

AN INTRODUCTION TO THE AMPHIBIANS AND REPTILES OF THE KATHARINE ORDWAY PRESERVE-SWISHER MEMORIAL SANCTUARY, PUTNAM COUNTY, FLORIDA

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The five accompanying papers present information from several recent studies on amphibians and reptiles conducted on the Katharine Ordway Preserve-Swisher Memorial Sanctuary (=Preserve), located about 5 km SE of Melrose, Putnam County, Florida. Three of these papers represent theses that were originally submitted to the University of Florida's Department of Wildlife and Range Sciences (LaClaire 1992; Smith 1992; Timmerman 1989). The results of initial efforts at the Preserve are contained in 31 reports and published papers, which provide baseline herpetological information for future studies (Table 1).

The herpetological list, developed over a 10-year period (1983-1993), includes 27 amphibians and 46 reptiles (Appendix 1). Its formulation represents the efforts of many colleagues, including Ray E. Ashton, Jr., Michael Blouin, Russell Burke, Bert Charest, C. Kenneth Dodd, Jr., Douglas Eifler, Kevin Enge, Linda V. LaClaire, Paul E. Moler, Scott Pitts, Jan Ryser, Lora L. Smith, Karl Studenroth, James Stuart, John Thorbjarnarson, Kent Vliet, and Walter W. Timmerman. Amphibians and reptiles, scavenged from roads or accidentally killed in pitfall or funnel traps, were preserved as vouchers and placed in the herpetological collections of the Florida Museum of Natural History and the National Museum of Natural History, Smithsonian Institution. The common and scientific names used in this text follow Conant and Collins (1991).

The list was developed from direct observations and from animals found during specific studies or caught in pitfall, wire funnel, and Iverson turtle traps. Traps, set in terrestrial habitats, usually were in association with constructed drift fences or set along natural barriers such as fallen trees. Traps produced more than 20,000 captures of 57 species caught over 150,000 trap days (one trap=one trap set

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Table 1. List of reports and published papers concerning amphibians and reptiles of the Preserve.

Topic	References
General survey	Franz 1991a
Ephemeral ponds	Moler & Franz 1987; Dodd & Charest 1988; Dodd 1992b; Franz 1991b; LaClaire & Franz 1991; LaClaire 1992, 1995
Trapping	Franz 1984, 1986; Humphrey et al. 1985; Dodd & Charest 1988; Franz 1988; Franz et al. 1989; Dodd 1991, 1992b, 1993a, 1995; Dodd & Franz 1995
Frog surveys	Moler & Franz 1987; LaClaire & Franz 1991
<i>Bufo (quercicus)</i>	Dodd 1994
<i>Bufo (terrestris)</i>	Dodd 1994
<i>Cemophora</i>	Stuart & Dodd 1985
<i>Cnemidophorus</i>	Dodd 1992a, 1993b
<i>Crotalis</i>	Timmerman 1989, 1990, 1995
<i>Drymarchon</i>	Dodd 1988
<i>Elaphe</i>	Franz 1988
<i>Gastrophryne</i>	Dodd 1995
<i>Gopherus</i>	Eisenberg 1984; Franz 1984, 1986a; Ultsch & Anderson 1986; Jones & Franz 1990; Smith 1992, 1995; Dodd 1993a
<i>Notophthalmus (perstriatus)</i>	Dodd 1993a
<i>Pituophis</i>	Franz 1984, 1992
<i>Pseudemys (floridanus)</i>	Franz 1986b
<i>Seminatrix</i>	Dodd 1993c
<i>Rana (areolata)</i>	Franz 1984, 1986a; Franz et al. 1988

for one 24-hr period). The frog trapping data base was supplemented by vocalization surveys, which were conducted weekly between March 1983 and March 1985 and irregularly in March and April 1993.

The habitats on the Preserve include high pine sandhills, xeric oak hammocks, mesic hardwood hammocks, sandhill ponds and lakes, swamp forests, and dark water ponds, lakes, and marshes (Franz and Hall 1991). About 15-20% of the Preserve has been severely altered by agriculture. Mesic hardwood hammocks, swamp forests, and darkwater habitats are restricted to the Mill Creek valley. The Mill Creek originates in Lake Melrose (west of the Preserve) and flows across the Preserve in an easterly direction (Fig. 1). This intermittent creek is an upper tributary of the Etoniah-Rice Creek drainage, an important tributary of the lower St. Johns River. Sandhill lakes are generally isolated with respect to one another and to the darkwater flow-through system. There are no flatwoods and permanent streams or springs on the property.

The Preserve includes a modest herpetofauna of mostly upland and aquatic species (Appendix 1). The composition of this fauna reflects the Preserve's geographical position on a N-S trending series of sand ridges that lie along the

Table 2. List of 24 species of amphibians and reptiles that are known to occur in the area contiguous with the Preserve, but are not recorded from the property.

Species	Putnam County	Rare	Inappropriate habitat	Possible additions
<i>Ambystoma cingulatum</i>		+	+	
<i>Ambystoma talpoideum</i>				+
<i>Ambystoma tigrinum</i>		+		+
<i>Desmognathus auriculatus</i>	+		+	
<i>Pseudobranchius striatus</i>	?			+
<i>Pseudotriton montanus</i>	+	+	+	
<i>Pseudacris nigrita</i>	+		+	
<i>Pseudacris ornata</i>	+			+
<i>Clemmys guttata</i>	+	+	?	+
<i>Sternotherus minor</i>	+		+	
<i>Eumeces fasciata</i>	+	+		+
<i>Ophisaurus compressus</i>	+	+	+	
<i>Farancia erythrogramma</i>	+	+	+	
<i>Heterodon simus</i>		+		+
<i>Lampropeltis getula</i>	+			+
<i>Lampropeltis triangulum</i>	+		?	+
<i>Regina rigida</i>	+		+	
<i>Rhadinaea flavilata</i>	+		+	
<i>Stilosoma extenuatum</i>		+		+
<i>Storeria dekayi</i>				+
<i>Storeria occipitomaculata</i>	+			+
<i>Virginia striatula</i>			?	+
<i>Virginia valeriae</i>		+		
<i>Crotalus horridus</i>	+		+	
Total Species	16	10	13	13

eastern margins of the the old Northern Highlands. Six species of amphibians dwell in upland terrestrial habitats and use ephemeral ponds as breeding sites, while 13 of the reptiles are primarily associated with upland habitats, particularly long pine sandhills. Most of the aquatic amphibians and reptiles occur in lentic habitats, particularly in weedy lake conditions. Two species (*Eleutherodactylus planirostris* and *Hemidactylus garnotii*) are exotic in Florida.

Most amphibians and reptiles on the Preserve are common in appropriate habitats, although three amphibians and five reptiles are known from fewer than five sightings: *Notophthalmus viridescens* 1; *Pseudobranchius axanthus* 1; *Hyla chrysoscelis* 1; *Terrapene carolina* 1, *Trachemys scripta* 1, *Ophisaurus attenuatus* 2, *Drymarchon corais* 2, and *Agkistrodon piscivorus* 4. The reasons for this apparent rarity are unknown. Four regionally rare or depleted species maintain viable populations on the Preserve: *Notophthalmus perstriatus*, *Rana capito*,

Gopherus polyphemus, and *Pituophis melanoleucus*. A fifth species, *Drymarchon corais*, is both rare on the Preserve and rare in the region. The Preserve serves as an important refugium for rare or declining species and may play an important role in any future recovery efforts for them.

At least 96 species are known from the immediate area surrounding the Preserve (Alachua, Bradford, Clay, and Putnam counties). Of these species, 25 remain unreported from the Preserve; 10 are regionally rare; 11 are associated with habitats not present on the property; and 13 could potentially occur on the Preserve (Table 2), although the chances of their presence are remote because sampling efforts have been intense in the last 10 years.

The Preserve is a dynamic ecological system that lends itself to both short- and long-term herpetological studies. As the list of papers suggests, there are many opportunities for further studies on individual species, as well as on herpetological communities. The Preserve welcomes researchers to submit proposals to the Ordway Board and to participate in the establishment of a herpetological research tradition on this property.

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APPENDIX 1

Annotated list of amphibians and reptiles known to occur on the Katharine Ordway Preserve-Swisher Memorial Sanctuary, Putnam County, Florida.
Habitat classification follows Franz and Hall (1991).

AMPHIBIANS

FAMILY Sirenidae

Pseudobranchius axanthus Netting and Goin, NARROW-STRIPED DWARF SIREN. Rare. Known only from a darkwater lake (Tucker Pond).

Siren intermedia LeConte, LESSER SIREN. Probably common. Darkwater lakes and Mill Creek Swamp.

Siren lacertina Linnaeus, GREATER SIREN. Probably common. Darkwater lakes and marshes.

FAMILY Salamandridae

Notophthalmus perstriatus (Bishop), STRIPED NEWT. Uncommon. High pine sandhills. Breeds in certain isolated sandhill ponds.

Notophthalmus viridescens piaropicola (Schwartz and Duellman), PENINSULA NEWT. Rare. Known from two darkwater lakes (Hooks and Tucker ponds).

FAMILY Plethodontidae

Eurycea quadridigitata (Holbrook), DWARF SALAMANDER. Common. Xeric oak and mesic hardwood hammocks, swamp forests, and occasionally high pine sandhills. Breeds in ponds, darkwater lakes, and possibly Mill Creek.

Plethodon grobmani Neill, SLIMY SALAMANDER. Probably common. Mesic hardwood hammocks and swamp forests.

FAMILY Amphiumidae

Amphiuma means Garden, TWO-TOED AMPHIUMA. Common. Darkwater lakes.

FAMILY Pelobatidae

Scaphiopus holbrookii holbrookii (Harlan), EASTERN SPADEFOOT. Abundant. High pine sandhill, xeric oak and mesic hardwood hammocks. Breeds in temporary pools.

FAMILY Bufonidae

Bufo quercicus Holbrook, OAK TOAD. Abundant. High pine sandhills and xeric oak hammocks. Breeds in darkwater and sandhill ponds.

Bufo terrestris (Bonnaterre), SOUTHERN TOAD. Abundant. Xeric oak and mesic hardwood hammocks, swamp forests, and ruderal habitats. Breeds in lakes, ponds, marshes, and Mill Creek.

FAMILY Leptodactylidae

Eleutherodactylus planirostris (Cope), GREENHOUSE FROG. Common. (Naturalized). Most terrestrial habitats.

FAMILY Hylidae

Acris gryllus dorsalis (Harlan), FLORIDA CRICKET FROG. Abundant. Margins of darkwater and sandhill habitats. Occasionally found on upland sites.

Hyla chrysoscelis Cope, COPE'S GRAY TREEFROG. Rare. Known from one immature specimen caught at a sandhill pond (Breezeway Pond).

Hyla cinerea (Schneider), GREEN TREEFROG. Abundant. Primarily darkwater lakes and ponds.

Hyla gratiosa Leconte, BARKING TREEFROG. Common. Breeds in ponds that lack fish populations.

Hyla femoralis Sonnini and Laterille, PINE WOODS TREEFROG. Common. Breeds in darkwater and sandhill ponds, and occasionally sandhill lakes.

Hyla squirella Bosc, SQUIRREL TREEFROG. Common. Breeds primarily in darkwater ponds and marshes.

Pseudacris crucifer bartramiana Harper, SOUTHERN SPRING PEEPER. Common. Breeds primarily along margins of darkwater ponds and lakes.

Pseudacris ocularis (Bosc and Daudin), LITTLE GRASS FROG. Common. Breeds primarily along margins of sandhill lakes and ponds.

FAMILY Microhylidae

Gastrophryne carolinensis (Holbrook), EASTERN NARROWMOUTH TOAD. Abundant. Breeds along the margins of darkwater and sandhill ponds and lakes.

FAMILY Ranidae

Rana capito aesopus Cope, FLORIDA GOPHER FROG. Common. High pine sandhills. Breeds in ponds that lack fish populations.

Rana catesbeiana Shaw, BULLFROG. Uncommon. Breeds primarily in small sandhill ponds.

Rana clamitans clamitans Latreille, BRONZE FROG. Common. Margins of darkwater lakes and in the Mill Creek Swamp.

Rana heckscheri Wright, RIVER FROG. Uncommon. Darkwater lakes and in the Mill Creek Swamp.

Rana grylio Stejneger, PIG FROG. Common. Primarily in darkwater lakes and ponds, and to a lesser extent in sandhill lakes and ponds.

Rana utricularia sphenoccephala Cope, FLORIDA LEOPARD FROG. Abundant. Breeds in most water bodies on the property. Occasionally found on upland sites.

REPTILES

FAMILY Alligatoridae

Alligator mississippiensis (Daudin), AMERICAN ALLIGATOR. Common. Primarily in darkwater lakes, and occasionally in sandhill lakes and ponds.

FAMILY Chelydridae

Chelydra serpentina osceola Stejneder, FLORIDA SNAPPING TURTLE. Probably uncommon. Darkwater lakes.

FAMILY Kinosternidae

Kinosternon baurii palmarum Stejneger, STRIPED MUD TURTLE. Common. Primarily in darkwater ponds and lakes.

Kinosternon subrubrum steindachneri Siebenrock, FLORIDA MUD TURTLE. Common. Primarily in sandhill ponds and lakes and darkwater marshes.

Sternotherus odoratus (Latreille), COMMON MUSK TURTLE. Common. Darkwater and sandhill ponds and lakes.

FAMILY Emydidae

Deirochelys reticularia chrysea Schwartz, FLORIDA CHICKEN TURTLE. Uncommon. Darkwater and sandhill ponds and marshes.

Pseudemys floridana peninsularis Carr, PENINSULA COOTER. Common. Primarily in sandhill ponds and lakes, less common in darkwater habitats.

Pseudemys nelsoni Carr, FLORIDA REDBELLY TURTLE. Common. Primarily in darkwater ponds, lakes and marshes.

Terrapene carolina bauri W.E. Taylor, FLORIDA BOX TURTLE. Rare. Known from one capture in the lower Mill Creek Swamp.

Trachemys scripta scripta (Schoepff), YELLOWBELLY SLIDER. Rare. Known from one specimen caught at Tucker Pond.

FAMILY Testudinidae

Gopherus polyphemus (Daudin), GOPHER TORTOISE. Common. High pine sandhill, old fields, and occasionally xeric oak hammocks.

FAMILY Trionychidae

Apalone ferox (Schneider), FLORIDA SOFTSHELL. Common. Darkwater and sandhill ponds and lakes.

FAMILY Gekkonidae

Hemidactylus garnottii Dum. and Bibr., INDO-PACIFIC GECKO. Rare. (Introduced). Known from one specimen caught at Pole Barn.

FAMILY Polychridae

Anolis carolinensis carolinensis Voigt, GREEN ANOLE. Common. High pine sandhills, xeric oak and mesic hardwood hammocks, and some ruderal sites.

FAMILY Phrynosomatidae

Sceloporus undulatus undulatus (Latreille), SOUTHERN FENCE LIZARD. Common. High pine sandhills and xeric oak hammocks.

FAMILY Teiidae

Cnemidophorus sexlineatus sexlineatus (Linnaeus), SIX-LINED RACERUNNER. Abundant. Associated with open sandy areas in most terrestrial habitats.

FAMILY Scincidae

Eumeces egregius onocrepis (Cope), PENINSULA MOLE SKINK. Common. High pine sandhills, xeric oak hammock, and margins of sandhill ponds.

Eumeces inexpectatus Taylor, SOUTHEASTERN FIVE-LINED SKINK. Common. High pine sandhills and xeric oak hammocks.

Eumeces laticeps (Schneider), BROADHEAD SKINK. Common. Mesic hardwood hammocks, swamp forests, and occasionally xeric oak hammocks.

Scincella lateralis (Say), GROUND SKINK. Abundant. High pine sandhills and xeric oak and mesic hardwood hammocks.

FAMILY Anguillidae

Ophisaurus attenuatus longicaudus McConkey, EASTERN SLENDER GLASS LIZARD. Rare. Known from two sightings in ruderal areas along Entrance Road.

Ophisaurus ventralis (Linnaeus), EASTERN GLASS LIZARD. Uncommon. Xeric oak hammocks and margins of darkwater and sandhill ponds.

FAMILY Amphisbaenidae

Rhineura floridana (Baird), FLORIDA WORM LIZARD. Probably common. High pine sandhills and xeric oak hammocks.

FAMILY Colubridae

Cemophora coccinea coccinea (Blumenbach), FLORIDA SCARLET SNAKE. Uncommon. High pine sandhills, xeric oak hammocks, and margins of sandhill ponds and lakes.

Coluber constrictor priapus Dunn and Wood, SOUTHERN BLACK RACER. Common. Most habitats.

Diadophis punctatus punctatus (Linnaeus), SOUTHERN RINGNECK SNAKE. Uncommon. Xeric oak hammocks, and margins of sandhill ponds.

Drymarchon corais couperi (Holbrook), EASTERN INDIGO SNAKE. Rare. Known from two individuals.

- Elaphe guttata guttata* (Linnaeus), CORN SNAKE. Uncommon. High pine sandhills, xeric oak and mesic hardwood hammocks, pine plantations, old fields, and around buildings.
- Elaphe obsoleta quadrivittata* (Holbrook), YELLOW RAT SNAKE. Probably common. Xeric oak and mesic hardwood hammocks, swamp forests, wet prairies, and ruderal habitats.
- Farancia abacura abacura* (Holbrook), EASTERN MUD SNAKE. Uncommon. Darkwater lakes and marshes.
- Heterodon platyrhinus* Latreille, EASTERN HOGNOSE SNAKE. Uncommon. High pine sandhills, xeric oak hammocks, and old fields.
- Masticophis flagellum flagellum* (Shaw), EASTERN COACHWHIP. Common. High pine sandhills, xeric oak hammocks, and old fields.
- Nerodia floridana* (Goff), FLORIDA GREEN WATER SNAKE. Uncommon. Darkwater lakes and marshes.
- Nerodia fasciata pictiventris* (Cope), FLORIDA WATER SNAKE. Common. Darkwater and sandhill lakes and ponds.
- Nerodia taxispilota* (Holbrook), BROWN WATER SNAKE. Uncommon. Darkwater lakes and Mill Creek.
- Ophedrys aestivus* (Linnaeus), ROUGH GREEN SNAKE. Uncommon. Xeric oak and mesic hardwood hammocks and ruderal habitats.
- Pituophis melanoleucus mugitus* Barbour, FLORIDA PINE SNAKE. Common. High pine sandhills and ruderal habitats.
- Regina alleni* (Garman), STRIPED CRAYFISH SNAKE. Uncommon. Darkwater and sandhill lakes and ponds.
- Seminatrix pygaea pygaea* (Cope), NORTH FLORIDA SWAMP SNAKE. Common. Darkwater and sandhill ponds and lakes.
- Tantilla relicta neilli* Telford, NEILL'S CROWN SNAKE. Common. High pine sandhills, xeric oak hammocks, and occasionally mesic hardwood hammocks.
- Thamnophis sauritus sackenii* (Kennicott), PENINSULA RIBBON SNAKE. Uncommon. Margins of darkwater and sandhill ponds and lakes.
- Thamnophis sirtalis sirtalis* (Linnaeus), EASTERN GARTER SNAKE. Uncommon. High pine sandhills, xeric oak and mesic hardwood hammocks, and margins of sandhill lakes.

FAMILY Elapidae

- Micrurus fulvius fulvius* (Linnaeus), EASTERN CORAL SNAKE. Common. High pine sandhills and xeric oak and mesic hardwood hammocks.

FAMILY Crotalidae

- Agkistrodon piscivorus conanti* Gloyd, FLORIDA COTTONMOUTH. Rare. Known from four specimens from the darkwater system.
- Crotalus adamanteus* Beauvois, EASTERN DIAMONDBACK RATTLESNAKE. Common. Xeric oak and mesic hardwood hammocks and occasionally high sandhills.
- Sistrurus miliarius barbouri* Gloyd, DUSKY PIGMY RATTLESNAKE. Common. High pine sandhills, xeric oak hammocks, and margins of darkwater and sandhill ponds and lakes.