

**Deerhaven Retreat and Conference Center:
An Assessment of its Value to the Florida Mission Center**

Mike Barnett

February 14, 2021

(Revised November 2, 2021)

Abstract

Most members of the Florida Mission Center are already aware of the spiritual, sacred, and nostalgic value of Deerhaven campground. Testimonies of the life-changing, religious experiences and essential fellowship that our members have not forgotten from the first 50 years of Deerhaven's existence (as our church reunion grounds) are many and varied. Some have gone so far as to suggest that Deerhaven youth camps and family reunions provide not only the best programs our mission center has offered to its members, but that our summer youth camps, in particular, have historically provided the **only**, real, quality programming for the youth of our church, state-wide. Therefore, it is not for these and other much-loved church activities that the author takes the time to explore the concept of Deerhaven's value. That much is already known, and we will continue to benefit from its many spiritual gifts. What the author wishes to present here is another way of recognizing Deerhaven's value.

The author will show that Deerhaven has a significant ecological value that can be employed to produce a substantial, annual, monetary profit, by utilizing a more precise marketing strategy. In the two following sections the author will highlight in detail the numerous ecological amenities in and around the campground. These provide unrivaled attractions for Deerhaven users interested in nature and the out-of-doors. In addition, due to its location in the Ocala National Forest, Deerhaven will not suffer from the rampant growth of development surrounding so many other Florida retreats and campgrounds.

Section III (beginning on pg. 10) explores at length the greater market possibilities for Deerhaven clientele (including Florida eco-tourists and local residents) based on the natural amenities described in the previous sections. And section IV (beginning on pg. 16) summarizes the author's suggestions for marketing Deerhaven in the future by specifically targeting those market groups who will be most attracted to its natural assets. Along with these suggestions is the author's vision of a future, successful Deerhaven which no longer requires financial support from the Florida Mission Center members, but makes an annual profit, just as any viable and valuable business should.

I. Location

Deerhaven campground consists of 73 acres (40 around the main buildings and 33 in a triangle across the road from the entrance gate, north of the clay pit). It is located in the southeastern tip of the Ocala National Forest: 384,689 acres of splendid natural beauty. This is the oldest national forest east of the Mississippi River, and “our only subtropical national forest” (Brower, 1997). “This region resembles a vast sea – a closed-canopy forest of sand pine scrub on low, rolling hills of white sand punctuated by islands of sandhill [habitat]. Streams issue forth from crystal-clear springs, and extensive basin swamps and swamp lakes provide havens for wildlife” (Knight, et al, 2011). “The attraction and value of the forest are largely due to its physical and biological diversity which make it an ecological wonderland” (Snedaker and Lugo, 1972). “The Ocala is perhaps the most scenic national forest in Florida, and certainly the one with the most varied recreational opportunities” (Ohr, 2003). Deerhaven is surrounded on three sides by this captivating public land. This places the campground in an incredibly unique and advantageous position (as will be elaborated below). The only other private property adjacent to the campground is the small Deerhaven Community to the south.

Real estate agents are fond of the saying, “Location, location, location.” When it comes to valuing property, location is key. The location of our campground makes it unequalled as a place for retreat from the rest of the world. Many other similar campground retreats in Florida were built long ago in places that were also isolated from the distractions of everyday life. But they are now surrounded by the urban sprawl that grew up around them as the state became more crowded with new development. The author knows of several campgrounds and retreats within the greater metropolitan area of Orlando where this is (sadly) now the case. Even many Florida State Parks, once remote and removed from the noise of traffic, power tools, barking dogs, and other irritations of city life, are now similarly surrounded (such as Wekiwa Springs State Park in Apopka). This will **never** be the case for Deerhaven because of its location within the national forest. The natural, peaceful, environmental attractions it contains will never have to compete with a busy shopping center or high-rise apartment building on either side of our property. And in the ever-more developed Florida of the future, this will be one of the indispensable assets that will continue to make Deerhaven campground stand well above most of the others.

In addition, Deerhaven is centrally located at about the middle of the state. This makes it accessible to both ends of the Florida peninsula, as well as the central part of the state. And for those coming from out of state, there are two airports nearby: Orlando-Sanford International Airport (north of Orlando) and the much larger Orlando International Airport, just south of Orlando. We really do have a **prime** location.

The information in the following section pertains to the campground and its adjacent ecosystems. Additionally, one should keep in mind the numerous other fascinating and beautiful natural resources within a short drive of the camp. These include **Lake Woodruff National Wildlife Refuge**, the **Florida National Scenic Trail**, the ghost town ruins of St.

Francis and the **St. Francis Loop Trail**, the **Paisley Woods Mountain Bike Trail**, the **Pioneer Center** at Barberville, the Native American shell midden at **Hontoon Island State Park**, the giant **Lake Eaton Sinkhole** (80 feet deep) and its accompanying trail (with a wooden staircase to the bottom), manatee viewing at **Blue Springs State Park**, **Juniper Prairie Wilderness** area, **Billies Bay Wilderness** area, **Sunnyhill Conservation Area**, **Clearwater Lake Recreation Area**, and **Ellis Acres Reserve** in Paisley. Besides Blue Springs there is another first-magnitude spring nearby called **Alexander Springs**, which is also a national recreation area. **Juniper Springs Recreation Area** and **DeLeon Springs State Park** are also close by. Our close proximity to these and other resources (such as 100 miles of equestrian trails within the southern end of the national forest) greatly increases the value of Deerhaven's location as a center for educational study and outdoor recreation.

II. Deerhaven's Natural Riches

A wonderful variety of extraordinary ecosystems are in or near the campground. Indeed, one would be hard-pressed to find another Florida campground located within easy walking distance of as many ecologically diverse habitats as Deerhaven.

There is the **deep marsh/open water habitat** of Deerhaven Lake itself. This lake is most likely known to aquatic ecologists as a *solution lake*, formed when underlying bedrock was dissolved by rainwater percolating through the soil, and collapsed, leaving a depression that filled with water (though there is some anecdotal evidence that it was once fed by a small, seepage spring approximately where the dock and diving platform are now located). Deerhaven Lake now appears to fill and evaporate according to the natural cycle of precipitation and drought in central Florida. It has risen high enough to cover the dock and part of the dirt road leading to the cabins in the east, and receded to dry, cracked mud at the very lowest center of the lake bottom, all within a period of 30 years or less. Deerhaven Lake is controlled by an active, dynamic process that is ever evolving, making it even more interesting to those in the field of aquatic study.

When lake water is present (as it is currently) the fishing can be good, with Largemouth Bass (*Micropterus salmoides*) and Bluegill (*Lepomis macrochirus*) caught by anglers young and old.

Birds seen in and around the lake include the Bald Eagle (*Haliaeetus leucocephalus*), Osprey (*Pandion haliaetus*), Anhinga (*Anhinga anhinga*), Great Blue Heron (*Ardea herodias*), Little Blue Heron (*Egretta caerulea*), Tricolored Heron (*Egretta tricolor*), Green Heron (*Butorides virescens*), Great Egret (*Ardea alba*), Roseate Spoonbill (*Platalea ajaja*, state-designated as threatened), Wood Duck (*Aix sponsa*), and Killdeer (*Charadrius vociferus*).

Florida has the highest population of breeding pairs of Bald Eagles in the lower 48 states with an estimated 1,500 pairs (and is second only to Alaska in the nation). Central Florida

has a great many Bald Eagles, and it is not unusual to see them foraging around bodies of water such as Deerhaven Lake (fishes are staples of their diet).

Reptiles and amphibians in Deerhaven Lake include the American Alligator (*Alligator mississippiensis*), Eastern Green Watersnake (*Nerodia floridana*), Florida Cottonmouth (*Agkistrodon piscivorus conanti*), Florida Chicken Turtle (*Deirochelys reticularia chrysea*), Common Florida Snapping Turtle (*Chelydra serpentina osceola*), Southern Cricket Frogs (*Acris gryllus*), and Pig Frogs (*Rana grylio*).

River Otters (*Lutra canadensis*) have also been seen in and near the lake, as well as Raccoons (*Procyon lotor*) and White-tailed Deer (*Odocoileus virginianus*). The previous owner of the property used Deerhaven as a hunt camp. This area is known to support one of the biggest deer herds in the state.

Aquatic plants growing in and around the lake include Spatterdock (*Nuphar advena*), American White Waterlily (*Nymphaea odorata*), Pink Sundew (*Drosera capillaris*), and Whitehead Bogbutton (*Lachnocaulon anceps*).

Many types of dragonflies are also present such as the Scarlet Skimmer (*Crocothemis servilia*) and Eastern Pondhawk (*Erythemis simplicicollis*).

The main campground and our triangle of property across from the front gate consist mostly of **sand pine scrub habitat**. This plant community is restricted to the state of Florida. The Ocala National Forest is commonly known as the “Big Scrub,” and represents “the largest contiguous remnant of scrub in Florida” (Knight, et al, 2011). The habitat name of sand pine scrub results from its occurrence on well-drained, sandy soils and from the dominance of Sand Pines (*Pinus clausa*), which have a “scrubby” appearance in comparison to a larger pine such as the Longleaf Pine (*Pinus palustris*). This scrub occurs on the sandy, relict, dune deposits created by ancient shorelines of the Pleistocene era. These siliceous sands are extremely infertile, and because of the lack of rainwater retained in the soil, only those plants adapted to very dry (xeric) conditions survive here.

As mentioned, the dominant tree species here, the Sand Pine, is the tree for which the Ocala National Forest is most well-known. The world’s largest continuous Sand Pine community occurs here and covers an area some 35 miles long by 15 miles wide along a north-south axis (Snedaker and Lugo, 1972). Other trees here include Southern Live Oak (*Quercus virginiana*), Scrub Oak or Sand Live Oak (*Quercus geminata*), Myrtle Oak (*Quercus myrtifolia*), Chapman Oak (*Quercus chapmanii*), Cabbage Palm (*Sabal palmetto*), and Saw Palmetto (*Serenoa repens*).

Other interesting scrub plants here include American Beautyberry (*Callicarpa americana*), Red Bay (*Persia borbonia var. borbonia*), Silk Bay (*Persea borbonia var. humilis*), Rusty Lyonia

(*Lyonia ferruginea*), Garberia (*Garberia heterophylla*), Shiny Blueberry (*Vaccinium myrsinites*), Deerberry (*Vaccinium stamineum*), Florida Rosemary (*Ceratiola ericoides*), Scrub Holly (*Ilex opaca* var. *arenicola*), Yaupon Holly (*Ilex vomitoria*), Gallberry (*Ilex glabra*), Tough Bumelia (*Bumelia tenax*), Gopher Apple (*Licania michauxii*), Tarflower (*Bejaria racemosa*), Goldenrod (*Solidago odora* var. *chapmanii*), Coontie (*Zamia pumila*), Silk-grass (*Pityopsis graminifolia*), Goldenaster (*Chrysopsis scabrella*), Butterfly-pea (*Clitoria mariana*), Wild Petunia (*Ruellia caroliniensis*), Green-fly Orchid (*Epidendrum magnoliae*), Resurrection Fern (*Pleopeltis polypodioides*), Bracken Fern (*Pteridium aquilinum*), Deer-tongue (*Carphephorus paniculatus*), Lyreleaf Sage (*Salvia lyrata*), St. Peter's Wort (*Ascyrum stans*), Spiderwort (*Tradescantia virginiana*), and Prickly-pear Cactus (*Opuntia humifusa*).

Birds seen on the main campground include Wild Turkey (*Meleagris gallopavo*), Red-shouldered Hawk (*Buteo lineatus*), Red-tailed Hawk (*Buteo jamaicensis*), Sharp-shinned Hawk (*Accipiter striatus*), Cooper's Hawk (*Accipiter cooperii*), American Kestrel (*Falco sparverius*, federal bird of conservation concern), Swallow-tailed Kite (*Elanoides forficatus*), Turkey Vulture (*Cathartes aura*), Black Vulture (*Coragyps atratus*), Northern Mockingbird (*Mimus polyglottos*), Brown Thrasher (*Toxostoma rufum*), Gray Catbird (*Dumetella carolinensis*), Pileated Woodpecker (*Dryocopus pileatus*), Red-bellied Woodpecker (*Melanerpes carolinus*), Red-headed Woodpecker (*Melanerpes erythrocephalus*), Downy Woodpecker (*Picoides pubescens*), Hairy Woodpecker (*Picoides villosus*), Yellow-bellied Sapsucker (*Sphyrapicus varius*), Great Horned Owl (*Bubo virginianus*), Barn Owl (*Tyto alba*), Barred Owl (*Strix varia*), Eastern Screech-Owl (*Megascops asio*), Sandhill Crane (*Grus canadensis*), Chuck-will's-widow (*Antrostomus carolinensis*), Carolina Wren (*Thryothorus ludovicianus*), Eastern Bluebird (*Sialia sialis*), Northern Cardinal (*Cardinalis cardinalis*), Great Crested Flycatcher (*Myiarchus crinitus*), Eastern Phoebe (*Sayornis phoebe*), Mourning Dove (*Zenaida macroura*), Blue Jay (*Cyanocitta cristata*), Florida Scrub-Jay (*Aphelocoma coerulescens*), Northern Parula (*Setophaga americana*), Pine Warbler (*Setophaga pinus*), Palm Warbler (*Setophaga palmarum*), Black-and-white Warbler (*Mniotilta varia*), Yellow-rumped Warbler (*Setophaga coronata*), Eastern Towhee (*Pipilo erythrophthalmus*), Indigo Bunting (*Passerina cyanea*), American Crow (*Corvus brachyrhynchos*), Fish Crow (*Corvus ossifragus*), Common Grackles (*Quiscalus quiscula*), Tufted Titmouse (*Baeolophus bicolor*), Blue-gray Gnatcatcher (*Poliptila caerulea*), Carolina Chickadee (*Poecile carolinensis*), White Ibis (*Eudocimus albus*), Chimney Swift (*Chaetura pelagica*), and White-eyed Vireo (*Vireo griseus*).

"The Ocala scrub supports the world's largest population of the federally listed [threatened] Florida Scrub-Jay" (Knight, et al, 2011), which is Florida's only endemic bird. Scrub-jays are a "habitat-condition indicator species" – they are near the top of the scrub food web. Where these birds do well, so does the ecosystem (Arnold, 2020).

In addition to the abundant White-tailed Deer already mentioned (top of pg. 4), other resident mammals include the Florida Black Bear (*Ursus americanus floridanus*), Coyote

(*Canis latrans*), Gray Fox (*Urocyon cinereoargenteus*), Red Fox (*Vulpes vulpes*), Bobcat (*Lynx rufus*), Virginia Opossum (*Didelphis virginiana*), Nine-banded Armadillo (*Dasypus novemcinctus*), Eastern Gray Squirrel (*Sciurus carolinensis*), and Eastern Cottontail (*Sylvilagus floridanus*).

The Black Bear population is estimated by the Florida Fish and Wildlife Conservation Commission to have tripled in size during the previous 30 years (after their hunting was discontinued). So, there is a very good chance of seeing one of these magnificent animals on the campground. The author has seen more than a dozen or so between the years of 1992 and 2019, with sightings becoming more frequent as the years progressed. The Florida Black Bear does not have a reputation for aggressive behavior toward humans. If they are not provoked or threatened, they will usually pay no attention to people (or immediately run away upon seeing a human, depending on what they are doing). [Of course, one should never approach a Black Bear or attempt to feed one. Feeding wildlife is one of the worst mistakes people can make in the wild. As the wilderness saying goes, "A fed animal is a dead animal." Feeding wildlife almost always ends badly for the animal involved.]

Reptiles and amphibians seen at the camp include the Eastern Indigo Snake (*Drymarchon couperi*, federally threatened), Eastern Diamondback Rattlesnake (*Crotalus adamanteus*), Dusky Pigmy Rattlesnake (*Sistrurus miliarius*), Eastern Coral Snake (*Micrurus fulvius*), Coachwhip Snake (*Masticophis flagellum*), Yellow Ratsnake (*Pantherophis obsoletus quadrivittatus*), Corn Snake (*Pantherophis guttatus*), Eastern Hognose Snake (*Heterodon platirhinos*), Rough Green Snake (*Opheodrys aestivus*), Southern Black Racer (*Coluber constrictor priapus*), Florida Pine Snake (*Pituophis melanoleucus mugitus*, state-designated as threatened), Gopher Tortoise (*Gopherus polyphemus*), Florida Box Turtle (*Terrapene carolina bauri*), Green Anole (*Anolis carolinensis*), Six-lined Racerunner (*Cnemidophorus sexlineatus*), Southeastern Five-lined Skink (*Eumeces inexpectatus*), Ground Skink (*Scincella lateralis*), Barking Treefrog (*Hyla gratiosa*), and Green Treefrog (*Hyla cinerea*).

Having numerous active Gopher Tortoise burrows actually on our campground property is significant, due to their status as a "keystone species." Scientists use this term to describe an essential member of an ecosystem, one on which many other species depend for their health and survival. Research has shown that approximately 400 other species use Gopher Tortoise burrows for shelter from predators and temperature extremes. Without these safe havens, many species would suffer, and several more species, such as the endemic Florida Mouse (*Podomys floridanus*) and the rare Gopher Frog (*Rana capito*), would cease to exist entirely. These facts, along with the decreasing Gopher Tortoise habitat across the state due to human development, have provided them with legal protection from both state and federal governments. And there are many more of these burrows in the national forest just beyond our property lines.

Many fascinating arthropods are also a part of this ecosystem, including the Milkweed Assassin Bug (*Zelus longipes*), Wheel Bug (*Arilus cristatus*), Great Golden Digger Wasp (*Sphex ichneumoneus*), Imperial Moth (*Eacles imperialis*), Io Moth (*Automeris io*), Polyphemus Moth (*Antheraea polyphemus*), Giant Leopard Moth (*Ecpantheria scribonia*), Eastern Tiger Swallowtail (*Papilio glaucus*), Horace's Duskywing (*Erynnis horatius*), Clippedwing Grasshopper (*Metaleptea brevicornis*), Angular-winged Katydid (*Microcentrum retinerve*), Scudder's Mantis (*Oligonicella scudderi*), Net-winged Beetles (*Calopteron spp.*), Tile-horned Prionus (*Prionus imbricornis*), Scarab Beetle (*Phanaeus igneus*), Carolina Wolf Spider (*Lycosa carolinensis*), Wolf Spider (*Hogna antelucana*), Basilica Spider (*Mecynogea lemniscata*), and Orchard Spider (*Leucauge venusta*).

The above species represent a mere fraction of the arthropod diversity present at Deerhaven. The very largest Golden Silk Spider (*Nephila clavipes*) that the author has ever seen was just outside of the main building one recent autumn. The span of her legs was very close to eight inches in length! The possibilities for discovering amazing creatures here are truly endless.

Just to the north of our property, by about 25 yards, lies a **shallow marsh/wet prairie ecosystem**. These habitats are most often made up of grasses, sedges, rushes, and herb-like plants. They are located primarily on organic or mineral soils which are subject to periodic, seasonal flooding, but saturated most of the remainder of the year. This wetland type is also subject to frequent fire. Wet prairies are sometimes called freshwater meadows, and often give the appearance of overgrown fields. Soils are usually poorly drained and consist of fine-textured sand or sandy clay.

Trees and shrubs here include Dahoon Holly (*Ilex cassine*), Wax Myrtle (*Myrica cerifera*), Slash Pine (*Pinus elliotii*), Loblolly Bay (*Gordonia lasianthus*), Florida Willow (*Salix floridana*), Fetterbush (*Lyonia lucida*), Southern Red Cedar (*Juniperus silicicola*), Buttonbush (*Cephalanthus occidentalis*), and Highbush Blueberry (*Vaccinium corymbosum*).

Other interesting plants include Lance-leaf Arrowhead (*Sagittaria lancifolia*), Duck Potato (*Sagittaria latifolia*), Southern Cattail (*Typha domingensis*), Floating Bladderwort (*Utricularia inflata*), Pickerelweed (*Pontederia cordata*), Marsh Pennywort (*Hydrocotyle umbellata*), Marsh-Pink (*Sabatia grandiflora*), Broom Sedge (*Andropogon floridiana*), Sawgrass (*Cladium jamaicense*), Maidencane (*Panicum hemitomon*), and Sand Cordgrass (*Spartina bakeri*).

Birds seen in and near the wet prairie include Northern Bobwhite (*Colinus virginianus*), Red-winged Blackbird (*Agelaius phoeniceus*), Boat-tailed Grackle (*Quiscalus major*), Wood Stork (*Mycteria americana*, federally threatened), Snowy Egret (*Egretta thula*), Northern Harrier (*Circus cyaneus*), Belted Kingfisher (*Megasceryle alcyon*), and Northern Flicker (*Colaptes auratus*).

One of the author's most favorite habitats is just east of our triangle of property (adjacent to our property line), past the outdoor chapel and clay pit. This is the **hydric hammock/hydric swamp**. This habitat consists of forested wetlands with a mixture of broadleaf evergreen and hardwood, deciduous trees. This ecosystem, though it has the name "swamp" attached to it, seldom holds any standing water on the surface of the soil. But the soil remains saturated, or at least damp, year-round. Hydric swamps are usually found between river swamps and the edge of flatwoods. Ground moisture occurs mainly from seepage of groundwater from surrounding areas of higher elevation. This becomes clear as one walks from our dry, sandy property line down-hill to this stunning wetland. Soils are most often level, poorly drained, fine sands or clay. There is frequently an organic surface layer.

This unique habitat is more jungle-like, with sub-tropical plant growth, than any of the other habitats previously mentioned. In fact, it is almost the complete opposite of the dry, scrub habitat so common to the rest of Deerhaven. Trees and shrubs in this environment include Water Oak (*Quercus nigra*), Swamp Chestnut Oak (*Quercus michauxii*), Pignut Hickory (*Carya glabra*), Southern Magnolia (*Magnolia grandiflora*), Sweetgum (*Liquidambar styraciflua*), American Hornbeam or "Ironwood" (*Carpinus caroliniana*), Red Buckeye (*Aesculus pavia*), Red Maple (*Acer rubrum*), Bald Cypress (*Taxodium distichum*), Yellow Anise (*Illicium parviflorum*), Needle Palm (*Rhapidophyllum hystrix*), Common Witch-Hazel (*Hamamelis virginiana*), and Florida Hobblebush or Pipestem (*Agarista populifolia*).

Other interesting plants here include Cinnamon Fern (*Osmunda cinnamomea*), Golden Polypody (*Phlebodium aureum*), Shoestring Fern (*Vittaria lineata*), Switch Cane (*Arundinaria gigantea*), Greenbrier (*Smilax spp.*), Muscadine Grape (*Vitis rotundifolia*), Virginia Creeper (*Parthenocissus quinquefolia*), Jack-in-the-Pulpit (*Arisaema triphyllum*), Lizard's Tail (*Saururus cernuus*), and Partridgeberry (*Mitchella repens*).

Due to the continuously moist conditions in this habitat, it is also home to Burrowing Crayfish (of which there are several species). They are mostly nocturnal, so they are not seen above ground during daytime. However, their mounds or "chimneys," built on the surface of the soil, are easily located. These consist of balls of sand stacked on top of each other around the burrow entrance (similar in structure to a round, fireplace chimney). The entrance opening is sometimes plugged, causing many to mistake these sand mounds for animal scat. The crayfish live below the surface where the water table lies and come out at night to feed on organic detritus.

Many of the forest birds previously mentioned also occur here, especially the owls. Additionally, the author has heard a Yellow-billed Cuckoo (*Coccyzus americanus*, federal bird of conservation concern) calling from deep in the swamp early one summer.

In addition to the alluring details above, the author is especially drawn to this habitat because it is also a **wilderness area** designated by Congress. This stretches from our triangle

property line, a mile to a mile and a half east, to the St. Johns River, and north to Alexander Springs Creek and Get Out Creek. This bottomland hardwood forest forms a part of the eastern geographical boundary of the Ocala National Forest. The official wilderness designation provides substantial protection to this forest habitat (and the interests of our campground) by prohibiting any future logging, mining, the use of motorized machinery of any kind, or the building of any type of man-made structure. Therefore, this ecosystem will be permitted to evolve into an old-growth forest in the years to come. The author has already discovered (with the assistance of Dick Braby) huge Bald Cypress and oak trees deep in this wetland that are well beyond a hundred years of age (with many, very tall and old Sabal Palms as well). Future generations of Deerhaven campers will have an opportunity to explore a rare climax forest/wetland community less than a ten-minute walk from the front gate. Students of nature will be able to study mature specimens of plants that will be increasingly uncommon in the crowded Florida of the 21st century, and beyond (for a thorough examination of the importance of old growth forests, see Maloof, 2016).

And just north on the Deerhaven Road about two miles is Alexander Springs Creek, accessible by boat from Shell Landing. This spring run/**blackwater stream** (another interesting ecosystem) is bordered on both sides by **hardwood swamp forests** and **cypress wetlands** as it flows past the large Kimball Lake to the St. Johns River (just east of Kimball Lake is **Kimball Island Scenic Area**, a 1,000-acre semi-tropical island containing an ancient Indian shell mound, accessible only by boat). This area is also included as part of the designated **Alexander Springs Wilderness**, which comprises a total of 7,941 acres (including that portion adjacent to our property line mentioned above). Alexander Springs Creek offers a beautiful and adventurous canoe or kayak trip, either up or down stream, and has been enjoyed by many past generations of Deerhaven campers and anglers. Fish in this habitat include Chain Pickerel (*Esox niger*), Redfin Pickerel (*Esox americanus*), Redbreast Sunfish (*Lepomis auratus*), Warmouth (*Lepomis gulosus*), Florida Gar (*Lepisosteus platyrhincus*), White Catfish (*Ictalurus callus*), and Striped Mullet (*Mugil cephalus*).

The preceding species list of flora and fauna might seem extensive to some, yet it is only scratching the surface of the total diversity of life in the Deerhaven area. There is much, much more to discover! And just a short distance away can be found many other “life-list” birds and target animals for wildlife watching connoisseurs. Located in the greater Ocala National Forest are such creatures as Sherman’s Fox Squirrel (*Sciurus niger shermani*, state-listed as species of special concern), the Limpkin (*Aramus gurauna*, federal bird of conservation concern), and even a small, breeding population of Red-cockaded Woodpeckers (*Picoides borealis*), the rarest woodpecker in North America (federally endangered), and a must-see for avid birders. These rare birds live only in mature **Longleaf Pine**, Turkey Oak (*Quercus laevis*), Wiregrass (*Aristida stricta*), **sandhill communities**, another remarkably interesting (and uncommon) ecosystem. Just a short distance outside of the national forest exists a substantial population of Purple Gallinules (*Porphyrio martinica*),

one of the most colorful aquatic birds in Florida, and another life-list objective for avid birders coming here.

III. **The Camping Market**

In this section the author will present market demographics worth considering to increase Deerhaven's annual profits.

Tourism is the fastest growing industry worldwide, which involves 260 million people and generates 10.7% of the world's GDP. "Ecotourism" or nature-based tourism has become the fastest growing sector of the tourism industry, growing three times faster than the industry as a whole [growing annually by 10-15% worldwide] (Reddy, 2019).

Ecotourism has been defined as the practice of touring natural habitats in a manner meant to minimize ecological impact (floridajobs.org, 2020). "A new group of tourism clients have emerged who are demanding different activities, experiences and approaches to tourism from the industry: 'these are the eco tourists – people who require environmentally compatible recreational opportunities, where nature rather than humanity, predominates.' They are shrugging off the shackles of traditional tourism in search of knowledge and experience. Their interest is not in lounging by hotel pools or hectic sightseeing schedules. They are interested in visiting **wilderness**, national parks and **tropical forests**, and in viewing **birds, mammals, trees and wildflowers**" (Reddy, 2019).

"Eco tourists can be generally characterized as having higher than average incomes [along with higher education levels, i.e., college degrees], and there tends to be more female eco tourists than men. Eco tourists are expecting discovery and enlightenment from their experience. Personal growth in emotional, spiritual, as well as intellectual terms, appears to be expected outcomes from ecotourism travel for the majority of these travelers,' according to the International Ecotourism Society" (Reddy, 2019).

One possible explanation for ecotourism's increasing popularity may be found in the growing body of scientific literature on the benefits of human contact with the natural world (for an extensive catalog of these studies see: research.childrenandnature.org/research-library/). More and more people are becoming aware of the physiological, emotional/spiritual, and psychological benefits of time spent in nature through the numerous, recent magazine and news articles, and books written on this subject (see **Select Bibliography**).

In addition, there is a growing appreciation for the dwindling, nature-rich environments still available. People are increasingly eager to explore places with a rich biodiversity of plants and animals. They are becoming more aware of the global biodiversity crisis [predicted mass extinctions: "Around 1 million species are threatened today with extinction" (Goldfarb, 2021)], and long to be in nature and experience its wonders while they still can. As

biodiversity “hot spots” become fewer and more difficult to travel to, those high-quality ecosystems that are closer to home will become more attractive. For an extensive analysis of the topic of biodiversity and its importance to people, see Sala, 2020 (pg. 19 below), especially his chapter on “*The Economics of Nature;*” and Brahic, 2021 (pg. 19 below).

Tourism is the largest industry group in Florida (Kiker & Hodges, 2002). Florida’s tourism industry is frequently thought of only in terms of theme parks and beaches. This aspect of the tourism industry is obviously extremely important, but ecotourism is also a major reason that tourists visit Florida (from across the U.S. and many foreign countries). In Florida, ecotourism includes a diverse mix of activities, including cycling, camping, fishing, hunting, paddling, hiking, birding, visiting scenic byways, and other wildlife viewing (floridajobs.org, 2020).

Hunting, with its long history in U.S. culture, continues to be one of the highest valued outdoor recreational activities. There are a number of factors that influence the value of a site used for hunting. The value of the wildlife in which the hunter has an interest and attempts to kill is, of course, one. Additionally, there is value the hunter obtains from the pursuit of the animal and the value of the social activity involved in the pursuit. Often there is the aesthetic value of camping in conjunction with hunting. These are generally analyzed together under the willingness to pay for a hunting trip. Most of the literature on hunting approaches valuation in this way (Kiker & Hodges, 2002). Hunters created a total economic benefit of \$714.6 million to the Florida economy in 2001 (floridajobs.org, 2020).

As some Florida Mission Center members may see hunting as disagreeable, the author would like to propose an idea they may find more acceptable. There is a very popular game animal that, in the author’s considered opinion, is in great need of hunting. The reduction of this animal’s population would constitute a valuable benefit to Deerhaven and its numerous adjacent ecosystems. In fact, Florida hunting regulations are much more lenient for this animal, because it is an invasive exotic (does not belong here; comes from Eurasia), and causes enormous damage to native wildlife populations and habitats across the U.S. Of course, this is the Wild Hog (*Sus scrofa*). It has been said by wildlife management experts that we will never be completely rid of this ecological pest, but the author sincerely believes, the fewer the better. Should we decide to rent Deerhaven to hunters, Wild Hog hunters should get first choice!

Fishing activities are similar to hunting in that the fishing experience has a number of dimensions, and the idea of a “fishing trip” is intended to capture all aspects of the experience (Kiker & Hodges, 2002). The statewide impact of **freshwater fishing** in Florida is over \$2 billion (floridajobs.org, 2020).

Wildlife observing and hiking are also important outdoor recreational pursuits. The U.S. Fish and Wildlife Service (2002) estimated that over 66 million people participate in these

activities in the U.S., and expenditures on this activity in 2001 were nearly \$40 billion. Canoeing and kayaking are a rapidly growing similar form of outdoor recreation (Kiker & Hodges, 2002). The total spent on wildlife viewing in Florida in 2006 was \$1.23 billion, with a total economic effect of \$5.2 billion (floridajobs.org, 2020).

The outdoor recreation industry in Florida is a \$38.3 billion industry (tpl.org, 2013). Total wildlife-related recreation in Florida, including fishing, hunting and wildlife watching activities, was estimated by the U.S. Fish and Wildlife Service, based on national survey data for 2001 [unfortunately, in the most recent survey by the U.S. Fish and Wildlife Service, the “2016 National Survey of Fishing, Hunting, and Wildlife-Associated Recreation,” they failed to differentiate the data by state, using geographic regions instead. The “South Atlantic” region covered every coastal state from Delaware to Florida]. Over 3 million persons in 2001 engaged in fishing and wildlife watching activities in Florida, and over 200,000 participated in hunting. This activity represented more than 72 million days, with 12 percent by non-residents. Total trip-related and equipment expenditures for wildlife-based recreation in Florida were estimated at \$7.2 billion. For comparison, total expenditures in the U.S. were more than \$96 billion (Kiker & Hodges, 2002). The “2011 National Survey of Fishing, Hunting, and Wildlife-Associated Recreation” conducted by the U.S. Fish and Wildlife Service found that 7,400,000 persons engaged in fishing and wildlife watching activities in Florida (with 3,092,000 for fishing and 4,308,000 for wildlife watching), and 242,000 participated in hunting. Note that the fishing and wildlife watching numbers for Florida more than doubled from 2001 to 2011 (USFWS, 2014).

In Florida, hunting, fishing, hiking, wildlife observation, canoeing, kayaking, bicycling and other outdoor activities are participated in by both local people and tourists (Kiker & Hodges, 2002). At least 51% of Florida residents participate in outdoor recreation each year. As we all know, these residents can be both permanent and seasonal. They are joined by millions of non-residents (tpl.org, 2013). Clearly, there is considerable potential in both local residents and Florida tourists for renting our campground.

There exist analytical approaches to natural resource valuation. Underlying economic theory and the measurement of economic values and costs are the concepts of “preferences” and “**willingness to pay.**” People hold preferences for products and services based on deeper held values, and the marketplace is a forum for many of these preferences to be met. Each day people express their willingness to pay for a multitude of these products and services. Markets and their accompanying prices are seen as socially efficient means for allocating and valuing these products and services. Economists have developed analytical bases for and means of measuring environmentally based willingness to pay that are conceptually consistent with the measurement of exclusive private goods and services. Empirical means based on willingness to pay have been developed for estimating values for a broad range of natural environments, ecological processes, and amenity service flows (Kiker and Hodges, 2002).

An increase in real incomes, as has occurred in the U.S. and in Florida, also increased the economic value of amenities associated with natural landscapes and ecological processes. Additionally, it is not only the natural landscape that people value highly, it is the **combination of natural amenities** and human created amenities, as well [such as our pool and family residence centers]. As incomes have risen, a greater part of household budgets are spent on entertainment and travel. Tourists come to Florida for a broad range of reasons, and its natural amenities and human-built attractions are among these reasons. To the degree that the tourists' incomes are higher, and more people come to Florida, the value of the natural amenities and ecological processes will be increased (Kiker and Hodges, 2002).

Certainly, people make expenditures for products and services associated with recreational experiences. The experience, however, has a value to the person undertaking the activities that is higher than the level of expenditures. It is the enjoyment and satisfaction that motivates the activity, and it is the willingness to pay that allows a monetary value to be put on the activities and their natural settings. **Most importantly, the perception of the activities and amenities of the natural setting is what motivates the tourists to come and make expenditures in the first place.** Additionally, the same positive perceptions of natural amenities are what motivate **local** residents to recreate there and make local expenditures inside the region (Kiker and Hodges, 2002).

All these approaches to estimating the value of environmental services and amenities [which the author has greatly distilled; see Kiker and Hodges, 2002, for much more detailed analyses and extensive explanations] have undergone more than 25 years of research and development. Explicit procedures have been put forward by the economics profession. When the procedures are rigorously followed the profession accepts the resulting values as reasonable reflections of people's willingness to pay and is supportive of their use in environmental evaluation and policy forums (Kiker and Hodges, 2002). Properly evaluated, Deerhaven possesses a great financial potential for future annual profits based on its environmental amenities alone (in the author's opinion).

Entertainment and leisure have become a major part of the U.S. economy. The expression "quality of life" is often heard. As the nation as a whole has achieved real income increases, people have sought out the pleasant aspects of life. Tourism is also an important part of this new economic structure and requires an extensive range of services from many different providers. Tourists and retirees will be attracted to those locations with amenities (Kiker and Hodges, 2002).

The term "quality of life" is used in many contexts and for many reasons, and in this usage has many dimensions. In the broadest use it includes such elements as potential for personal growth and continued education, participation in recreational facilities, healthy

environment, and pleasant climate in addition to other natural amenities. Many studies have been done on the broad aspects of quality of life elements. The interest here is primarily on the environmental and natural amenities and the role they play in people's perceptions of quality of life (Kiker and Hodges, 2002).

Researchers have detailed the ecosystem services important to consumers. These include the provision of aesthetic beauty and intellectual stimulation that lifts the human spirit, provision of wildlife habitat, provision of open space, provision of scenic views, provision of character-building opportunities, cultural symbolization value, historical value, physical health value, religious/spiritual value, educational value, "natural laboratory" value, protection of cultural heritage, nostalgic value, and environmental amenities (Kiker and Hodges, 2002). The author believes that Deerhaven possesses all of the above!

"The demand for amenities such as outdoor recreation, scenery, and open space is expected to grow as population migration to less urban areas continues" (Kiker and Hodges, 2002). In the last 50 years, many retirees with non-employment incomes have moved to Florida for the climate and amenities. Demand was created for an extensive range of products and services. Young people then moved to Florida to meet this demand and to enjoy the natural amenities. This growth in population and the continued increase in retirees, further expanded demand. The increase in real incomes of both the young and old populations further expanded demand. The result has been amplifying growth due to both the scale of the economy and the multiplier effect of growing revenues of all types. A great deal of this growth took place in southern and central Florida (Kiker and Hodges, 2002).

Studies have focused specifically on the role recreation amenities played in retirees' relocation decisions. In one survey they found that, of 26 items, the two that dealt with recreational opportunities (i.e., the desire to live in a more recreationally enjoyable area and desire to live where recreational opportunities are plentiful) were ranked second and third, respectively, behind desire to get away from cold weather (Kiker and Hodges, 2002).

"In studies that estimate the effects of economics and location factors on migration while controlling for effects of other factors, natural amenities emerges as the strongest single factor associated with net immigration to rural counties" (Kiker and Hodges, 2002). The finding of a positive relationship between land amenities and employment and population growth supports a broad hypothesis that for a region to continue to prosper, it is important to maintain the landscape amenities, especially those associated with various forms of recreation. People can and do select places to live that are based on natural amenities that are attractive to them (Kiker and Hodges, 2002).

From a slow moving, largely rural southern state, Florida has become a fast paced, cosmopolitan state with a diverse economy. All would agree that the fundamental base of Florida's economy is its people. Yet, its natural amenities have been a major factor in this

change and will continue to be in the years to come. The point is that, if the natural amenities are not the base of Florida's economy, they are certainly among the top two or three factors. And, maintaining them will be critical to the future of Florida's economy. What is becoming increasingly apparent is that the natural amenities create a context attractive to both residents and visitors. In the economy of the 21st century it will be crucial for Florida to maintain and preserve its amenity base (Kiker and Hodges, 2002).

"Anticipating the future, many people believe there will be continued threats to the viability of wildlife and ecosystems and are expressing their concern. Bengston et al. (1999), attempting to gain a qualitative indication of rising concern, used content analysis of the media. Their specific interest was in the direction of public interest in national forest benefits and values. Using almost 30,000 online news stories about the U.S. national forests over the years 1992-96, they searched for expression of four broad categories of values: commodity (timber, livestock, grazing, etc.); recreational benefits and values; ecological benefits and values; and moral, spiritual, and aesthetic benefits and values. 'Recreation benefits and values were expressed more often than other categories, both at the national and regional levels, followed by commodity, ecological, and moral/spiritual/aesthetic benefits and values'" (Kiker and Hodges, 2002). However, over those same years a gradual upward trend was found in expressions of recreation and moral/spiritual/aesthetic benefits and values, and a gradual downward trend was found in expressions of commodity-related benefits and values at the national level, suggesting shifting environmental values (Kiker and Hodges, 2002).

In exploring the question, can we measure the economic value of environmental amenities, the answer is increasingly, yes. And in Florida, given the importance of nature to our economy, it becomes increasingly essential that we understand the economic contribution of natural surroundings. Increasing scarcity of natural environments and increasing real incomes imply that the willingness to pay by both individuals and the collective population will continue to rise. The natural landscapes, lakes, rivers, and coastal areas along with the pleasant climate are the natural amenities that are attracting people to Florida (Kiker and Hodges, 2002).

The studies discussed above contend that landscapes, streams, and their ecological systems provide value to the broader public of a region. This value translates into people's willingness to pay. We can conjecture that for tourists and residents, Florida's unique tropical and subtropical landscape is an important part of their Florida experience. And as was the case for recreation, the potential of the tourism sector will remain viable only if the region is perceived to have a high-quality natural environment that is attractive to visitors. A deterioration of the ecosystems of the lands and waters will result in a decline in both tourist and recreational activities, thereby affecting the viability of many local businesses (Kiker and Hodges, 2002). As was previously stated (pg. 2), Deerhaven's exceptional location within the Ocala National Forest provides it a protected status that is uncommon in this

regard (especially considering its proximity to the designated wilderness areas previously noted: bottom of pg. 8 to middle of pg. 9).

Many surveys put Florida among the most desirable places to live in the U.S. This perceived quality of life ties to Florida's climate and natural environment. Florida's economy is an amenity-lead economy. Seventy million visitors come each year for Florida's amenities, both human-created and natural. Additionally, many people with non-employment income, who can live anywhere [retirees], choose to live in Florida. They, too, come for the amenities (Kiker and Hodges, 2002). It makes sense, therefore, that both tourists and local residents will be attracted to the many natural amenities of *Deerhaven*, as well.

IV. Marketing Deerhaven into the Future

In light of the preceding information, it should now be evident that Deerhaven campground is an **ecological gem**, situated in a potentially very valuable and exclusive niche: the beautiful and scientifically fascinating Ocala National Forest. Of course, if no one knows this Deerhaven gem exists, it will not generate any business. So effective marketing will be the key to its future financial prosperity.

Deerhaven obviously will not benefit from the **individual** tourist market, or the local individual-resident markets mentioned at length in the studies above. That information was included to acknowledge the value of the growing tourism industry as a whole in the state of Florida, especially the ecotourism market (and the growing residential market as well). Within those two markets are increasingly numerous **groups** of potential customers. It is those paying groups in which Deerhaven will be most interested. Where might we find these groups? Our current paying customers already know about Deerhaven based on its local reputation as a church-camp. How might we expand our marketing image to appeal to a wider clientele?

Based on the information above, regarding the growing interest in natural amenities, the author suggests extending our marketing efforts to groups who will recognize Deerhaven's natural ecosystems and remarkable biodiversity as the irresistible attractions they are. Many suitable groups can be found on "meetup.com." These might include local, state, and National Audubon Society-related groups; birding groups and clubs; hiking groups and clubs, such as the Florida Trail Association (both the state organization and local chapters); canoeing and kayaking groups and clubs; bicycling groups and clubs; freshwater fishing clubs and groups of all kinds, including fly-fishermen; groups and clubs focused on botany, plants and wildflowers, such as the Florida Native Plant Society (both the state organization and local chapters); school groups: public, private, elementary through high school, college and university (school-based nature clubs, science clubs, biology clubs and groups, etc.); "family nature clubs;" scuba diving groups and clubs (interested in exploring the many nearby springs and spring runs); naturalist groups and clubs; and other specialist groups and clubs like those interested in mycology (fungi), entomology (insects and other arthropods),

herpetology (reptiles and amphibians), ecology (the study of natural ecosystems), astronomy (stargazers and those involved in planet monitoring and study), Florida history (and local history groups focused on central Florida, Lake, Marion, and Volusia counties, etc.), outdoor and wildlife photography, camping and RV clubs, etc. These groups do, indeed, exist. But they will not come to Deerhaven unless they know Deerhaven exists, and what it has to offer them.

If we are to market Deerhaven utilizing all its attributes, we must begin to recognize all that it really has to offer the public. This essay represents merely what the author and a few other like-minded mission center members have considered in relation to Deerhaven's valuable assets. Much of this comes from the author's time spent as one of the Deerhaven Elderhostel Program directors in the early 1990s. The courses offered focused on birds, plants, wildlife habitats, outdoor recreation, photography, history and culture. The author saw from his clients' perspectives (and their positive program evaluations) just what attractive natural amenities (and man-made amenities) Deerhaven possessed. This was even prior to the construction of the swimming pool and the addition of the second family residence center building. What would those same satisfied customers think of Deerhaven today?

There are undoubtedly amenities that the author has missed. This paper should serve only as an introduction to Deerhaven's potential for financial earnings. Others will surely discover assets and attractions that further add to Deerhaven's marketability.

The author predicts that with the proper marketing efforts, Deerhaven will not only become financially self-sustaining in the near future, but a viable source of profit and financial support to the Florida Mission Center and the numerous congregations within it. There are many camper-days currently available to be filled throughout the year. With central Florida's mild, year-round climate, we could potentially fill them all! The author believes the possibilities to be almost endless.

Imagine being able to use the Deerhaven facilities as mission center members and not have to pay the campground fee (or congregational assessments!) because Deerhaven makes enough profit to afford us that luxury! The author suggests in this paper that to achieve that goal is merely a matter of time, ambition, marketing strategy, and effort.

Recommended Additional Readings:

Kiker, Clyde F., PhD and Alan W. **Hodges**, PhD, Co-Principal Investigators. *Economic Benefits of Natural Land Conservation: Case Study of Northeast Florida*. University of Florida, Institute of Food & Agricultural Sciences, Food & Resources Economics Department, Final Report Submitted to Defenders of Wildlife, Revised December 30, **2002**.

(fred.ifas.ufl.edu/pdf/economic-impact-analysis/NE-Fla-Project-Final-Report.pdf)

Knight, G.R., J.B. Oetting, and L. Cross. *Atlas of Florida's Natural Heritage: Biodiversity, Landscapes, Stewardship and Opportunities*. Tallahassee, FL: Institute of Science and Public Affairs, Florida State University, **2011**.

Myers, Ronald L. and John J. Ewel, Eds. *Ecosystems of Florida*. Orlando, FL: University of Central Florida Press, 1992.

Reddy, Osk. *An Eco Tourism – the Sustainable Opportunity in the Context of Rural Communities on the Lines of Unsustainable Development Goals 2030*. July 11, **2019**. ([www.linkedin.com>pulse>eco-tourism](http://www.linkedin.com/pulse/eco-tourism))

Snedaker, Samuel C. and Ariel E. **Lugo**. *Ecology of the Ocala National Forest*. Atlanta, GA: U.S. Forest Service, **1972**.

The Economic Benefits of Ecotourism. State of Florida Department of Economic Opportunity, **2020**, floridajobs.org.

The Economic Benefits of Land Conservation in Florida. The Trust for Public Land, April **2013**, tpl.org.

2011 National Survey of Fishing, Hunting, and Wildlife-Associated Recreation: Florida, U.S. Department of the Interior, **U.S. Fish and Wildlife Service**, and U.S. Department of Commerce, Revised February **2014**. (census.gov/prod/2013pubs/fhw11-fl.pdf)

Whitney, Ellie, Ph.D., D. Bruce Means, Ph.D., and Anne Rudloe, Ph.D. *Priceless Florida*. Sarasota, FL: Pineapple Press, Inc., 2004.

Select Bibliography:

Arvay, Clemens G. *The Biophilia Effect: a Scientific and Spiritual Exploration of the Healing Bond Between Humans and Nature*. Boulder, CO: Sounds True, 2018.

Clifford, M. Amos. *Your Guide to Forest Bathing: Experience the Healing Power of Nature*. Newburyport, MA: Conari Press, 2018.

Frumkin, Howard, et al. July 13, 2017, *Nature Contact and Human Health: a Research Agenda*. <https://ehp.niehs.nih.gov/EHP1663/>

Louv, Richard. *Last Child in the Woods: Saving our Children from Nature-Deficit Disorder*. Chapel Hill, NC: Algonquin Books of Chapel Hill, 2005.

Louv, Richard. *Our Wild Calling: How Connecting with Animals Can Transform Our Lives – and Save Theirs*. Chapel Hill, NC: Algonquin Books of Chapel Hill, 2019.

Louv, Richard. *The Nature Principle: Human Restoration and the End of Nature-Deficit Disorder*. Chapel Hill, NC: Algonquin Books of Chapel Hill, 2011.

Sala, Enric. *The Nature of Nature: Why We Need the Wild*. Washington, DC: National Geographic, 2020.

Selhub, Eva M., MD and Alan C. Logan. *Your Brain on Nature: the Science of Nature's Influence on Your Health, Happiness, and Vitality*. Mississauga, Ont: John Wiley & Sons Canada, Ltd., 2012.

Williams, Florence. *The Nature Fix: Why Nature Makes Us Happier, Healthier, and More Creative*. NY: W.W. Norton & Company, 2017.

Wilson, Edward O. *Biophilia: the Human Bond with Other Species*. Cambridge, MA: Harvard University Press, 1984.

Other Bibliographical References:

Arnold, Carrie. "The Key to Saving Florida Scrub-Jays May Run in the Family." Audubon, Winter 2020, Volume 122, Number 4, pgs. 22-29.

Ashton, Patricia Sawyer and Ray E. Ashton, Jr. *The Gopher Tortoise: a Life History*. Sarasota, FL: Pineapple Press, Inc., 2004.

Ashton, Ray E. and Patricia Sawyer Ashton. *Handbook of Reptiles and Amphibians of Florida: Part One, The Snakes, 2nd Ed*. Miami, FL: Windward Publishing, Inc., 1988.

Ashton, Ray E. and Patricia Sawyer Ashton. *Handbook of Reptiles and Amphibians of Florida: Part Two, Lizards, Turtles and Crocodilians, 2nd Ed*. Miami, FL: Windward Publishing, Inc., 1991.

Brahic, Catherine. "The Other Environmental Emergency: Protecting Biodiversity." The Economist, June 19, 2021, Technology Quarterly, pgs. 1-12.

Brower, Kenneth. *American Legacy: Our National Forests*. Washington, DC: National Geographic Society, 1997.

Buhlmann, Kurt, Tracey Tuberville, and Whit Gibbons. *Turtles of the Southeast*. Athens, GA: The University of Georgia Press, 2008.

Carmichael, Pete and Winston Williams. *Florida's Fabulous Reptiles and Amphibians*. Tampa, FL: World Publications, 1991.

Daniels, Jaret C. *Butterflies of Florida Field Guide*. Cambridge, MN: Adventure Publications, Inc., 2003.

Edmiston, H. Lee and Vernon B. Myers. *Florida Lakes*. Tallahassee, FL: Department of Environmental Regulation, 1983.

Edwards, G.B. and Sam Marshall. *Florida's Fabulous Spiders*. Tampa, FL: World Publications, 2001.

Emmel, Thomas C. *Florida's Fabulous Butterflies*. Tampa, FL: World Publications, 1997.

Fernald, Edward A. and Elizabeth D. Purdum, Eds. *Water Resources Atlas of Florida*. Tallahassee, FL: Florida State University, Institute of Science and Public Affairs, 1998.

Frome, Michael. *The National Forests of America*. Waukesha, WI: Country Beautiful Corporation, 1968.

Gibbons, Whit and Mike Dorcas. *Snakes of the Southeast, Revised Edition*. Athens, GA: The University of Georgia Press, 2015.

Goldfarb, Ben. "Edge of Existence." Nature Conservancy Magazine. Fall **2021**, pgs. 24 – 33.

Kane, Sharyn and Richard Keeton. *Southern National Forests*. Billings, MT: Falcon Press Publishing Co., Inc., 1993.

Maloof, Joan. *Nature's Temples: the Complex World of Old-Growth Forests*. Portland, OR: Timber Press, **2016**.

Ohr, Tim. *Florida's Fabulous Natural Places*. Tampa, FL: World Publications, 1999.

Ohr, Tim. *Florida's Fabulous Trail Guide, Second Edition*. Tampa, FL: World Publications, **2003**.

Our Vital Wetlands. Tavares, FL: Lake County Water Authority, 1990.

Paulson, Dennis. *Dragonflies and Damselflies of the East*. Princeton, NJ: Princeton University Press, 2011.

Peattie, Donald Culross. *A Natural History of Trees, 2nd Ed*. New York: Bonanza Books, 1963.

Petrides, George A. *A Field Guide to Eastern Trees*. Boston: Houghton Mifflin Co., 1988.

Sibley, David Allen. *Sibley Birds East, Second Edition*. New York: Alfred A. Knopf, 2017.

Sourbeer, Ken. *A Journey Through the Ocala National Forest*. Eastern National, 2005.

Stamm, Doug. *The Springs of Florida*. Sarasota, FL: Pineapple Press, Inc., 1994.

Taylor, Walter Kingsley. *Florida Wildflowers: a Comprehensive Guide*. Gainesville, FL: University Press of Florida, 2013.

Taylor, Walter Kingsley. *The Guide to Florida Wildflowers*. Dallas, TX: Taylor Publishing Co., 1992.

Tekiela, Stan. *Mammals of Florida Field Guide*. Cambridge, MN: Adventure Publications, Inc., 2010.

Tobe, Dr. John D., et al. *Florida Wetland Plants*. Tallahassee, FL: Florida Department of Environmental Resources, 1998.

Wells, Jeffrey V. *Birder's Conservation Handbook: 100 North American Birds at Risk*. Princeton, NJ: Princeton University Press, 2007.