond
3/18/2003	Masticophis	ruthveni	at 1st sharp turn inside thornscrub rd to trap 3- per Rolando Garza
3/19/2003	Phrynosoma	cornutum	on middle road (to trap 2)- Photos (2)
4/27/2003	Phrynosoma	cornutum	along road to trap #3 200 m from gate
4/30/2003	Phrynosoma	cornutum	road to trap 3...100 m
4/30/2003	Phrynosoma	cornutum	road to trap 3 ...700 m
4/30/2003	Phrynosoma	cornutum	road to trap 3...800 m
6/1/2003	Phrynosoma	cornutum	on middle road (to trap 2)- Photos
4/27/2003	Phrynosoma	cornutum	along road near pond on east side
4/30/2003	Sceloporus	olivaceus	road to trap 3. 80 m from gate
4/30/2003	Sceloporus	olivaceus	approx. 200 m from N gate on edge
3/10/2003	Sceloporus	variabilis	(5) in resaca east of trap 1 (borrichia)
3/10/2003	Sceloporus	variabilis	N of trap 1 in prairie and resaca
4/30/2003	Sceloporus	variabilis	on fence near pond on east side
5/1/2003	Sceloporus	variabilis	mesquital SW trap 3...100 m
6/1/2003	Sceloporus	variabilis	on path between road and trap 2
7/3/2003	Sceloporus	variabilis	on levy E of trap 1
3/5/03 - 3/9/03	Sceloporus	variabilis	(15-20) borrichia prairie E of trap 1
3/5/03 - 3/9/03	Sceloporus	variabilis	(8-10) edge of mesquital /old field path to trap 3

Appendix 18. Results of auditory surveys during the reptile and amphibian inventory of Palo Alto Battlefield National Historic Site; March 2002 – October 2003. BUNE = *Bufo nebulifer*; PSCL = *Pseudacris clarkii*; *GAOL=Gastrophryne olivacea*; SMBA=*Smilisca baudinii*; RABE=*Rana berlandieri*.

Date	location	BUNE	PSCL	GAOL	SMBA	RABE	Comments
8/9/2002	near dry resacas and dry farm ponds	0	0	0	0	0	
3/10/2003	Resaca near & East of Trap #1	0	0	0	0	0	raining but nothing heard
4/26/2003	PAAL-at all locations with water	0	0	0	0	0	some standing water at one farm pond
4/30/2003	All farm ponds and resaca	0	0	0	0	0	some standing water at one farm pond
9/22/2003	SW part of Resaca by Hwy	2	0	1	1	1	Smilisca=DM10173 - photos; 1 or 2 RABE calling very briefly-no recording; unk frog (Gastrophryne/Bufo Wood?)=DM10173
9/22/2003	N Boundary and Hwy 1847	3	0	2	0	0	
10/1/2003	PAAL- 100 mi W of overlook	3	3	0	0	0	

Appendix 19. Specimens Collected During the 2002-2003 Herpetological Inventory at Palo Alto Battlefield Historical Park

Entry #	Cat #	Date	Genus	Species	Subspecies	General Location	Easting	Northing	Comments	Collector
42	PAAL042	8/9/2002	Sceloporus	olivaceus		.5 miles N of overlook along old fence line	652669	2880255	Collected	M. Duran
43	PAAL043	8/10/2002	Sceloporus	olivaceus		200 m NW of old barn along fenceline	653019	2879886	Collected	M. Duran
44	PAAL044	8/10/2002	Sceloporus	variabilis	marmoratus	.5 miles N of overlook along old fence line	653007	2879909	Collected on fence post	M. Duran
74	PAAL074	8/9/2002	Bufo	nebulifer		150 m E. of Trap # 3 - PAAL	652726	2879777	collected	M. Duran
76	PAAL076	3/12/2003	Tantilla	nigriceps		Trap # 2 - PAAL	652334	2879025		M. Duran
77	PAAL077	3/9/2003	Gastrophryne	olivacea		Trap # 3 - PAAL	652583	2879777		M. Duran
78	PAAL078	4/3/2003	Scaphiopus	couchii		Trap #3 - PAAL	652583	2879777	collected	M. Duran
82	PAAL082	3/23/2003	Scaphiopus	couchii		Trap # 3 - PAAL	652583	2879777	DIT	M. Duran
88	PAAL088	6/1/2003	Rana	berlandieri		Trap # 3 - PAAL	652583	2879777	DIT	M. Duran
89	PAAL089	6/1/2003	Rana	berlandieri		Trap # 3 - PAAL	652583	2879777	DIT	M. Duran
92	PAAL092	5/28/2003	Bufo	nebulifer		Trap # 1 - PAAL	652165	2879339	DIT	M. Duran
94	PAAL094	4/3/2003	Masticophis	ruthveni		Hwy near trap 3 - PAAL	652139	2880043	DOR	K. Fazioli
96	PAAL096	3/26/2003	Colubre	constrictor	oaxaca	Trap # 1 - PAAL	652165	2879339		M. Duran
97	PAAL097	4/3/2003	Crotalus	atrox		Trap # 1 - PAAL	652165	2879339		M. Duran
102	PAAL102	4/26/2003	Aspidoscelis	gularis	gularis	Trap # 2 - PAAL	652334	2879025		M. Duran
103	PAAL103	5/15/2003	Sonora	semiannulata	taylori	Trap # 2 - PAAL	652334	2879025	collected	M. Duran
104	PAAL104	3/22/2003	Salvadora	grahamiae	lineata	Trap # 1 - PAAL	652165	2879339	collected	M. Duran
105	PAAL105	5/17/2003	Masticophis	flagellum	testaceus	Trap # 1 - PAAL	652165	2879339	collected	M. Duran
108	PAAL108	10/3/2003	Pseudacris	clarkii		~70 m W. of overlook	652623	2878912	collected	M. Duran
114	PAAL114	10/10/2003	Scaphiopus	couchii		NW corner on 1847 by canal	652178	2880954	DOR-ID?	M. Duran
115	PAAL115	3/23/2003	Gastrophryne	olivacea		Trap # 3 - PAAL	652583	2879777	DIT	M. Duran
116	PAAL116	8/9/2002	Phrynosoma	cornutum		in oldfield east of trap 3	652697	2879797	found dead desiccated	M. Duran