CANDIDATE CONSERVATION AGREEMENT FOR THE GOPHER TORTOISE *(GOPHERUS POLYPHEMUS)*

EASTERN POPULATION

November 2008 (Revised October 2018)

(Photo Source: http://www.wildherps.com/species/G.polyphemus html; Photo taken April 8, 2004 at Oscar Scherer State Park, Sarasota County, Florida)

REVISION HISTORY

December 2009: Added the Longleaf Alliance as a party to the agreement.

December 2012: Added the Joseph W. Jones Ecological Research Center and the Georgia Department of Transportation as parties to the agreement; Revised Appendix B to add language regarding soft release and the standardized monitoring protocol adopted by the CCA Parties; Added Appendix F with standardized monitoring protocol; Revised FL FWC Conservation Commitments (10.2.8.) based on new management plan; added hyperlink to GTT SharePoint web portal; minor editorial and formatting revisions.

May 2016: Added the Alabama Forestry Commission and the National Park Service as parties to the agreement; USFWS reorganized conservation commitments.

October 2018: Added Georgia Power and Alabama Power as parties to the agreement; Revised Alabama Department of Conservation and Natural Resources Conservation Commitments (10.2.7); Revised Translocation and Habitat Management Recommendations (Appendix B) with updated guidelines compiled and accepted by the states in the gopher tortoise Candidate range.

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1. INTRODUCTION

This Candidate Conservation Agreement (CCA or Agreement) for the gopher tortoise, *Gopherus polyphemus*, has been developed as a cooperative effort among state, federal, non-governmental, and private organizations. The purpose of this Agreement is to collectively implement proactive gopher tortoise conservation measures across its eastern range. With this Agreement, the Parties (see Section 4) hope to organize a cooperative, range-wide approach to gopher tortoise management and conservation. This Agreement will allow the Parties to leverage knowledge and funding within a common conservation approach and framework. The Agreement is voluntary and flexible in nature and has been developed so different conservation and management actions can be agreed to and implemented at different levels.

Under Executive Order 13352, *Facilitation of Cooperative Conservation,* the Departments of the Interior, Agriculture, Commerce, and Defense and the Environmental Protection Agency are to carry out their environmental and natural resource programs in a manner that facilitates cooperative conservation. This Agreement is an example of a cooperative conservation approach. The terms of this Agreement shall be governed by and construed in accordance with applicable federal and state law. Nothing in this Agreement is intended to limit the authority of the US Fish & Wildlife Service (USFWS) to fulfill its responsibilities under federal laws. Additionally, nothing in this Agreement is intended to supersede applicable state authorities. All activities undertaken pursuant to this Agreement must follow all applicable state and federal laws and regulations. Consistent with the specific commitments by, and the available resources of, the Parties, conservation actions set forth in this Agreement will be implemented and will remain in effect for the duration of the Agreement.

2. BACKGROUND

Initial efforts to create a gopher tortoise conservation agreement between multiple parties began in June 2005. Out of these efforts, the Gopher Tortoise Team (GTT) was established, currently consisting of the organizations listed in Section 4. This group came together to address suspected decline in the tortoise population and explore conservation measures that could create an environment throughout the eastern range of the gopher tortoise for its population to thrive. One of the team's first initiatives included the development of a Memorandum of Intent (MOI), *Conservation of the Gopher Tortoise in its Eastern Distribution*, signed in 2006. The aim of the MOI was to foster an increased level of communication, collaboration, and conservation among the signatories to actively manage and conserve gopher tortoise populations and habitat. In the MOI the signatories agreed that:

- Gopher tortoise populations and habitat are in need of assistance
- Action is needed to improve gopher tortoise status throughout its range
- Each party could benefit from reversing the declining trend in gopher tortoise populations

Organizations involved in the MOI development were the Department of Defense (DoD), Southern Regional Environmental Office (SREO), USFWS, and US Forest Service (USFS), state Departments of Natural Resources (DNRs) or equivalent, The Nature Conservancy, Partners in Amphibian and Reptile Conservation, the Gopher Tortoise Council, and The Conservation Fund. The MOI allows any public or private entity or landowner within the range of the gopher tortoise to become a cooperating Party to the agreement.

In January of 2006, the USFWS received a petition to list the eastern population of the gopher tortoise as a threatened species under the Endangered Species Act (ESA). A listing decision can create considerable regulatory constraints for both public and private landowners, a situation which prompted the Southeast Regional Partnership for Planning and Sustainability (SERPPAS) to adopt the efforts of the GTT to better resource and enhance gopher tortoise conservation efforts. Established in 2005, SERPPAS is a partnership of state and federal environmental and natural resource officials from across the southeast that was formed to promote better collaboration in making resource-use decisions. The SERPPAS mission is to coordinate and leverage partner resources to promote sustainable use of natural resources balanced with the health and safety of the environment and surrounding communities, while promoting economic development and military readiness.

The states of Alabama, Florida, Georgia, and South Carolina signed the original MOI. While the MOI was developed to increase the level of communication, collaboration, and conservation among the signatories to actively manage and conserve gopher tortoise populations and habitat, those commitments are general in nature. This CCA is focused on outlining more specific conservation commitments. With this Agreement, the Parties hope to implement an organized, range-wide approach with conservation actions that all can adhere to.

3. GOALS AND OBJECTIVES

The goals and objectives of this Agreement fall into two main categories.

1. Range-wide Conservation and Management: By addressing gopher tortoise conservation holistically across its eastern range, the Parties hope to more effectively identify and conserve gopher tortoise habitat and populations; develop and implement management strategies that maintain or enhance gopher tortoise habitat; and monitor the response of the species to conservation and management.

2. Cooperation and Collaboration: By managing gopher tortoise conservation actions in a proactive and collaborative manner, the Parties plan to highlight existing individual gopher tortoise conservation actions and efforts and to share knowledge and information across a wide range and diverse collection of organizations. This also allows for an organized conservation approach that encourages uniform actions and reporting, integrates monitoring and research efforts with management, and supports partnership formation.

By striving for and achieving these goals and objectives, the Parties believe that the gopher tortoise and its habitat can be conserved in its non-federally listed distribution in the states of Alabama, Georgia, Florida, and South Carolina such that any current or potential threats are significantly reduced. These actions would be considered in any future determination to list the gopher tortoise and may make it unnecessary to list the gopher tortoise in the foreseeable future. The Parties also believe that numerous listed and at-risk animal and plant species associated with the gopher tortoise will benefit from this Agreement and that implementation of this Agreement may significantly reduce or eliminate threats to species such as the gopher frog and federally listed indigo snake.

4. PARTIES

4.1. FEDERAL AGENCIES

- Department of Defense (DoD)

- United States Army
- United States Navy
- United States Air Force (USAF)
- United States Marine Corps (USMC)
- United States Forest Service (USFS)
- United States Fish and Wildlife Service (USFWS)

4.2. STATE AND TRIBAL AGENCIES

- Alabama Department of Conservation and Natural Resources (ADCNR)
- Florida Fish and Wildlife Conservation Commission (FWC)
- Georgia Department of Natural Resources (GaDNR)
- South Carolina Department of Natural Resources (SCDNR)
- Georgia Department of Transportation (GADOT)
- Poarch Band of Creek Indians

4.3. NON-GOVERNMENTAL AND PRIVATE ORGANIZATIONS

- American Forest Foundation (AFF)
- Longleaf Alliance (LLA)
- Joseph W. Jones Ecological Research Center
- Georgia Power
- Alabama Power

The Parties listed above share a common interest in gopher tortoise conservation. Each state comprising the geographic area of the gopher tortoise's eastern range is represented, as are non-governmental and private organizations, tribal agencies, and federal agencies such as the Military Services. The Parties share a desire to conserve gopher tortoise populations and habitat in order to prevent regulatory constraints and carry out their missions to the best of their ability, be it training missions on military installations or forest management on USFS lands. Additional Parties that fit into the above categories are welcome to sign on at any time, at which point they shall provide legal authority and specific conservation commitment input to the GTT. This input will be incorporated into Appendix E. Upon execution of this Agreement by the Parties, the management actions outlined in this document will be implemented where appropriate and as funding allows.

5. THE ROLE OF THE PRIVATE LANDOWNER

To meet the goals and objectives of this Agreement, the Parties acknowledge and recognize the value and role of private landowner(s) within the geographic scope of this Agreement. It is generally agreed that significant conservation opportunities on private lands exist and that the overall status and trend of the gopher tortoise and its habitat will depend upon the individual and collective actions of private landowners. Thus, the Parties expect that this Agreement will provide guidance and a framework within which interested private landowners can participate in gopher tortoise conservation in a voluntary and proactive manner. Other tools and programs will emerge as a result of implementation of this Agreement whose sole purpose will be to assist landowners conserve gopher tortoise habitat. The tools include, but are not limited to, the development of CCAs with Assurances (CCAAs) – either at the local or landscape levels.

The CCAA program is an aspect of the USFWS's implementation of the ESA that is intended to facilitate the conservation of proposed and candidate species, and species that may become candidates, by giving non-federal property owners incentives to implement conservation measures for declining or at-risk species. The incentives available through CCAAs include providing property owners certainty that no further land, water, or resource use restrictions beyond those agreed to in the CCAA will be imposed if the species later becomes listed under the ESA. Further, a level of incidental take is provided to landowners within the CCAA. Implementation of the stated conservation measures within the CCAA should produce a level of benefit, if conservation measures are also implemented on other necessary properties that would preclude or remove any need to list the covered species. "Other necessary properties" are other properties on which conservation measures would have to be implemented to preclude or remove any need to list the covered species.

By precluding or removing any need to list a species through early conservation efforts, property owners can maintain land use and development flexibility. In addition, initiating or expanding conservation efforts before a species and its habitat are critically imperiled increases the likelihood that simpler, more cost-effective conservation options will still be available and that conservation will ultimately be successful. The CCAA has been an effective mechanism for conserving declining species, particularly candidate species, and have, in some instances, precluded or removed any need to list some species.

A CCAA will involve the USFWS, one or more non-federal property owners, and possibly other cooperators. State fish and wildlife agencies, which have primary jurisdiction over species that are not federally listed, may be a cooperator in any program and some of the states participating in this Agreement are contemplating the implementation of programmatic CCAAs. Other potential cooperators include neighboring property owners, state or local agencies, tribal governments, federal property owners, or NGOs. However, it is important to note that only non-federal property owners may receive regulatory assurances offered in the CCAA programs.

6. AUTHORITY

The Parties enter into this Agreement under authority provided by federal and state law. Nothing in this Agreement is intended to limit the authority of the USFWS to fulfill its responsibilities under federal laws. Nothing in this Agreement is to imply that any Party is in any way abrogating or ceding any responsibility or authority inherent in its sovereign ownership of, jurisdiction over, and control of its property interests or wildlife. All activities undertaken pursuant to this Agreement must follow all applicable state and federal laws and regulations.

6.1. FEDERAL AGENCY AUTHORITIES

6.1.1. Department of Defense

The Sikes Act, 16 United States Code (U.S.C.) §§ 670a-670o, requires the Secretary of Defense to prepare and implement integrated natural resource management plans (INRMPs) for the conservation and rehabilitation of natural resources on military installations. These plans reflect agreement between the USFWS and the head of each appropriate state fish and wildlife agency concerning conservation, protection, and management of fish and wildlife resources. DoD may enter into cooperative agreements with states, local governments, nongovernmental organizations and individuals to provide for the maintenance and improvement of natural resources on, or to

benefit natural and historic research on, DoD installations.

An INRMP is a comprehensive plan used to manage installation natural resources by providing and ensuring the sustained use of a landscape necessary to support the military mission in accordance with accepted stewardship principles. It replaces the need for separate management plans for natural resources (for example, endangered species management, forest management, wetlands management, and fish and wildlife management). The INRMP describes how natural resources will be managed for military mission needs and in compliance with applicable laws and regulations. It ensures that management of natural resources does not result in a "net loss" of mission training land and describes how ecosystems will be managed to create and maintain certain landscape characteristics needed to enhance military training opportunities.

Department of Defense Instruction (DoDI) 4715.3, *Environmental Conservation Program*, provides guidance to the Services for the integrated management of natural resources on property under DoD control. It also states that natural resources under the stewardship and control of the DoD shall be managed to support and be consistent with the military mission, while protecting and enhancing those resources for multiple use, sustainable yield, and biological integrity.

Additionally, Section 2684(a) of Title 10 U.S.C., known as the buffering authority, authorizes the Services to enter into partnerships with private conservation organizations or state and local governments to preserve land and prevent incompatible development around military installations.

6.1.2. Army

Sections of Department of the Army Regulation (AR) 200-1 set forth policy, procedures, and responsibilities for the conservation, management, and restoration of land and natural resources consistent with the military mission and in consonance with national policies. In fulfilling their conservation responsibilities, paragraph 4-3d(5)(v) authorizes installations to participate in regional/habitat-wide efforts to conserve candidate species and Army-designated species at risk (SAR). Paragraph 4-3d(6) provides authority for managing SAR and their habitats. Specific SAR guidance is found in *Army Species at Risk Policy and Implementing Guidance*, dated 15 September 2006. This Army SAR policy memorandum specifically identifies the gopher tortoise as a priority Army species at risk. The SAR policy encourages proactive management efforts for SAR and their habitats, before federal protection under the ESA is necessitated, and further encourages installations to capitalize on partnerships and agreements when managing for such species.

The DoD buffering authority mentioned above is implemented by the Department of the Army with the Army Compatible Use Buffer (ACUB) Program. Installations with approved ACUB plans have authority to work with partners to protect and restore habitat outside the installation if those activities are deemed beneficial to sustaining the installation's military mission. Installations with pending or approved ACUB plans within the geographic extent of this CCA include Fort Stewart, Camp Blanding, Fort Gordon, Fort Benning, and Fort Rucker.

6.1.3. Navy

Operational Navy Instruction OPNAV 5090.1C, *Environmental and Natural Resources Program Manual*, provides installation requirements for the implementation of The Sikes Act regarding the management of natural resources on Navy lands. Additionally, the *Integrated Natural Resources Management Plan Guidance for Navy Installations, April 2006* provides Navy natural resource

managers with information necessary to prepare, update, and implement Integrated Natural Resources Management Plans (INRMPs). Natural resources at Navy installations are managed in accordance with installation INRMPs which are developed cooperatively with USFWS and state fish and wildlife agencies as stakeholders and are reviewed annually by the stakeholders for content, project implementation, and updates.

6.1.4. Air Force

Air Force Instruction (AFI) 32-7064, *Integrated Natural Resources Management*, provides guidance to manage natural resources on USAF installations and ranges. In addition, AFI 13212, *Range Planning and Operations*, provides specific guidance for range management. These resources are managed in accordance with the relevant federal laws, including the Sikes Act, using an INRMP as the principal tool under AFI 32-7064 and the sole tool under AFI 13-212. The INRMP is developed in cooperation with the USFWS, NOAA Fisheries (for installations that include or border marine environments), and the appropriate state fish and wildlife agency for the state in which the Air Force installation is located. Changes in an INRMP affecting its goals and objectives (including addition and/or deletion of projects) must be coordinated within and among appropriate USAF personnel, and should be coordinated with USFWS and the appropriate state fish and wildlife agency before they are implemented.

6.1.5. Marine Corps

Marine Corps Order (MCO) P5090.2A Change 1 (22 Jan 08), *Environmental Compliance and Protection Manual,* establishes Marine Corps policy and responsibilities for compliance with both statutory/regulatory requirements and the management of Marine Corps programs, to include the preservation of natural resources. As with the other Military Services, natural resource management activities at Marine Corps installations are conducted under that installation's INRMP. In accordance with Chapter 11 of MCO 5090.2A, *Natural Resource Management,* Marine Corps installations will survey and take other appropriate actions to document the presence of state rare and endangered species. Marine Corps installations should also inventory and monitor state-listed species as NEPA may require the consideration of a proposed action's impact on these species, and because state laws and regulation may govern their possession, propagation, sale, or taking on an installation. Additionally, Marine Corps installations will inventory and monitor candidate species to evaluate and document any effects that military activities may have upon them. MCO 5090.2A also allows the Marine Corps to execute cooperative agreements to exchange information, conduct research, or study projects that contribute to an installation's INRMP.

6.1.6. Forest Service

The USDA Forest Service has recognized the need to implement special management direction for rare species on the lands it administers. The Regional Forester may designate these species as Sensitive as described in the Forest Service Manual 2670.22. The objectives of management for such species are to ensure their continued viability throughout their range on National Forest lands, and to ensure that they do not become threatened or endangered because of Forest Service actions. The gopher tortoise is designated Sensitive on the Regional Forester's Sensitive list.

6.1.7. Fish and Wildlife Service

Sections 2, 6, and 7 of the ESA, 16 U.S.C §§ 1531-1544, authorize the USFWS and other federal parties to enter into this Agreement. Section 2 of the ESA states that encouraging parties to develop and maintain conservation programs is a key to safeguarding the nation's heritage in fish, wildlife,

and plants. Section 2(c)(1) of the ESA, (16 U.S.C. 1531(c)(1)), states "the policy of Congress is that all federal departments and agencies shall seek to conserve endangered and threatened species and shall utilize their authorities in furtherance of the purposes." Under Section 6 of the ESA, the "Secretary shall cooperate to the maximum extent with the States...", 16 U.S.C. §1535(a). Further, under Section 6, the Secretary may authorize under cooperative agreement with a state program, a state agency to establish conservation initiatives; and may provide financial assistance to the state to monitor the status of a species within a state to prevent significant risk to the well-being of any such species, 16 U.S.C. §1535(c). Section 7 of the ESA requires federal agencies to review programs that they administer and to utilize such programs in furtherance of the purposes of the ESA. Entering into this Agreement is an important and proactive initiative that follows the intent of Section 7 to provide for the conservation of the nation's fish, wildlife, and plants.

In addition to the ESA, the Fish and Wildlife Act of 1956 provides that the Secretary shall "...take such steps as may be required for the development, advancement, management, conservation, and protection of fish and wildlife resources...". The Fish and Wildlife Coordination Act states that the Secretary is authorized "to provide assistance to, and cooperate with, Federal, State, and public or private agencies and organizations in the development, protection, rearing, and stocking of all species of wildlife, resources thereof, and their habitat...". Lastly, the Sikes Act requires DoD installations to develop INRMPs to support the military mission in cooperation with USFWS and state fish and wildlife agencies.

Perhaps the largest driving force behind the USFWS's authority to conserve wildlife and habitat is the National Wildlife Refuge System and the laws and regulations that established and manage this system. Refuges are special places where the USFWS and its partners restore, protect, and manage habitat for America's wildlife.

A history of laws directs the USFWS's administration of the National Wildlife Refuge System. Early legislative acts laid the groundwork for President Roosevelt's 1903 Executive Order establishing the first refuge and acts of Congress as recent as 1997 continue to shape the administration of our Nation's refuges. The National Wildlife Refuge Improvement Act of 1997 requires that each National Wildlife Refuge create a Comprehensive Conservation Plan (CCP). This Refuge planning process is consistent with the provisions of various Acts, including but not limited to: the National Wildlife Refuge Improvement Act of 1997 (16 U.S.C. 668dd *et seq.*); the Migratory Bird Treaty Act (16 U.S.C. 703-712); the National Environmental Policy Act of 1969, as amended (42 U.S.C. 94321 *et seq.*); the Administrative Procedures Act (5 U.S.C. 5706); the Estuary Protection Act (16 U.S.C. 1221-1226); the Coastal Zone Management Act of 1972 (16 U.S.C. 1451-1464); the Acts listed in the paragraphs above; and various Executive Orders and internal Federal Policy and Procedure Memoranda.

In addition, The National Wildlife Refuge System Improvement Act of 1997 requires the USFWS to maintain the ecological health, diversity, and integrity of refuges. In this context, the gopher tortoise is frequently a focus species for managing and restoring open woodlands and savannas, as well as xeric scrub habitats represented on National Wildlife Refuges.

The Partners for Fish and Wildlife Program provides technical and financial assistance to private landowners and Tribes who are willing to work with the U.S. Fish and Wildlife Service and other partners on a voluntary basis to help meet the habitat needs of our Federal Trust Species. The

Partners Program can assist with projects in all habitat types which conserve or restore native vegetation, hydrology, and soils associated with imperiled ecosystems such as longleaf pine, bottomland hardwoods, tropical forests, native prairies, marshes, rivers and streams, or otherwise provide an important habitat requisite for a rare, declining or protected species.

6.1.8. National Park Service

The NPS Organic Act 1916 (16 USC 1) articulates the purpose of the National Park Service and affirms that the NPS must manage park resources and values in such manner and by such means as will leave them unimpaired for the enjoyment of future generations. Additional details are provided in NPS Management Policies (NPS 2006):

NPS "will successfully maintain native plants and animals by preserving and restoring the natural abundances, diversities, dynamics, distributions, habitats, and behaviors of native plant and animal populations and the communities and ecosystems in which they occur" (NPS 2006; Section 4.4.1), and NPS "will cooperate with other agencies, states, and private entities to promote candidate conservation agreements aimed at precluding the need to list species; and conduct actions and allocate funding to address endangered, threatened, proposed, and candidate species" (NPS 2006; Section 4.4.2.3).

National Park Service 2006. NPS Management Policies (http://www.nps.gov/policy/MP2006.pdf)

6.2. STATE AND TRIBAL AUTHORITIES

6.2.1. Alabama Department of Conservation and Natural Resources

In Alabama, the gopher tortoise is a protected non-game species. Populations west of the Tombigbee and Mobile Rivers are federally listed as Threatened. Additionally, under the Nongame Species Regulation 220-2-92, the gopher tortoise is on the list of species in Alabama that legally prohibits the take, capture, kill, or attempt to take, capture or kill; possess, sell, trade for anything of monetary value, or offer to sell or trade for anything of monetary value, the nongame wildlife species on that list (or any parts or reproductive products of such species) without a scientific collection permit or written permit from the Alabama Department of Conservation and Natural Resources, which shall specifically state what the permittee may do.

6.2.2. Florida Fish and Wildlife Conservation Commission

In 2012, the Florida Fish and Wildlife Conservation Commission (Commission) released its revised Gopher Tortoise Management Plan in accordance with the Threatened and Endangered Species regulation, Florida Administrative Code, Rule 68A-27. The gopher tortoise is designated as a threatened species within the state of Florida effective November 2007. Rule 68A-27.004 states that "No person shall take, attempt to take, pursue, hunt, harass, capture, possess, sell or transport any gopher tortoise or parts thereof or their eggs, or molest, damage, or destroy gopher tortoise burrows, except as authorized by Commission permit or when complying with Commission approved guidelines for specific actions which may impact gopher tortoises and their burrows. A gopher tortoise burrow is a tunnel with a cross-section that closely approximates the shape of a gopher tortoise. Permits will be issued based upon whether issuance would further management plan goals and objectives."

6.2.3. Georgia Department of Natural Resources

The state of Georgia has regulations (GaDNR Rules Chapter 391-4-10) for the protection of plant

and animal species, including the gopher tortoise, which is listed as threatened within the state. GaDNR may issue permits for the collection, transportation, and/or possession of gopher tortoise for scientific or educational use only. Such permits do not alleviate the responsibility to acquire specific federal permits, if required. Georgia law specifically states that rules and regulations related to the protection of state protected species shall not affect rights on private property. Prohibitions are limited to the capture, killing, or selling of protected species and the protection of the habitat of these species on public lands. GaDNR has statutory and regulatory authority to enter into cooperative agreements with federal agencies and other states' agencies in carrying out its objectives, including management programs for conserving any endangered or threatened species (O.C.G.A. §§ 12-2-6 & 27-1-6; Board Rule 391-4-10-.05).

6.2.4. South Carolina Department of Natural Resources

The gopher tortoise is listed by the state of South Carolina as a critically endangered species within the state of South Carolina. This state designation requires that the federal ESA is observed in reference to gopher tortoise, meaning it is unlawful for any person to take, possess, transport, export, process, sell or offer for sale or shipment, and for any common or contract carrier knowingly to transport or receive for shipment any species or subspecies of wildlife that is endangered within the state. Very few tortoises reside in South Carolina, but known populations are protected on wildlife management areas, where it is illegal to take tortoises without written permission from the Department of Natural Resources (Wildlife Management Area Regulation 11.1).

6.2.5. Georgia Department of Transportation

The Georgia Department of Transportation was created in 1972 by former Governor Jimmy Carter. The Department plans, constructs, maintains and improves the state's roads and bridges; provides planning and financial support for other modes of transportation such as mass transit and airports; provides airport and air safety planning; and provides air travel to state departments. The Department owns and maintains thousands of acres of right-of-way and mitigation properties throughout Georgia. South of the Fall Line, many of these lands contain suitable habitat for the Gopher Tortoise. In accordance with the National Environmental Policy Act, the Endangered Species Act and the Georgia Endangered Wildlife Act, the Department identifies suitable habitat, conducts surveys, assesses impacts, and coordinates mitigation efforts for the Gopher Tortoise on these lands.

6.2.6. Poarch Band of Creek Indians

The gopher tortoise is a culturally significant species for the Poarch Band of Creek Indians. Tortoises have historically been part of cultural and religious practices as well as a food and utilitarian use source for thousands of years. The Tribe protects gopher tortoise populations according to federal laws and regulations on the Tribal Reservation and Trust lands. Additionally, the Tribe protects gopher tortoises on "fee lands" according to federal and appropriate state laws and regulations. Tribal members also have certain protections for collecting native flora and fauna for cultural and religious practices covered under federal laws and regulations. Tribal Code, Chapter 26, Environmental Protection, covers the regulations for protecting wildlife habitat and improving it to benefit wildlife.

6.2.7. Alabama Forestry Commission

The Alabama Forestry Commission (AFC) is a state agency that works with forest landowners in protecting and managing the state's forest resources. Assistance includes wildfire protection, prescribed burning, stand management recommendations, multiple use management plans, certifying

forest landowners within the Alabama TREASURE Forest Program, Tree Farm Program and Stewardship Program, landowner and resource professional trainings, field days and tours, along with other various activities.

The AFC also owns and manages state forest lands located within the Gopher Tortoise CCA range. On these state forest lands, the AFC is committed to improving the gopher tortoise habitat through planting longleaf pine on appropriate sites, prescribed burning, and conducting timely thinning and final harvest as needed.

6.3. NON-GOVERNMENTAL AND PRIVATE ORGANIZATIONS

6.3.1. American Forest Foundation

AFF is a private, not for profit organization organized under 26 U.S.C. 501.c.3 that works with forest owners across the nation to promote sustainable forest management on family forest lands. AFF's Center for Conservation Solutions works with partners and family forest owners to conserve and create habitat for imperiled species. Through the promotion of conservation incentives and regulatory assurances, AFF engages family forest owners and encourages their active habitat management for the gopher tortoise and associated species. The organization is uniquely qualified to develop educational materials for and outreach to family forest owners and other interested stakeholders regarding the gopher tortoise.

6.3.2. The Longleaf Alliance, Inc.

The Longleaf Alliance, Inc. is a 26 U.S.C. 501.c.3 non-profit conservation organization dedicated to the conservation, restoration, and management of longleaf pine ecosystems across their range. Working across broad partnerships, the Alliance has a 15-year history of outreach, education, and research in "all things longleaf". Serving as a source of technical assistance for landowners and land managers, in-service training for natural resource professionals, and education for a broad array of audiences, the Alliance has served as the region's clearinghouse for longleaf ecosystem conservation. The Alliance has established a reputation as an honest broker of information with private and public landowners that fosters trust and allows access denied many public agencies and conservation NGO's. With interest and experience in managing sandhills and sandhill communities, including both gopher tortoises and indigo snake studies, across the region, the Alliance brings both technical knowledge and valuable relationships to the task of conserving those communities.

6.3.3. Joseph W. Jones Ecological Research Center

The Joseph W. Jones Ecological Research Center is a 26 U.S.C. 501.c.3 non-profit organization that seeks to understand, to demonstrate, and to promote excellence in natural resource management and conservation on the landscape of the southeastern coastal plain of the United States. The Jones Center is privately funded and has a 20-year history of outreach, education, and research in coastal plain ecosystems that are key to the conservation of the gopher tortoise. There are currently 100 staff and 30 graduate students associated with programs, management, and maintenance of the 12,000 ha Ichauway site.

6.3.4. Georgia Power

A subsidiary of The Southern Company, Georgia Power is a regulated utility company in the business of generating, delivering, and selling electricity over most of the state. The company is

committed to environmental stewardship and being a "citizen wherever we serve." Georgia Power owns about 95,000 acres statewide, primarily associated with coal, hydro, and nuclear generating facilities, and has the authority to perform gopher tortoise population enhancement and habitat management activities at suitable selected sites on these properties. Georgia Power is also responsible for power line construction and maintenance, as well as vegetation management, on thousands of miles of power delivery right-of-way easements to ensure safety and reliability. These easements establish legal authority for the company to access the rights-of-way, and the freedom to implement best management practices to protect tortoises and tortoise habitat where applicable. The company frequently partners with state and federal natural resource agencies and conservation organizations to meet mutual goals and provide public benefits.

6.3.5. Alabama Power

Alabama Power is the second largest electric utility within Southern Company, serving customers in the southern two-thirds of Alabama. The company is committed to environmental stewardship and protecting Alabama's natural resources. Protecting those resources, while providing reliable, affordable electricity for our customers is at the heart of our company's mission. More than 84,000 miles of power lines carry electricity to customers throughout the company's 44,500-square-mile service territory. Alabama Power owns nearly 300,000 acres statewide, primarily associated with coal, hydro, nuclear, and natural gas generating facilities, and the company has the authority to perform gopher tortoise population surveys and habitat management activities in suitable areas. Alabama Power is also responsible for power line construction and maintenance, as well as vegetation management, on thousands of miles of transmission line right-of-way easements to ensure safety and reliability. These easements establish legal authority for the company to access the rights-of-way, and the freedom to implement best management practices to protect tortoises and tortoise habitat where applicable. The company partners with state and federal natural resource agencies to meet mutual goals and provide public benefits.

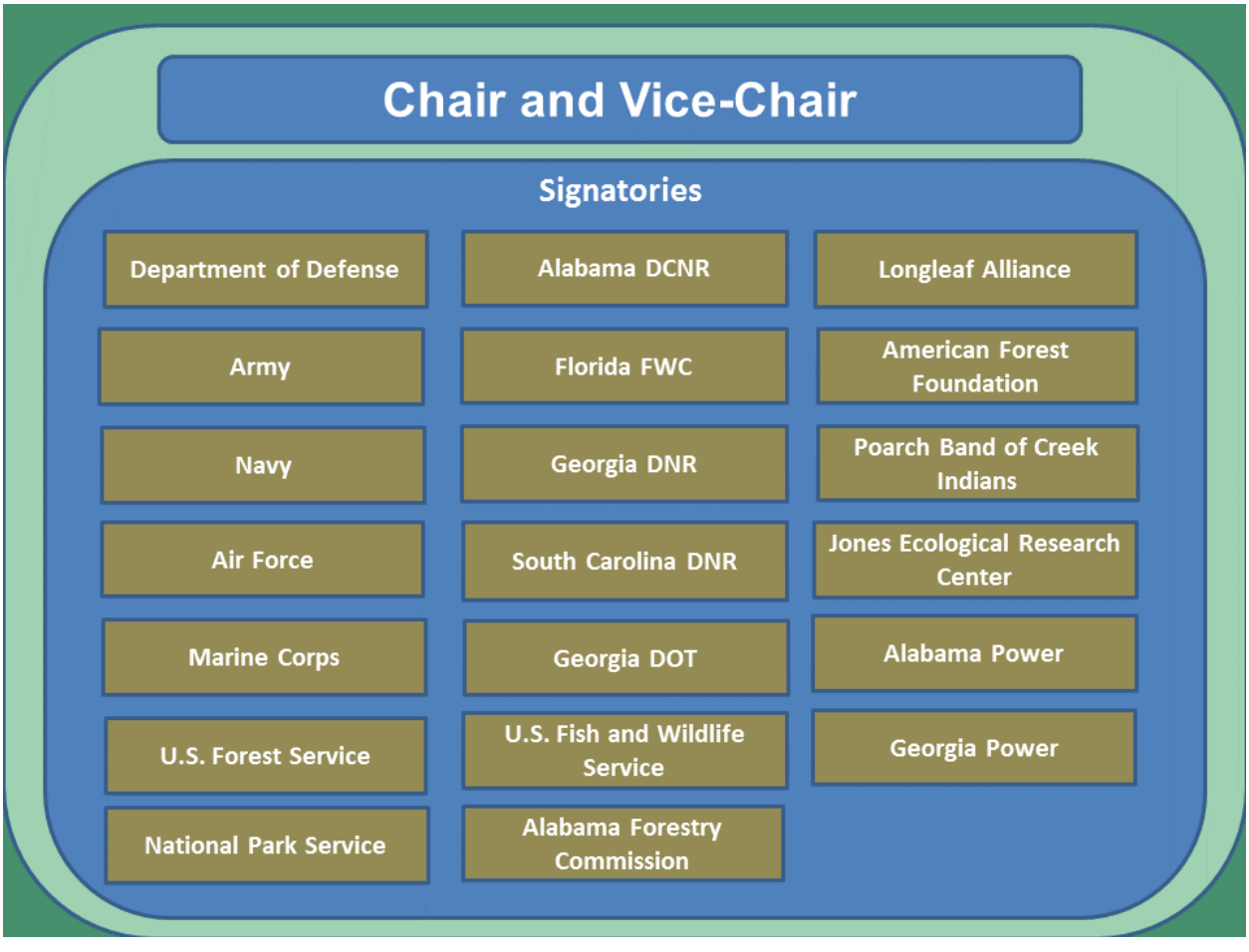
7. CCA MANAGEMENT AND ADMINISTRATION

In order to meet the objectives of this Agreement, the GTT will manage, administer, and periodically review this Agreement. The responsibility of this team is to coordinate the implementation and administration of the Agreement without superseding the jurisdictional authorities of any party. The GTT will develop and make recommendations for the conservation and research needs of the gopher tortoise and identify new threats in its eastern distribution.

7.1. GOPHER TORTOISE TEAM LEADERSHIP AND MANAGEMENT

The GTT will consist of one or more designated representatives from each Party to this Agreement and may include technical and legal advisors and other members as deemed necessary. Parties may have multiple sub-organizations involved; e.g., Wildlife, Forestry, and Endangered Species divisions of a state. The GTT will be chaired by participating state representatives only. On 1 July of each year the Chair with be succeeded by the Vice Chair. Alabama will hold the first chairmanship followed by Florida; the states will follow in alphabetical order. The GTT's organizational structure is outlined below in Figure 7.1 and will be updated as needed.

Figure 7.1: Gopher Tortoise Team's Organizational Structure



7.2. ASSESSING AND MANAGING THE AGREEMENT

The GTT is responsible for the coordination of the conservation activities and monitoring of the conservation actions being conducted by the Parties to encourage all actions to be in accordance with the Agreement. The GTT will develop an annual assessment of the Parties' progress towards implementing the conservation actions described in this Agreement. This assessment will be comprised of an annual report and recommendations for CCA revisions and actions. The annual report will be based on input provided to the GTT by the Parties. The GTT will devise a standardized reporting format for the Parties to use when providing input. Following the annual assessment, the GTT will publish an announcement that details the progress made to date on implementation of conservation actions described in the Agreement.

7.3. EDUCATION AND OUTREACH

The GTT will assess the need to develop and/or distribute outreach materials to promote gopher tortoise conservation. Parties that develop new outreach materials related to the gopher tortoise and/or its habitat will share the materials with other GTT members. Outreach materials include, but are not limited to, pamphlets, newsletter articles and announcements, fact sheets, and other educational materials. In addition, the GTT will reach out to and utilize partnering organizations such as SERPPAS or the Partnership for Amphibian and Reptile Conservation for support.

The GTT created a SharePoint website for gopher tortoise conservation research, information, GTT meetings, and reports that is accessible to the CCA parties. This repository includes items such as gopher tortoise research, habitat management strategies, population densities, resources, and outreach materials. Each Party to this Agreement will post gopher tortoise information and/or links to other appropriate sites on the information repository as well as their own internal websites if applicable.

8. STATUS AND DISTRIBUTION OF THE GOPHER TORTOISE

8.1. DESCRIPTION

The gopher tortoise is a member of the Class Reptilia, Order Testudines, and Family Testudinidae. Of five North American tortoise species (genus *Gopherus*), the gopher tortoise is the only one that occurs east of the Mississippi River. The gopher tortoise is a moderately-sized terrestrial turtle, averaging 23–28 centimeters in length. The species is identified by its stumpy, elephantine hind feet and flattened, shovel-like forelimbs adapted for digging. The shell is oblong and generally tan, brown, or gray in coloration.

8.2. LIFE HISTORY

The gopher tortoise is slow to reach sexual maturity, has low fecundity, and has a long-life span. Females reach sexual maturity at 9–21 years of age, depending on local resource abundance and latitude; males mature at a slightly younger age. The breeding season is generally April– November. Nests are constructed (often in burrow mounds) from mid-May to mid-June, and only one clutch is produced annually. Clutch size is usually five to nine eggs, with an average of six. Predation on nests and hatchlings is heavy.

Gopher tortoises feed primarily on broadleaf grasses, wiregrass, grass-like asters, legumes, and fruits, but they are known to eat more than 300 species of plants. Tortoise densities and movements are affected by the amount of herbaceous ground cover. Generally, feeding activity is confined to within 50 meters of the burrow, but a tortoise may travel up to 100 meters from its burrow for specific forage requirements. Home range size varies with habitat type, season, and sex of the tortoise; moreover, considerable individual variation has been found. Reported annual average home ranges for males have varied from 0.5 to 1.9 hectares. Females generally have smaller home ranges, with reported averages ranging from 0.1 to 0.6 hectares. Multiple burrows are typically used, which complicates estimates of population density.

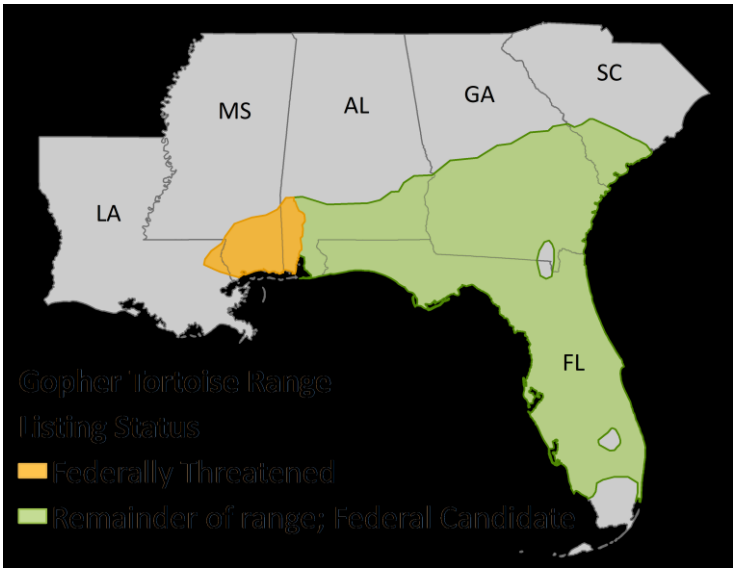
8.3. HABITAT

The gopher tortoise typically inhabits relatively well-drained, sandy soils. The gopher tortoise is generally associated with longleaf pine, xeric oak sandhills but also occurs in scrub, xeric hammock, pine flatwoods, dry prairie, coastal grasslands and dunes, mixed hardwood-pine communities, and a variety of disturbed habitats. Gopher tortoises excavate burrows that average 4.5 m in length and 2 m in depth. These burrows, which provide protection from temperature extremes, desiccation, and predators, serve as refuges for approximately 360 other species, including federally listed species such as the Mississippi gopher frog (*Lithobates sevosa*) and Eastern indigo snake (*Drymarchon couperi*).

8.4. DISTRIBUTION

The gopher tortoise occurs in the southeastern Coastal Plain from southeastern South Carolina to extreme southeastern Louisiana. The gopher tortoise is endemic to the United States, and Florida represents the largest portion of the total range of the species.

Figure 8.4: Gopher Tortoise Distribution
(Source: Florida Fish and Wildlife Conservation Commission, January 2019)



9. PROBLEMS FACING THE GOPHER TORTOISE

The success of any conservation or recovery effort depends on reducing or eliminating threats to the continued existence of the species. The following summarizes the five listing factors identified in section 4(a)(1) of the ESA which must be considered by the USFWS in evaluating current threats to the gopher tortoise.

9.1. THE PRESENT OR THREATENED DESTRUCTION, MODIFICATION, OR CURTAILMENT OF THE SPECIES' HABITAT OR RANGE

The primary threats to gopher tortoises in the Southeastern U.S. are habitat destruction, fragmentation, and degradation. Causes of these threats include, but are not limited to; urbanization and development, intensive forestry practices, agriculture, dam construction, invasive exotic plant establishment, sand extraction, mining, land-use requiring vegetation clearance, fire suppression, agriculture, and human predation. Most gopher tortoise habitat exists on privately owned lands, rendering threats to habitat quality an important issue for private landowners. Additionally, federal and state lands that contain considerable gopher tortoise habitat are included as a focus of this Agreement.

9.2. OVERUTILIZATION FOR COMMERCIAL, RECREATIONAL, SCIENTIFIC, OR EDUCATION PURPOSES

Human collection and consumption are the primary way in which gopher tortoise populations are

over utilized. Human predation on gopher tortoises has occurred throughout the Southeastern U.S. Harvesting of gopher tortoises is now prohibited by all states throughout its range; however, hunters continue to illegally collect gopher tortoise for their meat. For example, the effects of human predation on tortoise populations in longleaf pine-turkey oak habitat in the Florida Panhandle has resulted in a low density of tortoise populations, as compared to higher densities of tortoises found in similar habitat in Peninsular Florida. Although tortoise protection and decreased tortoise populations have reduced human consumption rates, some tortoise populations may still be depleted by sustained human predation.

9.3. PREDATION OR DISEASE

In the wild, gopher tortoise eggs and hatchlings are preyed upon by mammals, birds, and snakes. Approximately 80–90% of nests are typically depredated, primarily by mammalian predators. It is believed that more than 90% of hatchlings may not survive their first year. Adults are not usually subject to predation, but there is evidence that they can succumb to dogs and coyotes. Gopher tortoise populations can typically withstand natural predation pressure, with only one to three of every 100 eggs probably producing a breeding adult. However, predator populations, such as raccoons and crows, can be artificially high in some habitats because of anthropogenic factors. Also, potential new tortoise predators have invaded the Southeast (nine-banded armadillo, coyote, monitor lizards, feral hogs, and red imported fire ant) via human transport or habitat alteration.

Beginning in the 1990s, upper respiratory tract disease (URTD) was identified as a potential threat to the gopher tortoise, and relatively large die-offs (100–300+ shells) that might be linked to URTD were documented on several public lands in Florida. In addition to at least two Mycoplasma species responsible for URTD, gopher tortoises also may have herpesvirus and iridovirus. Pathogens may be partially responsible for recent declines in some gopher tortoise populations, but URTD may have a long evolutionary history as a gopher tortoise disease. It is possible that *Mycoplasma agassizii* may be detected in virtually every population, if enough tortoises are sampled. There are several possibilities why URTD has only been discovered recently: 1) increased research on the species, 2) increased stress on gopher tortoise populations from habitat fragmentation and degradation has lowered their resistance to pathogens, 3) a more virulent form of the pathogen has evolved, or (4) URTD was introduced by humans via exposure to infected captive tortoises. On Sanibel Island, 87% of tortoises tested were seropositive for exposure to the pathogen, and at least one population there appears to have experienced a 25– 50% reduction in breeding age adults. However, it has been found that many observed declines in the demographic well-being of gopher tortoise populations did not appear to be related to the presence of *Mycoplasma agassizii*.

9.4. EXISTING REGULATORY MECHANISMS

The species is federally listed as threatened west of the Tombigbee/Mobile Rivers with no federal and varied levels of state protection east of these rivers. While the gopher tortoise is currently state protected in Alabama, Florida, Georgia, and South Carolina, state protection varies greatly, and there is no coordinated or comprehensive framework for conservation or protection currently in place. For more state-specific regulatory information, see Section 6.2.

9.5. OTHER MANMADE OR NATURAL FACTORS AFFECTING THE SPECIES' CONTINUED EXISTENCE

There are no other known manmade or natural factors affecting the species continued existence. However, increased conversion to agricultural lands could cause increased use of and tortoise

exposure to agricultural chemicals.

10. CONSERVATION STRATEGY AND COMMITMENTS

The strategy for organizing a cooperative, range-wide approach to gopher tortoise management and conservation is focused on establishing a baseline of conservation commitments that all Parties agree to, and then collectively accounting for specific agency conservation actions across the region. It also establishes a starting-point for private landowner involvement in gopher tortoise conservation and management activities. Key components of this strategy are based on the premise that this Agreement, in the near term, is focused on reducing the deteriorating status of the species by improving, organizing, and implementing specific management actions, and in the long term, will facilitate the development of a network of managed gopher tortoise populations across its range.

The commitment and actions outlined in this Section focus on conservation, improvement, and ongoing management of gopher tortoise habitat. The landscape and local level conservation actions are designed to be adaptable and implementable by all Parties in a collaborative environment, and the agency-specific actions describe the specific actions that each Party will conduct to effectively manage the species and reduce habitat and population loss. The results of these actions will be observed through monitoring the response of tortoise populations. Information obtained from surveys and monitoring will increase the understanding of the gopher tortoise and its management needs. This knowledge will be applied using the concepts of Adaptive Management that periodically assess and modify conservation actions.

10.1. HABITAT CONSERVATION COMMITMENTS

Each of the Parties is bound by certain guiding agency requirements which establish their mission, goals, and responsibilities while also managing and conserving the habitat of various species (e.g., the gopher tortoise) in the Southeastern U.S. This section addresses general measures that will be taken by the Parties to conserve gopher tortoise and its habitat at the landscape and local level. Best practices for habitat management, monitoring, and translocation of tortoises are contained in Appendix B.

10.1.1. Landscape Level Conservation

This section describes general conservation efforts that all Parties agree to implement at the regional or landscape level, in accordance with their respective authorities and their individual missions. These common and comprehensive efforts and actions include:

- Identifying suitable or potentially suitable gopher tortoise habitat/sites/areas, and documenting those that are exceptional ecosystems known to support high biodiversity and/or numerous federal-and-state listed threatened and endangered plant and animal species.
- Identifying areas occupied by gopher tortoises (for estimating tortoise population sizes, follow recommended protocols outlined in Appendix F).
- Identifying areas of potential agency mission – gopher tortoise habitat conflict.
- Identifying and reducing dispersal barriers between gopher tortoise populations.
- Developing and implementing best management practices for avoiding/minimizing/mitigating impacts to suitable and occupied habitats.
- Identifying and collaborating with landowners (private and public) on conservation/management efforts needed to minimize impacts to or sustain gopher

tortoise habitat.
- Making gopher tortoise information available to promote appropriate data sharing, conservation, and partnering.
- Assessing and evaluating gopher tortoise habitat or population trends related to actions associated with development/agriculture or conservation/restoration (for population trend assessment, follow recommended protocols outlined in Appendix F).
- Avoiding/minimizing impacts to suitable, unoccupied gopher tortoise habitat to allow for occupation of gopher tortoises in such areas, and managing these areas appropriately (e.g., prescribed fire).

10.1.2. Local Level Conservation

This section describes general conservation efforts that all Parties agree to implement at the local, installation or property level, consistent with their respective authorities and in accordance with their individual missions. These common and site-specific efforts and actions include:

- Considering the effects of actions on gopher tortoise during the planning process and avoiding or minimizing impacts on habitat where practical.
- Identifying presence/absence of gopher tortoises in proposed action areas where the action will disturb soils in suitable habitat.
- Avoiding when practical or otherwise minimizing adverse effects on gopher tortoise habitat during land management activities.
- Considering translocation of gopher tortoises for projects that will adversely and permanently degrade/fragment/destroy occupied habitat and where all other management options have been exhausted. If translocation is selected as an action, developing a translocation plan that includes 9-12 months of temporarily enclosing tortoises to acclimate and increase their fidelity to the recipient site (soft release).
- Avoiding where practical or otherwise minimizing adverse effects of actions that isolate existing gopher tortoise populations.

10.2. AGENCY-SPECIFIC HABITAT CONSERVATION ACTIONS

The following section details specific gopher tortoise conservation and management actions that have been or are being implemented, or are being considered for implementation by:

- United States Army
- United States Navy
- United States Air Force (USAF)
- United States Marine Corps (USMC)
- United States Forest Service (USFS)
- United States Fish & Wildlife Service (USFWS)
- Alabama Department of Conservation and Natural Resources (ADCNR)
- Florida Fish and Wildlife Conservation Commission (FWC)
- Georgia Department of Natural Resources (GaDNR)
- South Carolina Department of Natural Resources (SCDNR)
- Georgia Department of Transportation
- Poarch Band of Creek Indians
- American Forest Foundation (AFF)
- Longleaf Alliance (LLA)

- Joseph W. Jones Ecological Research Center
- Alabama Forestry Commission
- National Park Service
- Georgia Power
- Alabama Power

10.2.1. Army

The gopher tortoise occurs on Camp Blanding, FL; Fort Benning, GA; Fort Gordon, GA; Fort Rucker, AL; and Fort Stewart, GA. Specific management objectives and activities for gopher tortoise management are included in the INRMP for each installation. Conservation of the gopher tortoise and other species is part of a broader goal to conserve biological diversity on Army lands consistent with the Army's mission. Biological diversity and the long-term survival of species such as the gopher tortoise ultimately depend upon the health and sustainability of the ecosystem in which they reside. Therefore, installation-specific gopher tortoise management strategies will promote ecosystem integrity. Maintenance of ecosystem integrity and health also benefit the Army by preserving and restoring training lands for long-term use.

In accordance with Army Regulation 200-1, *Environmental Protection and Enhancement*, INRMPs support the Army mission through stewardship of Army lands and are the primary tool for managing species and their habitats at Army installations. Garrison commanders utilize INRMPs for the conservation, rehabilitation, and enhancement of natural resources to ensure readiness. The Army Species At Risk Policy and Implementing Guidance Memorandum, dated 15 September 2006, identifies the gopher tortoise as a high priority species at risk. The Army has programmed funds for the management of key species at risk. Camp Blanding, FL has additional state-mandated requirements to conserve gopher tortoise.

The following is a list of some of the gopher tortoise habitat conservation and management activities included within the installation INRMPs which have been utilized by some installations in the southeastern U.S. to conserve and enhance species such as the gopher tortoise.

1. Installations conduct monitoring programs to scientifically determine demographic trends and to measure success. Monitoring activities include:

    - Surveying for burrows to assess and minimize impacts to the GT population and habitat prior to significant ground disturbing activities
    - Monitoring gopher tortoise population demography
    - Monitoring gopher tortoise activity and movement patterns
    - Maintaining site specific distribution and demographic information on tortoises within the installation GIS system

2. Upon establishment of installation gopher tortoise goals, the Army may apply the Army Compatible Use Buffer (ACUB) program to protect gopher tortoise habitat on private lands. The ACUB Program authorizes installations with approved ACUB plans to work with partners to protect and restore habitat outside installation boundaries. The principal design of these plans and partnerships is to prevent incompatible development and pursue conservation activities that sustain the installation's military mission.

3. Soldiers and other personnel (including contractors) involved in field activities at the installation will receive training or literature on how to minimize impacts whenever practical while still accomplishing mission goals. Outreach and education materials will include gopher tortoise and gopher tortoise burrow identification, the relevance of gopher tortoise conservation to the Army mission, and information on how certain activities (e.g., heavy wheeled and tracked vehicle operation and mechanical digging) may directly harm individuals, damage burrows and nests, affect foraging and have potential for significant habitat damage.

4. Current silvicultural standards for Red-cockaded Woodpecker (RCW) management on installations are consistent with requirements for gopher tortoise habitat. Where RCW management is not an issue, forest management and timber harvest will be evaluated for compatibility with gopher tortoise habitat needs. Installations will use pine and hardwood timber harvest and various forms of mechanical and chemical vegetation control, as necessary, to achieve specific habitat and vegetation objectives or to enhance degraded habitat. The five Army installations in the southeast with gopher tortoise populations have aggressive prescribed burning programs. Current prescribed burning standards for wildfire hazard reduction and RCW management on installations is consistent with gopher tortoise habitat management. Frequent burning reduces shrub and hardwood encroachment and stimulates growth of gopher tortoise forage plants such as grasses, forbs, and legumes. The physical result of fire on tree and shrub species is to reduce canopy cover. Heat stress caused by prescribed burning will eradicate undesirable hardwood mid-story and induce mortality among young, stressed, and diseased trees. This allows greater sunlight penetration to reach ground level which promotes establishment of understory species used by the gopher tortoise as forage and is also important for proper egg incubation.

5. Headquarters, Department of the Army will designate a representative to the GTT.

6. Identify gopher tortoise management research and development projects currently conducted under the DoD's Strategic Environmental Research and Development Program to the GTT. Continue to conduct gopher tortoise research as appropriate through the W.S. Army Corp of Engineers Engineer Research and Development Center.

10.2.2. Navy

Naval Air Station (NAS) Jacksonville, FL:

Gopher tortoises are located in mission sensitive areas on Naval Air Station (NAS) Jacksonville, and gopher tortoise habitat is abundant at Outlying Landing Field (OLF) Whitehouse. The installation has prepared and is implementing a Gopher Tortoise Management and Relocation Plan covering all three NAS Jacksonville properties, revised in fiscal year (FY) 2005 along with updated surveys. NAS Jacksonville has a population at the weapons compound, where fencing has been modified to extend two feet below ground in some areas to discourage movement into the compound. Gopher tortoises also occur in habitat located on OLF Whitehouse along the mowed apron and in the dry sandy areas of Rodman Range. The goal of the gopher tortoise management plan project is to enable NAS Jacksonville to continue to relocate gopher tortoises from unsuitable, highly developed areas at NAS Jacksonville to improved habitat at OLF Whitehouse. Translocation efforts are coordinated with the Florida Fish and Wildlife Conservation Commission (FFWCC) and USFWS as appropriate. In addition to Navy owned lands, gopher tortoise populations occur at the Navy's Pinecastle Range on land owned by the U.S. Forest Service. At Pinecastle, the Navy and the U.S. Forest Service jointly

monitor the rare, threatened, and endangered species onsite, including the gopher tortoise.

Management efforts also include two habitat restoration projects at OLF Whitehouse. The projects, which involve the conversion of unsuitable habitat to a longleaf pine/wiregrass ecosystem, are funded with Navy forestry funds. One 55-acre site has been planted with longleaf pine and the other is to be completed in FY07. Improving gopher tortoise habitat is also one of the goals of the prescribed burn plan for the Rodman Range.

Naval Submarine Base (SUBASE) Kings Bay, GA:

Gopher tortoise surveys have been conducted for all suitable habitat on the base (a resurvey of previously-identified habitats was conducted in October of 2003 involving 315 burrows at 21 locations). Intensive surveys were also conducted for the area involving the security fence enclave. While a formal management plan for the gopher tortoise has not been developed, the primary management practice on SUBASE Kings Bay involves the use of prescribed fire in pine stands, which opens tree canopies and allows suitable understory development.

Gopher tortoises affected by infrastructure improvements or mission activities have been relocated to suitable habitat on site in coordination with the Georgia DNR and USFWS as appropriate. Land disturbance activities within a known gopher tortoise habitat continue to prescribe mitigation or translocation in accordance with the recommendations outlined in the 1997 gopher tortoise survey conducted for the Base.

NAS Pensacola and NAS Whiting Field, FL:

NAS Pensacola and NAS Whiting Field have significant gopher tortoise populations. A gopher tortoise survey is currently being conducted by The Nature Conservancy, Gulf Coastal Plain Ecosystem Partnership for NAS Whiting Field as an update to prior efforts. Surveys at NAS Pensacola have been part of other biological survey efforts over the years with two specific surveys conducted in FY04 and FY08. It is estimated that approximately 400 burrows exist on Navy lands under the control of both NAS Pensacola and NAS Whiting Field. Based on preliminary current results and on prior survey efforts, it is estimated that approximately 200 burrows are currently active on Navy lands under the control of both NAS Pensacola and NAS Whiting Field.

Both NAS Pensacola and NAS Whiting Field have performed tortoise translocations in years past on a case by case basis due to mission and facility requirements, but no translocation has been required since 1999. Translocation, when conducted, is coordinated as an INRMP effort involving both the FWC and the USFWS as appropriate. As part of management, gopher tortoise signs are being installed adjacent to active burrows at both Pensacola and Whiting Field as a means of protecting the burrows from mowing equipment and other heavy machinery. In flight clear zones at NAS Whiting Field and its OLF's, a mission-approved orange cone marking system is used. The orange cones have been stenciled with "gopher tortoise" and are placed adjacent to the burrows. Outside of clear zones on NAS Whiting Field lands and on all lands at NAS Pensacola, flexible markers with "gopher tortoise" decals are driven into the ground adjacent to the burrows. In addition to surveys and protection practices, management for gopher tortoise populations include the use of prescribed fire to maintain gopher tortoise habitat, forest timber thinning to increase available sunlight to the forest floor in tortoise habitat areas, invasive species control, and coyote predator control to the extent

achievable within staffing and budget availability.

10.2.3. Air Force

Initial GIS estimates that the Air Force currently owns roughly 19% of the DoD-owned lands in the four states that are Parties to this Agreement. Unofficial estimates indicate that the Air Force has roughly 5-7% of the gopher tortoises on DoD-owned lands, but this does not account for potential habitat. In conjunction with DoD, the Air Force will obtain more accurate data to include actual and potential habitat acreage.

In accordance with USAF Instruction 32-7064, *Integrated Natural Resources Management*, the Integrated Natural Resources Management Plan (INRMP) supports the military mission by combining a series of component plans into an ecosystem management approach and is the primary tool for managing species and their habitat at USAF installations. An approved installation INRMP assists the installation commander with the conservation and rehabilitation of natural resources consistent with the use of the installation to ensure the readiness of the Armed Forces. The following is a list of habitat conservation and management activities included within the installation INRMPs which have been utilized by some installations in the southeastern U.S. to conserve and enhance species such as the gopher tortoise. This listing is not meant to be all-inclusive, but merely examples of the various actions that have been historically taken by USAF installations as detailed in their individually approved installation INRMPs:

- Conserving known burrows and surveying for new ones in areas of potential habitat if any construction or significant ground disturbing activities are planned.
- Managing the natural communities to improve habitat.
- Providing predator control programs capable of removing specific individual predators predating burrows, nests, or young hatchlings.
- Limiting public access to selected areas of the installation, which helps protect against poaching.
- Minimizing habitat conversion to incompatible land uses such as residential or commercial property on the installation.
- Monitoring gopher tortoise population demography.
- Monitoring incidence of upper respiratory tract disease (URTD).
- Monitoring gopher tortoise activity and movement patterns to determine home range for individual tortoises.
- Thinning forests and removal of hardwood midstory encroachment within known gopher tortoise/indigo snake habitat.
- Conducting prescribed burning of forests and fields within known gopher tortoise/indigo snake habitat.
- Maintaining locational and demographic information on tortoises within the installation GIS system, known as GeoBase (if applicable).
- Implementing inter- or intra-installation "on-site" permit translocation plans (with prior approval by the applicable states).

10.2.4. Marine Corps

Marine Corps Logistics Base (MCLB) - Albany, GA:

In accordance with MCLB Albany's INRMP, the following summarizes gopher tortoise conservation actions being conducted at the base:

- Timber management – use random spacing when planting longleaf pine seedlings to more closely mimic naturally occurring stands. This may encourage gopher tortoises to re-colonize the area or provide habitat for the species.
- Gopher tortoises have been identified on MCLB Albany; however, their burrows were not found after an intensive search by the MCLB Environmental Division during March 2007. Potential gopher tortoise habitats will continue to be monitored.
- If there are planned disturbances in potential gopher tortoise habitats, then a survey will be conducted prior to construction to determine their presence. Should tortoises be present, GDNR would be notified of the occurrence of tortoises.
- Prescribed burning and thinning encourages the growth of grasses and other herbaceous cover needed by the tortoise. These practices should be continued at MCLB Albany.

- In areas considered to be high habitat potential for the tortoise, disturbances should be scheduled to avoid potential tortoise nesting periods. Establishment of sand pine, slash pine, or loblolly pine plantations with closed canopies limit tortoise habitat. Establishment of longleaf pine stands are better for tortoise habitat due to the more open canopy associated with this pine species and will therefore be encouraged.

Blount Island Command (MCSF-BI) - Jacksonville, FL

Several active gopher tortoise burrows have been identified in the southeastern corner of the site, near the former test track area. The approximate area of suitable habitat for gopher tortoise is 15 acres at MCSF-BI. Gopher tortoises are found in an undeveloped area with deep sandy soils, which appears to be one of the small islands adjacent to the original channel of the St. Johns River before Blount Island was created. The area was part of a vehicle test track route before the tortoises were documented in that location. Since then, the area has been posted to prohibit vehicle traffic and the test track has been relocated. In addition, MCSF-BI environmental staff have restricted military operations in the areas where gopher tortoise burrows are known to exist.

In accordance with Blount Island Command's INRMP, the following is a summary of planned conservation actions:

- Develop and maintain a GIS-based tracking system for protected species occurrences and their habitat areas.
- Identify and clearly indicate with signage a 25-foot buffer around gopher tortoise burrows.
- Restrict gopher tortoise buffer areas from vehicle traffic and ground-disturbing activities.
- Conduct yearly gopher tortoise burrow counts.
- Conduct yearly survey of forage quality and quantity around gopher tortoise burrows.
- Implement vegetation management measures, as warranted, to maintain gopher tortoise foraging habitat proximate to burrows.

10.2.5. Forest Service

Land and Resource Management Plans (LRMP) have been developed and approved for the National Forests in Alabama and the National Forests in Florida, the two U.S. Forest Service administrative units covered by this Agreement. These LRMPs were developed and are being implemented using an ecosystem management approach and adaptive management. The LRMPs can be accessed at http://www.fs.usda.gov/Internet/FSE_DOCUMENTS/fsbdev3_002528.pdf and

http://www.fs.usda.gov/detail/florida/landmanagement/?cid=STELPRDB5269793 . The following is a list of habitat management activities and objectives included within the LRMPs. While this list is not all-inclusive, it provides examples of actions that will conserve the gopher tortoise, associated species, and the ecosystems upon which they depend:

- Protect from harm or move out of harm's way gopher tortoises encountered by personnel, cooperators, or contractors engaged in activities that may endanger individual specimens (note that the Forest Service or contractors are not going to search project areas for presence of gopher tortoises, but if, for example, a tortoise is encountered on a timber haul road, the logger will either move it out of harm's way or wait for it to cross the road).
- Protect known burrows and survey for new ones in areas of potential habitat if any significant ground disturbing activities are planned. Significant ground disturbing activities include road construction (temporary, permanent, haul roads, and skid trails), land clearing for rights-of-way, mining operations, oil and gas development, building construction, and intensive site preparation including sheering, root raking, drum chopping, and disking unless low PSI tracked equipment is used.
- Maintain information on known burrow locations in a database with GPS coordinates so these locations can be incorporated into habitat management plans and contracts.
- Maintain a 15-foot radius buffer zone around all known burrows, active or inactive, where heavy equipment use will be minimized (note that not all known burrows will be marked; GPS locations of known burrows will be provided to contractors and it will be their responsibility to maintain the buffer).
- When developing maintenance management plans for new or renewed special-use permits involving rights-of-way, the permittee must conduct gopher tortoise burrow surveys in suitable habitat of the right-of-way prior to performing vegetation maintenance with heavy equipment. Surveys shall be performed by personnel familiar with gopher tortoise ecology.
- Restore and maintain between 27,000 acres and 32,000 acres of longleaf pine per decade of this Agreement until all offsite pine species have been restored to the appropriate native pine species.
- Thin between 69,000 and 79,000 acres of overstocked pine stands per decade of this Agreement with a target basal area of between 30 and 60 square feet per acre.
- Prescribe burn on average every 3 years with varied intervals on any given site to restore natural processes in all sites where the natural-fire-return interval was less than 10 years. Strive to burn 50 percent of those acres between March 15 and September 30 with 20 percent of the acreage between May 1 and July 31.
- Maintain ground cover that generally consists of more than 40% herbaceous, pyrophytic plants, with no mid-story hardwoods over 7 feet tall.
- Hardwood mid-story may be controlled with chemical or mechanical means or prescribed fire.
- Invasive non-native species are controlled, with priority given to areas where they are causing adverse effects to federally listed species or Regional Forester's sensitive species, such as the gopher tortoise.
- Seek opportunities to use authority under the Wyden amendment to manage habitat on adjacent private lands where landowners are willing to enter into a conservation agreement.
- The national forests involved in this Agreement will serve as recipient sites for gopher tortoises being displaced by development, contingent upon funds being

provided by the developer to manage habitat for the tortoises being relocated and to monitor their recruitment into the population.

10.2.6. United States Fish and Wildlife Service

National Wildlife Refuges in Florida and southern Georgia support or have the potential to support gopher tortoises within the range covered under this CCA. The following National Wildlife Refuges are among those placing priority emphasis on applying management practices resulting in restoration and maintenance of habitats that support gopher tortoises:

- Okefenokee NWR, GA
- Archie Carr NWR, FL
- Everglades Headwaters NWR, FL
- Hobe Sound NWR, FL
- J.N. "Ding" Darling NWR, FL
- Pelican Island NWR, FL
- St. Vincent NWR, FL
- St. Marks NWR, FL
- Lower Suwannee NWR, FL
- Egmont Key NWR, FL
- Lake Woodruff NWR, FL
- Merritt Island NWR, FL
- Lake Wales Ridge NWR, FL
- Chassahowitzka NWR Complex, FL

Management practices on National Wildlife Refuges are usually targeting objectives for several associated species. Within the distribution of the gopher tortoise, habitat is managed to support and increase red-cockaded woodpecker, Florida scrub-jay, Eastern indigo snake, Florida sand skink, and many xeric scrub plants, among other federally listed species. In addition, a larger number of non-listed species otherwise of conservation concern in these same habitats include migratory birds (e.g., Bachman's and Henslow's sparrows), reptiles and amphibians (e.g., Eastern diamondback rattlesnake, gopher frog), and small mammals (e.g., Florida mouse). All these species are associated with grassy-herbaceous dominated ground cover and many are specifically associated with gopher tortoise burrows.

The USFWS has concerns with leaving gopher tortoises in harm's way, on refuges or anywhere else. Historically, concerns have been raised on the translocation of gopher tortoises both on and off refuges. The extent of the impacts from translocation on this species, both positive and negative, is currently unknown. The USFWS will continue to follow the long-term monitoring of gopher tortoise translocation to determine its success.

The following are examples of ongoing and planned management actions focused on gopher tortoises:

- Protect and maintain the threatened and endangered species populations, expanding their populations where possible, and enhancing the habitat on the refuge by working with adjacent landowners. Encourage other land managers in the area to promote

appropriate habitat for threatened and endangered species to create a larger gene pool, increase opportunities for survival within the ecosystem, and restore a piece of the area's natural heritage.

- Develop and implement surveys for "focal" species of mammals, birds, fish, amphibians and reptiles, particularly those species that are threatened, endangered, or species of special concern.
- Determine the status, specific habitat requirements, and limiting factors of reptile species, including those associated with the upland pine community. Evaluate feasibility of restoration.
- Develop and employ survey methods to determine status and distribution of reptiles within the upland pine community. Identify specific habitat requirements for reptile species and use GIS analysis to locate additional suitable sampling sites.
- Monitor the status of gopher tortoises on the refuge and compare with other populations.
- Map the location of gopher tortoise burrows; establish the level of activity and use by commensal species.
- Continue to restore and maintain open multi-aged, historic pine communities with low, diverse understories. Maintain healthy grassy/herbaceous groundcover in longleaf pine sandhills and conduct a survey of the population.
- Continue to use commercial harvest to conduct thinning as identified in forest or habitat management prescriptions, while maintaining strict oversight to minimize rutting or other habitat damage. Thinning operations will also be managed to limit possible disturbance to critical wildlife habitat.
- Conduct gopher tortoise surveys every 5 years and investigate for presence of Upper Respiratory Tract Disease.
- Conduct prescribed burns using a combination of dormant and growing season burns. Prepare pine plantations for a shift to controlled burning during the growing season by opening the forest canopy through wider tree-to-tree spacing. This widely spaced canopy will allow the damaging heat from controlled fires to quickly dissipate and reduce the heat and fire damage to the trees.
- Create a mosaic of forest structure using appropriate silvicultural methods of thinning, shelterwood, and/or group selection harvesting. Create small openings, ½ - 1 acre in size, within plantations and plant seedlings or rely upon natural regeneration to fill these gaps. This will promote the development of a landscape with trees of multiple species, ages, structure and edge effect.

Additionally, the Partners for Fish and Wildlife (PFW) Program helps private landowners meet habitat objectives on their properties by providing financial and technical assistance. Longleaf pine and gopher tortoise habitat remain a major focus of PFW in the southeast. Projects in Alabama and Georgia have landowner agreements of 20-30 years; those in Florida are 10-year agreements. No population status surveys or biological response monitoring are typically performed; however, anecdotal evidence shows presence of gopher tortoises on or adjacent to many of these projects, and they are all done in the gopher tortoise range. One criterion for these projects is that gopher tortoises must occur on or adjacent to a given property. The PFW is intended to provide regulatory predictability to landowners under the Endangered Species Act.

10.2.7. Alabama Department of Conservation and Natural Resources

The gopher tortoise is a species of highest conservation concern in Alabama. Currently, the tortoise is federally listed as threatened in three Alabama counties (Mobile Washington and Choctaw counties) and state protected (Alabama Regulation 220-2-.92) for those counties in the candidate range. The Division of Wildlife and Freshwater Fisheries (DWFF) continues to actively promote range wide conservation of the gopher tortoise, burrow associates and commensals and gopher tortoise habitat while also conducting habitat protection efforts on wildlife management areas (WMAs) and special opportunity areas (SOAs) within the tortoise's range. Public lands owned by the DWFF include Barbour WMA (Barbour and Bullock counties), Geneva WMA (Geneva County), and Fred T. Stimpson and Upper State SOAs (Clarke County). Ninety-five percent of the gopher tortoise habitat in Alabama is in private ownership. Therefore, commitment and assistance from private landowners is necessary for successful conservation of the gopher tortoise and the species habitat in Alabama. The following are examples of ongoing and planned management actions and activities focused on conserving the gopher tortoise in Alabama:

- The Alabama Tortoise Alliance (ALTA) was created in December 2017. The purpose of ALTA is to bring stakeholders (state and federal agencies, tribes, private nonindustrial landowners, industrial landowners, NGOs) together to 1. Promote conservation practices that improve gopher tortoise habitat and conserve the species and 2. Collect the data needed by the US Fish & Wildlife Service (USFWS) to demonstrate that ESA listing is unwarranted. DWFF will continue to facilitate and organize meetings as warranted by Alabama stakeholders;
- Pursue a state regulation to protect the intentional destruction of a gopher tortoise burrow exempting agricultural and silvicultural activities as other states do;
- Partner with Alabama Department of Transportation (ALDOT) to develop a standard protocol for relocating any gopher tortoise that may be impacted by ALDOT Projects;
- Enhance and restore gopher tortoise populations in degraded habitats on suitable public conservation lands by improving gopher tortoise habitat and augmenting populations with waif tortoises acceptable for release or targeted relocation efforts when appropriate and opportunities are available;
- Use distance sampling to estimate gopher tortoise populations on all publicly-owned lands identified as having suitable tortoise habitat. Several public lands (the above listed DWFF lands) have been surveyed using Line Transect Distance Sampling to obtain baseline population estimates and densities (2017 ADCNR SWG Final Report);
- Continue to evaluate public lands to determine where gopher tortoise populations are depleted and the condition of the habitat. Inventory known gopher tortoise populations and relict individual localities to determine the extent of the population on public lands;
- Monitor population status of gopher tortoises using the range-wide monitoring protocol;
- Maintain information on known burrow locations in a database with GPS coordinates so these locations can be incorporated into habitat management plans and contracts;
- On public lands protect known burrows and survey for new ones in areas of potential habitat if any significant ground disturbing activities are planned. Maintain a 15-foot radius buffer zone around all known burrows, active or inactive, where heavy equipment use will be minimized;
- Facilitate appropriate habitat conservation initiatives to protect gopher tortoise sites identified in the inventory. Monitor these sites to determine stability of known populations;
- Pursue the use of landowner incentive programs to protect and conserve tortoise habitat on private lands;

- Reduce the decline of gopher tortoises through targeted education and outreach. Conduct landowner workshops, landowner tours, social media, etc. to educate landowners about the importance of gopher tortoises, Longleaf Pine Ecosystem and habitat management to include the importance of prescribed fire and methods for protecting this species;
- Continue to support gopher tortoise life history research when funding available;
- Develop cooperative agreements, outreach capacity, technical assistance, and cooperation with other local, state, tribal, and federal land management agencies to encourage them to manage available tortoise habitat; and
- Promote the use of Habitat Conservation Plans (HCPs) and Candidate Conservation Agreements with Assurances (CCAA) to interested public and private landowners for conserving gopher tortoise.

Alabama State Lands Division

Gopher tortoises were translocated to the Wehle Forever Wild Tract in Bullock County in 2006 to establish a preserve to benefit the species. Efforts will continue to monitor the population long-term on this property and possible expansion on the adjoining Barbour Wildlife Management Area, in association with reestablishment of longleaf pine habitat.

State Lands Division will continue to manage other Forever Wild Trust Lands supporting gopher tortoise populations in the state to benefit the species, including routine application of prescribed fire and invasive plant species control.

10.2.8. Florida Fish and Wildlife Conservation Commission

The state of Florida completed the first revision of the Gopher Tortoise Management Plan (Plan) in September 2012. For the 10-year plan, the overarching objective of no net loss of gopher tortoises will be accomplished by meeting all the following objectives:

> (1) Minimize the loss of gopher tortoises by 2022 by ensuring humane and responsible translocation of all gopher tortoises from lands proposed for development, minimizing illegal harvest of tortoises, creating best management practices (BMPs) for agricultural and silvicultural lands, implementing methods to reduce juvenile mortality, reducing loss of tortoises to disease, and reducing vehicle-related mortality through education and exclusion measures.
>
> (2) Increase and improve gopher tortoise habitat by 2022. This will require ongoing coordination with public agencies on the management of gopher tortoise habitat on protected lands in addition to restoring degraded lands with potential gopher tortoise habitat. Both public and private land acquisition averaging 57,000 acres per year will help to conserve the species distribution and maintain wildlife corridors between undeveloped lands. Identifying addition incentives to encourage habitat management and conservation easements on private lands is instrumental to increasing the acres of managed and protected habitat.
>
> 3) Enhance and restore gopher tortoise populations where the species no longer occurs or has been severely depleted on protected, suitable lands by 2022. This will require an evaluation of protected lands to determine where gopher tortoise populations are depleted and the condition of the habitat. Implementation of a range-wide population monitoring protocol to help evaluate the status of the species throughout Florida will help to determine where gopher

tortoise populations need to be restored.

(4) Maintain the gopher tortoise's function as a keystone species by 2022 by addressing specific management needs and creating guidelines for translocation of priority commensal species from development sites as appropriate. Best management practices for priority commensal species on agricultural and silvicultural lands will also be created, and land managers and the public will be targeted with information about the broader role of the gopher tortoise as a keystone species.

The Plan contains proposes suite of conservation strategies and actions to achieve the goal and objectives. The following includes highlights of the conservation strategies from the revised Plan:

- Ensure responsible translocation of all gopher tortoises from development sites through the implemented permitting guidelines.
- Improve permitting compliance and enforcement effectiveness through partnerships with local governments in all counties by 2017.
- Develop best management practices (BMPs) to avoid and minimize incidental take of gopher tortoises on agricultural and silvicultural lands.
- Reduce hatchling predation on sites, as appropriate, where population viability and persistence have been compromised.
- Increase knowledge of disease impacts on tortoise populations.
- Reduce the decline of gopher tortoises through targeted education and outreach to specific audiences.
- Increase the amount of protected, potential habitat from recent estimates (2003 data; Enge *et al.* 2006a) of 1,340,000 acres to 1,955,000 acres. This will include an additional 615,000 acres by both acquisition of new public lands and permanently protecting private lands with conservation easements.
- Increase protection of potential habitat on private lands (*e.g.,* through conservation easements) to an average of 16,000 acres per year through 2022. This is approximately 12% of the 1.98 million acres of potential tortoise habitat currently in private ownership.
- Manage vegetation to optimize gopher tortoise forage and shelter needs on public and private lands.
- Develop cooperative agreements, outreach capacity, technical assistance, and cooperation with other local, state, and federal land management agencies to encourage them to manage available tortoise habitat.
- Provide incentives and assistance for appropriate habitat management on private lands.
- Promote the use of Habitat Conservation Plans (HCPs), conservation banking, and Candidate Conservation Agreements with Assurances (CCAA) to interested public and private landowners.
- Work with private partners and other agencies to seek funding to restore habitat and increase gopher tortoise carrying capacity and review the application of FWC land acquisition funds for this purpose.
- Enhance gopher tortoise populations in degraded habitats and restore gopher tortoises on suitable public conservation lands where populations have been severely depleted or eliminated.
- Monitor population status of gopher tortoises using the range-wide monitoring protocol.

- Create guidelines for translocation of priority commensal species from development sites as appropriate.
- Develop BMPs for select priority commensal species on agricultural and silvicultural lands.
- Continue to educate land managers and the public about the broader role of gopher tortoises in maintaining biodiversity of upland ecosystems.

10.2.9. Georgia Department of Natural Resources

Current efforts:

- Using Landsat imagery and soil maps, identified locations of adequate gopher tortoise habitat throughout the Georgia range.
- Assessing the quality of sandhill habitats identified above by vegetation sampling and coarse-scale tortoise surveys.
- Using distance sampling to estimate gopher tortoise populations on a sub-sample of publicly-owned lands identified as having suitable tortoise habitat.
- Evaluate same sub-sample of sites based on their value as potential recipient sites for tortoises translocated from Florida due to development conflicts.
- Developing a CCAA with Plant Vogtle to establish a tortoise population on suitable sites using tortoises translocated from Florida.
- Participation in the Interagency Burn Team to prescribe burn tortoise habitats on state, federal, and The Nature Conservancy lands at intervals consistent with frequency of natural fires.
- Have acquired and will continue to acquire lands supporting gopher tortoise habitat.
- Pursue the use of conservation easements and other landowner incentive programs to protect tortoise habitat on private lands.

Future efforts:

- Use distance sampling to estimate gopher tortoise populations on all publicly-owned lands identified as having suitable tortoise habitat.
- Estimate gopher tortoise populations on private lands where permission has been granted to conduct inventories.
- Evaluate all publicly-owned sites (and privately-owned sites we're given access to) based on their value as potential recipient sites for tortoises translocated from Florida due to development conflicts.
- Pursue the development of a standard CCAA for private landowners willing to establish or enhance tortoise populations on suitable sites using tortoises translocated from Florida or displaced from construction sites in Georgia.
- Continue and expand participation in the Interagency Burn Team to prescribe burn tortoise habitats on state, federal, and The Nature Conservancy lands at intervals consistent with frequency of natural fires.
- Continue acquisition of lands supporting gopher tortoise habitat.
- Continue pursuit of conservation easements and other landowner incentive programs to protect tortoise habitat on private lands.

10.2.10. South Carolina Department of Natural Resources

South Carolina has designated the gopher tortoise as an endangered species within the state. Few tortoises remain in South Carolina, but the state continues to conduct habitat protection efforts in wildlife management areas, focusing particularly on areas that are believed to be part of the tortoise's historic range, and is currently conducting mark-recapture studies. Specific conservation actions include:

- Inventory known gopher tortoise populations and relict individual localities to determine the extent of the population.
- Facilitate appropriate habitat conservation initiatives to protect gopher tortoise sites identified in the inventory. Monitor these sites to determine stability of known populations.
- Conduct landowner workshops to educate landowners about the importance of gopher tortoises and methods for protecting this species.
- Conduct fire management operations at known gopher tortoise locations on SCDNR properties.
- Encourage other property owners, especially owners/operators of public lands such as the Savannah River Site (SRS), Public Service Authority (PSA) and others to conduct fire management operations to further enhance gopher tortoise populations.
- Continue gopher tortoise life history research.
- Continue gopher tortoise repatriation/translocation technology research.

10.2.11. Georgia Department of Transportation

The Georgia Department of Transportation (GDOT) provides a safe, seamless and sustainable transportation system that supports Georgia's economy and is sensitive to its citizens and environment. South of the Fall Line, GDOT-owned right-of-way intersects suitable habitat for the Gopher Tortoise. The Department has established policies to monitor and protect Gopher Tortoise populations along Georgia's roadways, at construction sites, and on mitigation sites. As a signatory to the Gopher Tortoise Candidate Conservation Agreement, the Department will:

- Conduct annual presence/absence surveys along proposed project alignments prior to certifying any GDOT Project that would impact suitable habitat;
- Provide burrow location data to the US Fish and Wildlife Service and the Georgia Department of Natural Resources (GDNR);
- Develop a standard protocol for relocating any Gopher Tortoise that may be impacted by a GDOT Project;
- Partner with GDNR to assess habitat suitability on all GDOT-owned mitigation banks;
- Partner with GDNR to monitor known populations on GDOT-owned mitigation banks;
- Partner with GDNR to implement land management practices conducive to the creation or maintenance of suitable habitat on GDOT-owned mitigation banks, where feasible;
- Promote awareness of the conservation status of the Gopher Tortoise;
- Facilitate research on the effects of GDOT activities; and
- Investigate the potential for conservation banking within the State of Georgia.

10.2.12. Poarch Band of Creek Indians

As stated previously, the gopher tortoise is a culturally significant species for the Tribe. This

relationship has existed for thousands of years and the Tribe hopes to continue this relationship for the generations to come. The Tribe has several ongoing efforts in place to protect and enhance the population of gopher tortoises living on Tribal lands:

- Continue planting of Longleaf Pine habitat on the Magnolia Branch Wildlife Reserve, which is owned by the Tribe. Several hundred acres have been planted to date.
- Continue controlled burning, which has been conducted for the last two years on targeted sites on the Wildlife Reserve.
- Conduct gopher tortoise burrow surveys periodically. Surveys were conducted in May 2007 and January 2008.
- Maintain funding for gopher tortoise and habitat related projects on Tribal lands through the USFWS and the Natural Resources Conservation Service (NRCS).
- Continue participation in partnerships that have been developed with the Alabama Natural Heritage Program at Auburn University, the USFWS, NRCS, and the Conecuh National Forest.

10.2.13. American Forest Foundation

As part of AFF's "Pine Ecosystem Management for the Gopher Tortoise" initiative, the organization developed a landowner-friendly management handbook for landowners in the listed portion of the gopher tortoises' range, organized several demonstration field days, conducted workshops on landowner assurance agreements, and developed educational trails. These efforts highlight the benefits of active forest management for the gopher tortoise and other wildlife to family forest owners, who own a majority of the non-federally listed gopher tortoise range lands.

- Building on this experience, AFF commits to the following conservation actions: Update the *Pine Ecosystem Management for the Gopher Tortoise* Handbook
- Distribute the handbook to landowners in Florida and Georgia
- Work with USFWS, state agencies, and other cooperators to develop Candidate Conservation Agreements with Assurances (CCAAs)
- Educate targeted private landowner about how their actions can play a significant role in gopher tortoise conservation and the management flexibility provided through CCAAs and the associated regulatory assurances.

10.2.14. The Longleaf Alliance, Inc.

The mission of The Longleaf Alliance is to ensure a sustainable future for the longleaf pine ecosystem through partnerships, landowner assistance, and science-based education and outreach. The Alliance has a long history of bringing together diverse audiences throughout the longleaf range for conservation purposes and is dedicated to supporting gopher tortoise conservation on both public and private land by:

- Providing technical assistance to private landowners and land managers and assisting them with accessing federal and state programs to manage forest lands in a manner that is consistent with gopher tortoise conservation.
- Presenting science-based information to landowners and land managers and encouraging conservation in all facets of the longleaf ecosystem and providing education to landowners about their role in managing their land for gopher tortoise conservation.

- Continuing to host workshops and educational events regionwide about longleaf ecosystem management and gopher tortoise conservation. Annually, LLA partners with state and federal agencies and other cooperators to host field days and workshops, conduct 10-12 Longleaf Academies, and provide outreach to over 3,200 landowners. LLA also hosts a regionwide biennial conference.
- Working with state and federal agencies and cooperators to develop CCAA's.
- Partnering with state and federal agencies to protect, monitor, restore, and enhance gopher tortoise habitat and increase the species through methods such as head-starting and translocation.
- Working with partners to plant nearly 2,000,000 longleaf seedlings and conduct prescribed burns on nearly 45,000 acres.

10.2.15. Joseph W. Jones Ecological Research Center

The Joseph W. Jones Ecological Research Center at Ichauway seeks to understand, to demonstrate, and to promote excellence in natural resource management and conservation on the landscape of the southeastern coastal plain of the United States. The Jones Center was founded on a long-standing ethic of conserving land and water resources and Ichauway is maintained as the tangible expression of this natural resource management philosophy. Ichauway has a large, regionally significant, population of gopher tortoises and more than 7000 ha of high-quality habitat. The Center has several ongoing efforts in place to protect and enhance the population of gopher tortoises on Ichauway:

- Management of upland habitats with frequent prescribed fire and ecological forestry practices.
- Hardwood removal and restoration of longleaf pine and native ground cover.
- Gopher tortoise monitoring program initiated in 2006 that includes surveys at 5-year intervals to estimate population size and monitor trends.
- Long term predator ecology study that includes monitoring survival of nests and juvenile tortoises.
- Numerous education and outreach activities include the gopher tortoise and its role as a keystone species. These activities are targeted toward private landowners, NGOs, state and federal agencies, and University students.
- Related educational wildlife and ecological events involve approximately 500-800 participants annually.

10.2.16. Alabama Forestry Commission

Gopher Tortoise Management Commitments

- Provide gopher tortoise management recommendations to landowners during site visits, stand management recommendations, and Stewardship Management Plans.
- Collect information by county on gopher tortoise management activity to include ownership type, acres prescribed burned, thinned, final harvest, longleaf pine artificial and natural regeneration, woody hardwood control and management plans with gopher tortoise considerations. This information will not include landowner names or locations other than by county. The information will be collected only to show representation of management activity on private lands that benefit the gopher tortoise and provided annually for the CCA Report.
- Conduct gopher tortoise surveys on AFC State Forest when available at no cost to AFC.

- Continue to improve gopher tortoise habitat on state forest lands through prescribed burning, timely timber stand thinning and removal of mid-story hardwoods where applicable, creating and maintaining small openings, planting longleaf pine on adequate sites and conducting final harvests as needed on state forest lands, including Geneva State Forest (GSF) and Little River State Forest (LRSF).
- Continue to improve Geneva State Forest (7200 acres) gopher tortoise populations. GSF was surveyed in 2006-2007 with approximately 100 gopher tortoises and preliminary results from the most recent survey (2014-2015) indicated nearly 600 gopher tortoises.
- Protect known gopher tortoise burrows in potential habitat prior to planned ground disturbing activities, including road construction, land clearing, or building construction.
- Maintain a 10- to 15-foot radius buffer zone around known gopher tortoise burrows where heavy equipment may be utilized.
- Protect gopher tortoises from being harmed when encountered by AFC personnel, cooperators, or vendors engaged in activities on state forest lands. The AFC will not search areas for gopher tortoises but will not harm them during activities on the forest.
- Assist Alabama DCNR with gopher tortoise relocation by allowing gopher tortoises to be relocated on Geneva State Forest as agreeable with both agencies. Alabama DCNR will incur the cost of building the enclosures and AFC will provide the suitable habitat area for the enclosures.

10.2.17. National Park Service

The following units of the National Park System support or have the potential to support gopher tortoises within the range covered under this CCA.

- Canaveral National Seashore, FL
- Cumberland Island National Seashore, GA
- Desoto National Memorial, FL
- Everglades National Park, FL
- Fort Frederica National Monument, GA
- Fort Matanzas National Monument, FL
- Fort Pulaski National Monument, GA
- Gulf Islands National Seashore, FL and MS
- Ocmulgee National Monument, GA
- Timucuan Ecological and Historic Preserve, FL

Examples of current and planned management activities focused on gopher tortoises and habitat at NPS units include:

- using prescribed fire to restore and maintain habitat,
- conducting gopher tortoise survey and monitoring activities,
- installing fencing along select sections of roadways to reduce vehicle-related mortalities,
- restricting human activity near gopher tortoise burrows and minimizing impacts of park operations on gopher tortoise burrows.

10.2.18. Georgia Power

1. Habitat and population management on company lands

Georgia Power is a cooperator in the Gopher Tortoise Conservation Initiative that is striving to conserve 65 viable populations within the state and help preclude the need for federal listing. Nuclear generating plants Hatch (Appling County) and Vogtle (Burke County) are the company's focus areas for gopher tortoise conservation on company-owned lands.

Plant Hatch

- Includes about 200 ha suitable and potentially suitable gopher tortoise habitat
- Was surveyed by DNR in 2017 and found to have a population of about 50 tortoises
- Adjoins Moody Forest (The Nature Conservancy & Georgia DNR -- about 344 ha habitat and 168 tortoises), facilitating accomplishment of joint management activities and population goals

Plant Vogtle

- Includes about 2200 ha suitable and potentially suitable gopher tortoise habitat
- Is being surveyed by DNR to determine population
- Adjoins Yuchi WMA (Georgia DNR -- about 400 ha habitat and 44 tortoises), facilitating accomplishment of joint management activities and population goals

Beneficial management on company lands, where practicable

- Planting longleaf pine trees and native groundcover to help restore degraded sites
- Thinning pine stands to encourage growth of groundcover plants
- Prescribed burning pine stands at 2-3-year intervals to help maintain suitable conditions
- In partnership with DNR, served as a recipient for 39 translocated tortoises, and is available to receive more as needed
- Implementing tortoise and burrow protection BMPs during timber harvest and facilities construction (translocation if necessary in coordination with DNR)
- Exploring possibility of acquiring additional occupied habitat for conservation purposes
- Considering development of a formal agreement such as a CCAA or credit bank to benefit the gopher tortoise and reduce regulatory uncertainty in the event of federal listing

2. Habitat and population management on rights-of-way

Electric power delivery rights-of-way must be accessed with heavy machinery periodically for construction and maintenance, and in emergency situations to restore power. The following practices are observed to minimize impacts to gopher tortoises during these activities.

- Segments of ROWs are surveyed prior to construction/maintenance to detect and mark burrows
- About 200-300 burrows are detected and marked each year
- Burrow locations are maintained in a database
- BMPs specifying buffer zones, matting criteria, etc. are implemented to help reduce risk to tortoises and burrows
- Field crews are trained to avoid disturbance of wildlife and to avoid harm to rare species, including the gopher tortoise

3. Habitat and population impacts of solar energy development

The development of solar generating facilities has the potential to impact gopher tortoise habitat.

- Requests for competitive private solar development proposals emphasize Georgia Power's desire to keep solar energy "green" by minimizing negative environmental impacts
- Competitive private solar developers are required to attend a bidders' conference at which the company's interest in avoiding negative environmental impacts is again stressed
- While the gopher tortoise is not specifically called out as an obstacle to help avoid it being labeled as a landowner or developer liability, environmental factors, including potential impacts to gopher tortoises, are factored in when evaluating competitive proposals
- Georgia Power is exploring ways to make solar development more environmentally friendly by facilitating compatible wildlife access and including native groundcover plants beneficial to pollinator insects and other wildlife

4. Public Education

Georgia Power partners with agencies and conservation organizations to promote public appreciation of gopher tortoises and other wildlife of conservation concern.

- Personnel have participated in the production of video and radio segments to promote conservation to the public
- In-house educational programs feature gopher tortoises and other sensitive species
- Helped fund a travelling gopher tortoise educational exhibit with DNR

10.2.19. Alabama Power

1. Habitat and population management on company lands

Alabama Power (APC) is a cooperator in the Gopher Tortoise Conservation Initiative that is striving to conserve viable and supporting populations within the state and help preclude the need for federal listing. Farley Nuclear Plant (Houston County) and transmission line rights-of-way are the company's focus areas for gopher tortoise conservation on company-owned lands.

Plant Farley

- Includes about 33 ha of suitable soils for gopher tortoises
- During preliminary survey in 2016, APC biologists found 71 burrows on Plant Farley property
- APC personnel may collaborate with ADCNR to re-survey property and estimate gopher tortoise population using Line Transect Distance Sampling (LTDS) method
- Burrows will be marked with a GPS point and buffer zone will be identified with stakes, flagging tape, or signage
- Identifying suitable or potentially suitable gopher tortoise habitat may be conducted for Plant Farley property
- Planting longleaf pine trees at Plant Farley has been conducted in previous years and may be managed in the future

2. Beneficial management on company lands, where practicable

- Implementing tortoise and burrow protection BMPs during timber harvest and facilities construction (translocation if necessary in coordination with USFWS)
- Exploring possibility of creating gopher tortoise conservation area

- APC is exploring ways to make solar development more environmentally friendly by facilitating compatible wildlife access and including native groundcover plants beneficial to pollinator insects and other wildlife

3. Habitat and population management on rights-of-way

- Electric power delivery rights-of-way must be accessed with heavy machinery periodically for construction and maintenance, and in emergency situations to restore power. The following practices are observed to minimize impacts to gopher tortoises during these activities.
- Survey segments of ROWs prior to construction/maintenance to detect and mark burrows (i.e., sign, cone, flagging, etc.)
- Maintain GIS database of gopher tortoise burrow locations
- Implement BMPs specifying buffer zones, matting criteria, etc. to help reduce risk to tortoises and burrows
- Continue training field crews to avoid disturbance of wildlife, particularly rare species, including the gopher tortoise
- Identify and collaborate with private landowners on conservation efforts, where practicable

4. Public Education

- Alabama Power partners with agencies and conservation organizations to promote public appreciation of gopher tortoises and other wildlife of conservation concern.
- Personnel from APC and other agencies have collaborated to participate in the production of video segments and media interviews to promote conservation to the public- gopher tortoise conservation may be discussed in future videos and interviews
- Importance of gopher tortoise conservation may be incorporated into APC Environmental Stewardship Webpage

10.3. FUNDING COMMITMENTS

Each of the Parties commits to seek funding for implementation of the conservation measures set forth in this Agreement. As appropriate, Parties will support the GTT and all management activities undertaken in accordance with the responsibilities of the GTT. No provision herein shall be interpreted to require obligation or payment of funds in violation of the Anti-Deficiency Act, 31 U.S.C. § 1341, or any applicable state law.

11. DURATION AND AMENDMENT OF THE AGREEMENT

Long-term protection and management, as outlined in this Agreement, are necessary for the continued conservation of the gopher tortoise. The initial term of this Agreement shall be ten (10) years. This Agreement shall be extended for additional five (5) year increments until long-term habitat management and conservation of the gopher tortoise is assured. Any Party may withdraw from this Agreement upon sixty (60) days written notice to the other Parties.

Any Party may propose modifications to this Agreement by providing written notice to the other Parties. Such notice shall include a statement of the proposed modification and the reason for the modification. The Parties will use their best efforts to respond to proposed modifications within 60 days of receipt of such notice. Proposed modifications will become effective upon the other Parties' written approval and completion of any necessary environmental analysis.

12. EFFECT OF THE AGREEMENT IN EVENT OF LISTING DECISION

It is the intent and expectation of the Parties that the execution and implementation of this Agreement will lead to the conservation of the gopher tortoise in its natural eastern range. If, subsequent to the effective date of this Agreement, the Secretary of the Interior should determine pursuant to section 4(a) of the ESA (16 U.S.C. §1533(a)), that the gopher tortoise is threatened or endangered, the Parties will participate in recovery planning for the gopher tortoise. It is also the expectation of the Parties that the conservation and management commitments made in this document will be considered in the event of a listing under the ESA.

13. ADDITIONAL PROVISIONS

13.1. REMEDIES

No Party shall be liable in damages for any relief under this Agreement (including, but not limited to, damages, injunctive relief, personal injury, and attorney fees) for any performance or failure to perform under this Agreement. Furthermore, no Party has any right of action under this Agreement.

13.2. DISPUTE RESOLUTION

The Parties agree to work together in good faith. The GTT should coordinate and help resolve any disputes.

13.3. NO THIRD-PARTY BENEFICIARIES

This Agreement does not create any new right or interest in any member of the public as a third-party beneficiary, nor shall it authorize anyone not a Party to this Agreement to maintain a suit for personal injuries or damages pursuant to the provisions of this Agreement. The duties, obligations, and responsibilities of the Parties to this Agreement with respect to third parties shall remain as imposed under existing law.

APPENDIX A: SIGNATURE PAGES

GOPHER TORTOISE CANDIDATE CONSERVATION AGREEMENT

The following page will be reproduced as necessary to facilitate the signature of the Agreement by the appropriate Party representatives. It is anticipated there will be one Signature per page.

GOPHER TORTOISE CANDIDATE CONSERVATION AGREEMENT SIGNING PARTY

By signing this Agreement, the organization listed below agrees to uphold the ideals and values of the CCA and hereby commits to carry out specific conservation measures as detailed in Section 10, or Appendix E for additional Parties.

Alex A. Beehler
Signature

Alex A. Beehler
Typed or Printed Name

Department of Defense
Agency/Organization

October 10, 2008
Date

Roel Lopez
Designated Point of Contact (POC)

703-604-1820 roel.lopez@osd.mil
Designated POC Phone and Email

GOPHER TORTOISE CANDIDATE CONSERVATION AGREEMENT SIGNING PARTY

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Signature

ADDISON D. DAVIS, IV

Typed or Printed Name

HEADQUARTERS, DEPARTMENT OF THE ARMY

Agency/Organization

1 OCT 08

Date

Leslie Gillespie-Marthaler

Designated Point of Contact (POC)

703 697-5433 leslie.gillespiemarthaler@hqda.army.mil

Designated POC Phone and Email

GOPHER TORTOISE CANDIDATE CONSERVATION AGREEMENT SIGNING PARTY

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Signature

Donald R. Schregardus

Typed or Printed Name

Department of the Navy

Agency/Organization

9/4/03

Date

Mr. Tom Egeland

Designated Point of Contact (POC)

(703) 614-1173 tom.egeland@navy.mil

Designated POC Phone and Email

GOPHER TORTOISE CANDIDATE CONSERVATION AGREEMENT SIGNING PARTY

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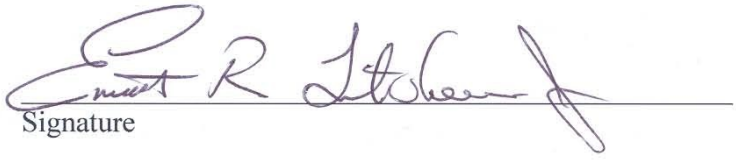

Signature

EMMETT R. TITSHAW, Jr., Maj Gen, USAF

Typed or Printed Name

Air Force

Agency/Organization

29 Oct 08

Date

Lt Col Scott T. Taylor, AF/A3O-AYR

Designated Point of Contact (POC)

703.588.2017 scott.taylor@pentagon.af.mil

Designated POC Phone and Email

GOPHER TORTOISE CANDIDATE CONSERVATION AGREEMENT SIGNING PARTY

By signing this Agreement, the organization listed below agrees to uphold the ideals and values of the CCA and hereby commits to carry out specific conservation measures as detailed in Section 10, or Appendix F for additional Parties.

Thomas A. Peterson

Signature

THOMAS A. PETERSON, Acting Regional Forester

Typed or Printed Name

U. S. Forest Service, Southern Region

Agency/Organization

June 13, 2008

Date

JIM FENWOOD, Director of Biological & Physical Resources

Designated Point of Contact (POC)

Phone: 404.347.7397 Email: jfenwood@fs.fed.us

Designated POC Phone and Email

GOPHER TORTOISE CANDIDATE CONSERVATION AGREEMENT SIGNING PARTY

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Signature

M. N. Pugh, Director

Typed or Printed Name

Alabama Division of Wildlife & Freshwater Fisheries

Agency/Organization

July 16, 2008

Date

James J. McHugh

Designated Point of Contact (POC)

334-242-3874 Jim.McHugh@dcnr.alabama.gov

Designated POC Phone and Email

GOPHER TORTOISE CANDIDATE CONSERVATION AGREEMENT SIGNING PARTY

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K. D. Haddad

Signature

Kenneth D. Haddad

Typed or Printed Name

Florida Fish and Wildlife Conservation Commission

Agency/Organization

12/23/08

Date

Thomas E. Ostertag

Designated Point of Contact (POC)

850 410-0656 x17340

Designated POC Phone and Email

APPROVED AS TO FORM
AND LEGAL SUFFICIENCY

Commission Attorney

CANDIDATE CONSERVATION AGREEMENT FOR THE GOPHER TORTOISE DRAFT FINAL

GOPHER TORTOISE CANDIDATE CONSERVATION AGREEMENT SIGNING PARTY

By signing this Agreement, the organization listed below agrees to uphold the ideals and values of the CCA and hereby commits to carry out specific conservation measures as detailed in Section 10, or Appendix F for additional Parties.

Signature

Noel Holcomb, Commissioner

Typed or Printed Name

Georgia Department of Natural Resources

Agency/Organization

June 18, 2008

Date

Michael J. Harris

Designated Point of Contact (POC)

770-761-3035 mike_harris@dnr.state.ga.us

Designated POC Phone and Email

GOPHER TORTOISE CANDIDATE CONSERVATION AGREEMENT SIGNING PARTY

By signing this Agreement, the organization listed below agrees to uphold the ideals and values of the CCA and hereby commits to carry out specific conservation measures as detailed in Section 10, or Appendix F for additional Parties.

Signature

Drue DeBerry

Typed or Printed Name

American Forest Foundation

Agency/Organization

10/15/08

Date

Todd Gartner

Designated Point of Contact (POC)

202/ 463-5181 tgartner@forestfoundation.org

Designated POC Phone and Email

CANDIDATE CONSERVATION AGREEMENT FOR THE GOPHER TORTOISE DRAFT FINAL

GOPHER TORTOISE CANDIDATE CONSERVATION AGREEMENT SIGNING PARTY

By signing this Agreement, the organization listed below agrees to uphold the ideals and values of the CCA and hereby commits to carry out specific conservation measures as detailed in Section 10, or Appendix E for additional Parties.

Buford L. Rolin

Signature

Buford L. Rolin

Poarch Band of Creek Indian
Agency/Organization

10.21.08

Date

Laura L. Cook, Environmental Director
Designated Point of Contact (POC)

(251) 368-9136, Ext. 2680
Designated POC Phone and Email

CANDIDATE CONSERVATION AGREEMENT FOR THE GOPHER TORTOISE DRAFT FINAL

GOPHER TORTOISE CANDIDATE CONSERVATION AGREEMENT SIGNING PARTY

By signing this Agreement, the organization listed below agrees to uphold the ideals and values of the CCA and hereby commits to carry out specific conservation measures as detailed in Section 10, or Appendix F for additional Parties.

Rhett Johnson
Signature

Rhett Johnson
Typed or Printed Name

The Longleaf Alliance, Inc.
Agency/Organization

10/20/2009
Date

Rhett Johnson
Designated Point of Contact (POC)

334-427-1029 rhett@longleafalliance.org
Designated POC Phone and Email

GOPHER TORTOISE CANDIDATE CONSERVATION AGREEMENT SIGNING PARTY

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Signature

Lindsay R. Boring, Director
Typed or Printed Name

Joseph W. Jones Ecological Research Center at Ichauway
Agency/Organization

8/6/12
Date

Lora L. Smith, Wildlife Ecology
Designated Point of Contact (POC)

229-734-4706
Designated POC Phone and Email

GOPHER TORTOISE CANDIDATE CONSERVATION AGREEMENT SIGNING PARTY

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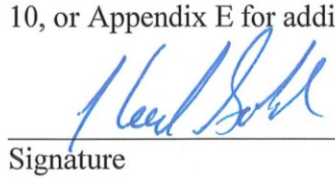

Signature

Keith Golden, P.E., Commissioner
Typed or Printed Name

Georgia Department of Transportation
Agency/Organization

11-14-12
Date

Glenn Bowman, P.E., State Environmental Administrator
Designated Point of Contact (POC)

404-631-1101; gbowman@dot.ga.gov
Designated POC Phone and Email

GOPHER TORTOISE CANDIDATE CONSERVATION AGREEMENT SIGNING PARTY

By signing this Agreement, the organization listed below agrees to uphold the ideas and values of the CCA and hereby commits to carry out specific conservation measures as detailed in Section 10, or Appendix F for additional Parties.

ALABAMA FORESTRY COMMISSION

Greg Pate
State Forester

11/6/15
Date

Designated Point of Contact (POC): Ryan Peek
(334) 240-9326
Ryan.Peek@forestry.alabama.gov

GOPHER TORTOISE CANDIDATE CONSERVATION AGREEMENT
SIGNING PARTY

By signing this Agreement, the organization listed below agrees to uphold the ideals and values of the CCA and hereby commits to carry out specific conservation measures as detailed in Section 10, or Appendix F for additional Parties.

Darrell L Echols
Signature

Darrell L. Echols
Typed or Printed Name

National Park Service
Agency/Organization

May 3, 2016
Date

Timothy Pinion
Designated Point of Contact (POC)

404-507-5815; timothy_pinion@nps.gov
Designated POC Phone and Email

CANDIDATE CONSERVATION AGREEMENT FOR THE GOPHER TORTOISE

GOPHER TORTOISE CANDIDATE CONSERVATION AGREEMENT SIGNING PARTY

By signing this Agreement, the organization listed below agrees to uphold the ideals and values of the CCA and hereby commits to carry out specific conservation measures as detailed in Section 10, or Appendix F for additional Parties.

Mark S. Berry
Signature

Mark S. Berry
Environmental & Natural Resources VP
Typed or Printed Name

Georgia Power Company
Agency/Organization

2 May, 2018
Date

Jim Ozier
Designated Point of Contact (POC)

470-426-5321 jcozier@southernco.com
Designated POC Phone and Email

CANDIDATE CONSERVATION AGREEMENT FOR THE GOPHER TORTOISE

GOPHER TORTOISE CANDIDATE CONSERVATION AGREEMENT SIGNING PARTY

By signing this Agreement, the organization listed below agrees to uphold the ideals and values of the CCA and hereby commits to carry out specific conservation measures as detailed in Section 10, or Appendix F for additional Parties.

Susan B. Comensky
Signature

Susan B. Comensky
Typed or Printed Name

Alabama Power Company
Agency/Organization

August 7, 2018
Date

Robert "Chad" Fitch
Designated Point of Contact (POC)

205-664-6246/ RCFITCH@SOUTHERNCO.COM
Designated POC Phone and Email

APPENDIX B: RECOMMENDED CONSERVATION ACTIVITIES – HABITAT MANAGEMENT, MONITORING, AND TRANSLOCATION

HABITAT MANAGEMENT

The long-term survival of the gopher tortoise requires effective natural resources programs to meet and enhance stewardship requirements set forth in federal laws and agency policy. This should include habitat management to maintain an open park-like canopy with a diverse herbaceous groundcover and minimal shrub encroachment. Proactive habitat management requires the application of aggressive land management activities to optimize conditions for tortoise foraging (diverse herbaceous groundcover) and reproduction (open, sunlit sites for nesting). Prescribed fire, mechanical and chemical treatments, and timber management are examples of tools available to land managers.

The successful application of prescribed fire to enhance and maintain optimal gopher tortoise habitat is dependent on burn frequency and season of the burn. Fire frequency will vary depending on the habitat type and associated fuel loads, but most gopher tortoise habitats will benefit from a fire-frequency of 1-5 years (see Table 1). Frequent fires will reduce shrub encroachment and competition and stimulate a rich, herbaceous groundcover.

Table 1: Recommended structural characteristics and fire frequency for plant communities commonly used by the gopher tortoise.

Plant Community	Fire Regime	Max. % Canopy Cover	Max. % Shrub Cover	Min.% Ground Cover
Dry Prairie	1-3 yrs	<10	<10	50
Sandhill/ Upland Pine Forest/Oldfield Pinelands	2-5 yrs	50	30	40
Flatwoods	2-5 yrs	60	50	50
Scrubby Flatwoods	3-7 yrs	40	60	30
Scrub	7-12 yrs	40	60	15

Season of burn can have an effect on top-kill and establishment of shrubs. Shrubs are more vulnerable to growing season burns (spring and summer) than to dormant season burns (winter). When feasible, prescribed fire should mimic the natural fire cycle of occurrence. Summer burns produce optimal forage for gopher tortoises and reduce encroachment of shrubs. In old-field areas that have lost their one-hour fine fuels (grasses/forbs), summer burns may not be an option. These areas respond well to winter burns, where the dormant biomass provides adequate fuels.

One consequence of fire suppression of forested lands in the Southeast has been severe habitat degradation of formerly fire maintained communities. Active land management practices can often restore these sub-optimal habitats. Removal of off-site hardwoods, thinning of pine trees, and the introduction of prescribed fire can foster a return to an open, grassy forest structure preferred by gopher tortoises. The following management actions will promote optimal conditions for gopher

tortoise habitat:

- Maintenance of upland forested pine and hardwood canopy cover below 60% to stimulate production of forbs, grasses, and other tortoise forage plants.
- Maintenance of herbaceous groundcover, including grasses, legumes, and forbs, at 50% or greater.
- Application of prescribed fire at least every 5 years or less to stimulate growth and diversity of tortoise forage.

Proactive management practices, in addition to prescribed fire, are effective for improving gopher tortoise habitat. Timber harvest and/or mechanical and chemical vegetation control can be used to achieve the desired forest structure and to restore degraded sites. During timber and restoration efforts, where possible, avoid the use of heavy equipment when constructing logging decks, roads, or other site-converting activities in areas with high burrow concentrations, unless there is no other alternative to reduce shrub cover. Harvesting of off-site timber species followed by reforestation with appropriate site-suited species and the reintroduction of fire can stimulate recovery of suppressed ground cover species. Locate logging decks in areas that will minimize skid traffic near gopher tortoise burrows. On heavily disturbed sites, natural recovery of native ground cover may not be possible. These sites may require intensive restoration efforts such as sowing of a suitable native seed mix to facilitate restoration. Site preparation should employ fire and/or herbicides where possible rather than mechanical methods such as chopping. Apply the latter if necessary for inhibiting vigorous sprouting of woody vegetation. Chemical and mechanical methods of hardwood control should employ best management practices to avoid soil disturbance, destruction of ground-layer vegetation, and non-target effects of herbicides. There should be no bedding for establishment of new forest stands on gopher tortoise habitat. To the greatest extent possible, damage to gopher tortoise burrows should be avoided.

Remedial Actions for Habitat Loss or Destruction

- Where construction will occur within 25 feet of the mouth of a gopher tortoise burrow, and permanently destroy suitable habitat, the tortoise should be removed and translocated to another location onsite or offsite. If the onsite option is used, gopher tortoises should be temporarily penned (to avoid tortoises from reentering the construction area) and released after the construction activity is completed. If the construction activity will take more than 12 months to complete, offsite translocations should be pursued.
- Where construction and/or excavation activities occur beyond 25 feet from an active gopher tortoise burrow, the area around the construction site should be enclosed by a fence or other barrier to exclude tortoises.
- Corridor(s) should be maintained to allow for movement of the tortoises outside of the construction/project area. An “island” (burrows encircled by development) population of gopher tortoises will not be biologically sustainable. Translocation will be necessary for “island” populations.
- For construction of roads that will have heavy use, some type of wildlife passage designed to allow for safe movement of gopher tortoises and other wildlife is encouraged.
- To ensure the amount of available habitat is not significantly diminished, consider mitigating loss of habitat by restoring/enhancing existing habitat or establishing easements on private land for management of gopher tortoise habitat (can benefit other species, especially commensals, as well).

Recommended Habitat Management Guidelines for the Gopher Tortoise in Longleaf Pine Habitat

Prescribed burning

Fire is by far the most important tool in restoring and maintaining gopher tortoise habitat and should be the base management activity around which all other activities are planned and implemented. The overall goal in longleaf pine forests is to restore natural fire frequency, seasonality, and (where feasible) intensity. Growing season burns mimic lightning-caused spring and summer fires that historically occurred under natural conditions. Frequent fire helps maintain open canopy conditions and promote growth and survival of herbaceous ground cover, and wiregrass requires growing season fires for successful reproduction (see Table 1 for suggested forest cover metrics in gopher tortoise habitat). Scrub oaks, shrubs, and undesirable hardwoods are more effectively controlled by growing season burns (April - July), and wildlife species that occur in pine-dominated habitats are adapted to periodic growing season fires. Burning should be implemented on a one to three-year cycle on most soils, but poorer sites that naturally have extensive areas of bare sand (*i.e.*, sandhills) might only carry fire on a three- or four-year rotation. High fuel loads may dictate the use of cooler dormant season burns initially, at sites where fire has been excluded and there is heavy shrub encroachment and poor ground fuels. However, the long-term goal should be to incorporate mostly growing season burns to more accurately simulate a natural fire pattern and enhance forage plant diversity. In areas that have lost their dry fine fuels (e.g., grasses, forbs, pine needles, and leaves), summer burns may not be an option. These areas respond well to winter burns, where the dormant biomass provides adequate fuels.

Longleaf vs. other pine species

Gopher tortoises are believed to respond to habitat structure rather than any specific plant community types, and tortoise management can be successfully integrated with forestry practices using several southern pine species. However, longleaf pine is much better suited for sustaining the fire regime necessary to maintain the desired groundcover and wildlife communities that support the tortoise and is the preferred canopy species for the long-term conservation of the gopher tortoise. Longleaf pine is well suited in a significant portion of the tortoise's range for several reasons: it has open crowns that allow more sunlight to reach the ground; trees can be burned at younger ages and can be managed on longer rotations; it is more disease- and insect-resistant when compared to loblolly pines; and more resistant to wind damage due to the deep taproot and smaller crown density than other southern pine species. Longleaf grows well on sandy soils and is tolerant of wildfires. While it is possible for loblolly or slash pine stands to have the characteristics of suitable tortoise habitat, these stands often exhibit earlier and more drastic canopy closure, primarily due to limitations on how early and often fire is used as a management tool.

Site Preparation

When establishing pine stands, protecting tortoise burrows and maintaining forage plants are important considerations. Heavy mechanical site preparation such as shearing, root-raking, bedding, disking, and piling should be avoided in occupied areas because these practices can damage the soil structure, collapse burrows, and negatively impact groundcover plants. Broadcast applications of a broad-spectrum herbicide that reduce grass and forb diversity and abundance can significantly reduce forage availability for tortoises, at least in the near term. In contrast, use of selective herbicides can

offer good control of weedy plants that compete with pine seedlings without significantly disrupting the herbaceous seed bank. On dry sites, pine seedlings usually have very little competition, so herbicide treatment might not be needed, or spot treatment of specific problem areas might be sufficient. Normally, a broadcast application is the only practical way to treat mesic (wetter) sites where pine seedlings might face heavy competition. To ensure tree survival and minimal impact on gopher tortoise forage, consult a professional with advanced knowledge of herbicides regarding the type and rate of chemical to use.

Planting

Hand-planting is preferred because it creates less disturbance to the site. Bare-root seedlings are less expensive than containerized seedlings, but survival and growth rates are better for containerized seedlings. If thick brush is present it might be necessary to use a mechanical planter behind a V-blade tractor. If so, the blade should be set to barely skim the soil surface. Avoid the immediate vicinity of burrow entrances and aprons (sandy soil area immediately in front of entrance) with all heavy equipment.

Activities around gopher tortoise burrows

Locate heavy equipment operations away from known and visibly apparent burrows, and always be cautious of tortoises that may be above ground (especially near burrows). Removing and reducing woody and invasive vegetation from around burrows is encouraged but take care to avoid damaging the burrow entrance or the apron with heavy machinery or by felling and dragging trees. Marking burrows with stakes or flagging before timber operations, firebreak installation, road construction, and loading dock establishment, and instructing crews to maintain a buffer around the entrances will minimize the chance that burrows collapse and eggs (which are often laid in the apron) get crushed. Heavy equipment (including mowers) should stay at least 4 meters (13 feet) from known gopher tortoise burrow entrances. Heavy equipment includes (but is not limited to): agricultural tractors, crawler loaders, crawler dozer, backhoe/loader, front end loader, scraper pan, motor grader, skid steer, forklift (P.I.T.), hydraulic excavator, and specialty tracked equipment. Do not place logging slash within this burrow buffer. Felling of trees and brush, cutting by hand, hack-and-squirt, backpack application, or use of herbicide pellets is recommended within this buffer. When practical, minimize use of heavy equipment during September and October since hatchlings may be more numerous and may be located near adult tortoise burrows.

Mid-story hardwood control and invasive species control

On sites with advanced hardwood encroachment, prescribed fire might not be a sufficient control tool. Mechanical or chemical treatments may be needed to knock back hardwood competition to a level where it can be controlled with fire. For chemical treatments, use a selective herbicide that will control the woody competition while having minimal impact on groundcover plants. Application rates should be the minimum labeled rate required to control the target plants. For larger trees, herbicide application by stem injection (e.g. hack-and-squirt) is recommended. Spraying or other control of undesirable species should be done on a “spot” or rotational basis to protect grasses, forbs, and legumes that benefit gopher tortoises, native pollinators, and other wildlife. For foliar herbicide application to control shrubs and small hardwoods, use imazapyr, glyphosate, and/or triclopyr by directed ground spray if prescribed fire is not feasible or is ineffective due to inadequate fuel loads, unmanageable smoke hazards, prescribed fire permit bans and restrictions, or low expected mortality due to the size, density, and cover of shrubs and hardwoods.

Herbicides can be used to treat and control invasive plants such as kudzu (*Pueraria montana var. lobata*) and cogongrass (*Imperata cylindrica*). These plants left untreated can reduce native plant abundance and diversity, restrict gopher tortoise movement, or interfere with other habitat management practices. Herbicides should be chosen that will target selected invasive, exotic plants but not significantly reduce native soft stemmed plants. In order to successfully restore and maintain a suitable herbaceous layer for gopher tortoises, cogongrass infestations will need to be monitored and controlled with a target for reduction. Any equipment used in areas that have cogongrass should be cleaned before moving to other areas to prevent its spread. A pressure washer is the best tool for cleaning cogongrass seeds or rhizome material off vehicles and equipment but should be done at the infested site and not in an area where water runoff could reach a stream. Other exotic and highly invasive plants, such as Brazilian peppertree (*Schinus terebinthifolius*), glossy and Chinese privet (*Ligustrum* spp.), Japanese climbing fern (*Lygodium japonicum*), Chinese tallow tree (*Triadica sebifera*), shrub lespedeza (*Lespedeza bicolor*), tungoil tree (*Vernicia fordii*), and kudzu should be suppressed through a combination of chemical and mechanical control measures. Overall, exotic plant species should not comprise more than 10% of the entire site. All herbicide applications must be conducted in a manner consistent with Federal law, including Environmental Protection Agency label restrictions; applicable State laws; and application guidelines as prescribed by herbicide manufacturers. Once habitat is restored by mechanical and/or chemical methods, habitat should then be maintained by prescribed fire.

Timber thinning

To remain suitable for use by tortoises, pine stands should be kept open enough to allow sunlight to reach the ground. As a rule of thumb, about half of the ground should be lit during the middle of the day, and this will require periodically thinning pines. Canopy openings and frequent fire are both vital to the health and survival of herbaceous groundcover. Grasses and forbs are important wildlife food sources in most pine forests. When possible, harvest during drier periods and/or use low-pressure tires – which minimizes rutting and disturbance to soil structure.

Ground cover restoration

For altered lands, such as pastures, agricultural fields, or off-site pine plantations, ground cover restoration can be used to reestablish a natural plant community and create suitable gopher tortoise habitat with sufficient forage. The ground cover should include a diverse selection of native forbs and grasses. Successful regeneration of ground cover prior to longleaf pine restoration will create land that can be easily managed using prescribed burns. Native species should be used wherever possible to meet practice objectives and gopher tortoise needs. Seed mixes should be State-certified, meeting the appropriate State certification criteria as being free of state declared noxious and invasive material.

Roller chopping, mulching, and shredding

Managers can consider roller chopping for lands with excessive shrubs, palmettos, or other heavy fuels that create unsafe conditions for prescribed burns. Chopping may be preferable over mulching or shredding, which leave a dense mat of mulch that may hamper desirable ground cover response. Roller chopping should be limited to single pass with single roller. Whenever possible, a prescribed burn should follow on lands that have been roller chopped. Mulching or shredding may be used to reduce excessive shrubs, palmettos, and young undesirable hardwoods. Following this technique with

a prescribed burn will promote the growth of soft stemmed plants and reduce the risk of accumulating a thick mulch-like material. Mulching or shredding may be used as a pre-treatment to areas being planted to restore native ground cover.

Mowing

Lands dominated by large pastures and fields can be maintained by mowing or bush hogging, and these activities are alternative management tools when fire cannot be used. To avoid injuring gopher tortoises, the mower blades should be at least 18 inches above the ground. In the vicinity of burrows, stay at least 4 meters (13 feet) from known gopher tortoise burrow entrances. Smaller hand mowers can be pulled or backed up to cut vegetation near the burrow if the burrow entrance and apron are not disturbed.

Information Sources:

1. *A landowner's guide to managing habitat for gopher tortoises [FL FWCC] (http://myfwc.com/media/2703292/LAP-Guide-Managing-Habitat-Gopher.pdf);*
2. *Forest management practices to enhance habitat for the gopher tortoise" [GA DNR (http://www.gophertortoisecouncil.org/edu/pdf/forest-mgt-practices-gt.pdf)*
3. *Habitat management guidelines for amphibians and reptiles of the SE U.S." [SE PARC] (https://docs.google.com/file/d/0B0RIvato4N7pbkhqSUhHOXlZOVU/view)*
4. *Gopher tortoise conservation & forest management" [ALDCNR] (http://www.sfiprogram.org/files/pdf/gopher-tortoise-brochure/)*
5. *Department of Defense Gopher Tortoise Conservation and Crediting Strategy" [USFWS] (https://www.fws.gov/southeast/pdf/strategy/gopher-tortoise-conservation-and-crediting-strategy-department-of-defense.pdf) as well as additional information from The Jones Center, Tall Timbers Research Station, and American Forest Foundation.*

Invasive Species and Predation

The spread of invasive, exotic species can have detrimental effects on gopher tortoise habitat. Invasive exotic plant species can greatly reduce the quality of gopher tortoise habitat. These invasive species can be spread via contaminated equipment. It is important to clean all machinery to prevent the spread of these invasive species.

Predator populations, such as raccoons and crows, can be artificially high in some habitats because of anthropogenic factors. Additionally, several other non-native predators, coyote, nine banded armadillos, dogs (feral and domestic), fire ants, and several exotic reptile species have been shown to eat gopher tortoises and/or their eggs. When gopher tortoise survival and recruitment are adversely affected by anthropogenic induced predation pressure and/or invasive species, it may be necessary to consider a hatchling head start program, predator control measures to minimize predator populations, and chemical/mechanical controls for invasive plant species.

MONITORING

Monitoring is an essential component of any conservation strategy and plan. Monitoring allows habitat quantity and quality to be assessed and ensures that gopher tortoise populations are adequately supported. Monitoring plans should include both habitat and tortoise population parameters and, as appropriate, be part of the agency's management plan and/or regular planning process.

When an agency decides to pursue a gopher tortoise monitoring plan, it should be incorporated into the agency's existing management plan within the prescribed cycle of revision. If a monitoring plan is developed and implemented, periodic monitoring reports should be submitted to the GTT and incorporated into agency management plans. The results should be made available to the Parties as appropriate. As information is developed, census/monitoring techniques should be modified to stay effective and relevant.

Goals of Monitoring

- Establish baseline habitat and population data
- Assess effectiveness of management for adaptive management purposes
- Assess effectiveness of translocations
- Track changes in habitat acreage and suitability
- Track changes in population

Steps to Successful Monitoring

The following four stages comprise an effective approach to monitoring gopher tortoise populations and habitat:

Identification

- Develop an understanding of where gopher tortoise populations are, or could be, located.
- Utilizing base maps or GIS data sets, determine if land is suitable for the gopher tortoise and, if suitable habitat is occupied, whether there are actual tortoises on the property. Categorize parcels as:
- No potential to become gopher tortoise habitat
  Potential gopher tortoise habitat
  Occupied gopher tortoise habitat

Quantification

Once one determines that there are gopher tortoise populations at the site, a survey to estimate the local population size should be conducted by following the protocols outlined in Appendix F.

Prioritization

- Develop a scheme identifying which populations will be looked at more intensively and followed more rigorously.
- Determine the responsible party for actual monitoring of each population.
- Make decisions about which tortoise populations within each agency are most important and require funding.
  Note: There are several tools being developed to help organizations determine where to place their funds. These include different maps of gopher tortoise regions/populations in each state and the beginnings of a region wide network for all who gather information on specific populations, like the RCW networking site. With information from all parties, agencies can make decisions on where to place their funding based on knowing where their help could have the biggest impact.

Conservation

- Set up a follow-up scheme at which a re-examination of the extent and numbers of tortoises is conducted every five to ten years.
- Determine whether management plans are reversing the decline of the species.
- Conduct repeated sampling to discover trends:
    - Situation 1: Many individuals in quality habitat (viable)
    - Situation 2: Very few individuals in quality habitat (not viable)
    - Situation 3: Many individuals in poor quality environment (viable, if animals are moved or habitat is improved)

Tools for Monitoring

A region-wide GIS database and a web-based interactive tool for management of site information are being developed to support the partners in this agreement.

TRANSLOCATION

Translocation is conducted for several reasons. It is a suitable option when efforts to maintain tortoises at their original sites are not possible or where leaving them in place will put them in imminent danger. Additionally, it can be used to maintain and restore other populations and habitat.

On-Site Translocation

On-site translocations, which occur when recipient and donor sites are near enough to potentially allow free movement between them may be temporary or permanent.

Temporary

Temporary on-site translocations occur when tortoises are in harm's way of a, temporary activity or disturbance, but can be allowed to safely return to the site following such an activity or disturbance. Tortoise are kept within their native home range and temporary exclusion preferably lasts no more than a few weeks but can be longer. Two primary methods are:

- Capture and temporary captivity of tortoises, followed by hard releasing (no temporary enclosing necessary) at site of capture following cessation of the activity or disturbance that required their rescue. Proper care of captive tortoises depends on the duration of their captivity and the number of tortoises housed together. Any tortoises that display clinical signs of disease should be segregated from others during captivity.
- Capture and immediate release of tortoises outside of an impassable fence surrounding the impacted area. This should not be done if the immediately adjacent habitat is unsuitable for tortoises. Once the activity or disturbance has ceased, the fences should be removed to allow tortoises to return to the original site if suitable habitat remains at least partially intact.

Permanent

Permanent on-site translocations occur when tortoises are in harm's way of an activity or disturbance that will permanently prevent re-establishment of the tortoises at that site, and a suitable site devoid of a natural tortoise population, or containing a population assumed or known to be

below carrying capacity, is available nearby. Guidelines for permanent on-site translocations are similar to those for off-site translocations and tortoises must be temporarily enclosed (soft release) rather than hard-released. Care should be taken to ensure tortoises are not attempting to return to original areas.

Off-Site Translocations

Recipient sites

Sites where tortoises in need of translocation are to be placed must be identified early so that biologists do not have to search for appropriate sites as impending needs to move animals arise. Therefore, signatory agencies should identify sites throughout their property, or in the case of state agencies, their jurisdiction's tortoise range, that meet the criteria essential for the acceptance of translocated tortoises. These essentials are:

- Site must have suitable habitat (i.e. relatively open canopy, well-drained sandy soil, and abundant herbaceous vegetation)
- Site must be within the historic range of the species
- Site preferably devoid of a natural tortoise population, or the population is assumed or known to be below carrying capacity
- Dedicated, long-term and proper management to maintain suitable gopher tortoise habitat on the site is secured, which includes the development of a site-specific management plan.
- Restraint of tortoises inside a temporary enclosure at the recipient site is essential to increase the site fidelity of relocated tortoises (Tuberville *et al.,* 2005). Tortoises should be temporarily enclosed for a minimum of 9 months and no more than 12 months. Minimally, juveniles and sub-adults should be provided with starter burrows to reduce chances of predation. The enclosure fencing should be buried at least 8 inches into the ground to prevent tortoises from pushing beneath the enclosure and must be at least 2 feet high and strong enough to prevent tortoises from pushing or climbing over. The size of the enclosure should depend on the number of tortoises within and the amount of native forage and tortoises should be enclosed with other tortoises. A general guideline is to allow at least one acre of high-quality habitat for every 6 tortoises. Supplemental feeding may be required in some instances. Enclosed areas must also afford the tortoises some areas of shade.

Donor sites

Two main scenarios exist as to when a tortoise population may be deemed a donor:

- The population is either not viable at its current population size or makeup or the habitat quality and/or management is not sufficient (if the first part of this scenario is the issue, such a site may also be considered a recipient site to enhance a low or sexually skewed population, provided dedicated management exists).
- Impending harm to the site (and therefore the tortoises) renders a need to rescue the tortoises.

General Translocation Guidelines

Timing

Tortoises shall only be translocated when the low temperature at the recipient site is forecasted by the National Weather Service (www.nws.noaa.gov) to be above 50˚ Fahrenheit for three consecutive days after release (including the day of translocation). This three-day window of milder overnight temperatures is required to allow the tortoises to settle into the recipient site and to reduce the chance of cold-related stress or mortality. These conditions typically correspond with dates between April 1 and October 15 throughout most of the species' range. If three-day temperatures are not forecast above 50°F and translocation is necessary, please consult with the appropriate state or federal wildlife agency for their recommendations on holding tortoises.

During summer months, releases should not be made during the hottest part of the day at sites where shade is limited. Heat stress on gopher tortoises being captured and transported for translocation can be reduced or eliminated by assuring that captured tortoises and those tortoises being transported for release are continually in shaded or climate-controlled conditions. Any tortoises injured or killed during capture, handling, or transport must be reported to the appropriate regulatory agency immediately.

Inspection and handling of nests

Before any activities take place during the nesting season (early May through mid-September), the apron in front of each burrow should first be examined for eggs. Nest chambers may be 6-10" below the surface, so thorough inspection is required by manually digging through the soil (no tools). Care must be taken throughout digging and removal of eggs from the nest chamber as gopher tortoise eggs are fragile. As soon as a nest is located, but before excavation begins, fill a container with sand/soil from near the eggs and make egg-sized depressions into the sand. Prior to moving them, and as new eggs are uncovered, use a pencil to place a small "x" on top of each egg to help maintain its orientation throughout the process. Maintaining each egg's orientation is critical because the developing embryo attaches to the inside of the top of the eggshell; either rotating or agitating the egg may dislodge the embryo and kill it. Carefully place each egg in a depression in the container with the "x" facing up, make sure to remove all eggs from the nest (measuring the approximate depth of the bottom of the nest when completed), and then cover the eggs with more sand. During all transport, minimize sun exposure/overheating and agitation of the container. At the recipient site, locate an existing burrow apron in an open, sunlit area (with no nest present) within the release pen (described below) and excavate to the approximate depth of the original nest. If no burrows exist, dig the nest chamber by hand to the appropriate depth in an open, sunlit area. Place the eggs "x" side up in the new nest in approximately the same orientation as they were originally located and re-bury them.

Choosing a capture method

Tortoises may be captured via bucket traps, cage traps, hand-capture outside burrows, and excavation by hand shovel or backhoe. Capturing gopher tortoises using mechanical excavation (backhoe) is

often preferred because typically it is quicker than other capture methods and often leads to lower costs; however, it comes with an increased level of risk to the tortoises. Backhoe excavation of gopher tortoise burrows must always be conducted by at least two individuals; the backhoe operator and another person on the ground monitoring the gopher tortoise burrow. All other capture methods can be performed by one person but may take weeks to complete if the tortoise does not immediately go into the trap; however, many traps can be set at the same time. Prior to any method of capture, examine the burrow with a burrow camera to try to ascertain occupancy. While this is not a definitive method to confirm vacancy, presence of a tortoise can be verified if seen with the camera. Additionally, whichever capture method is used, the burrow should be re-scoped with a burrow camera after a tortoise is captured to check for additional tortoises or commensals still present in the burrow. To minimize the risk of disease transmission, all material used during the trapping and handling of gopher tortoises from the original site (*e.g.*, traps, shovels, burrow cameras, etc.) should be disinfected with a dilute chlorine solution before moving to the next site or recipient site. A 1:20 dilution of 5-6% household bleach is a recommended disinfection solution and must be made fresh weekly.

Mechanical excavation

To prevent injury to tortoises during backhoe excavation, the backhoe bucket must have a smooth cutting edge that lacks teeth (long prongs). It is recommended that burrow excavations be performed by a backhoe operator with previous experience or training in excavating gopher tortoise burrows. A flexible tube or hose must be inserted into the burrow to ensure that the burrow path is not lost and to indicate the distance to the end of the burrow or to the tortoise. Throughout the excavation process, the burrow will be frequently inspected to ensure that the tortoise has not moved to a position where it might be injured by the backhoe or shovel. The last 1-2 feet of the burrow will be excavated by hand using shovels and small hand spades. Burrow excavation is not complete until the burrow terminus is reached, and all side chambers are found and completely excavated. If the end of a burrow is reached without capturing a tortoise, the soil must be thoroughly probed in all directions to try to locate a tortoise that may have dug beyond the end to escape capture. If the excavation of a burrow is interrupted for any reason before the tortoise is captured and excavation cannot resume that day, an open burrow tunnel path must be left so the tortoise can exit the trench or a bucket or cage trap must be set at the entrance to the burrow at the bottom of the trench. The excavation should be resumed as soon as safely possible to lessen the possibility of a newly created burrow or a roaming tortoise. Hatchling and juvenile burrows (burrow width <5”) may be hand excavated or carefully mechanically excavated.

Traps

If bucket or cage traps are used, the traps must be shaded and checked twice per day—once in the morning and once in the late afternoon, and they must remain in place for at least 28 consecutive days or until the resident tortoise is captured, whichever occurs first. All traps must be closed if at any time during the 28-day trapping period the forecasted low temperature is below 50˚ F, and the trapping period shall restart at day 1 when a trap is closed for any reason. For bucket traps, dig a hole just outside of the burrow entrance that is large enough to accommodate a 5-gallon bucket placed

flush with the ground level. Drainage holes must be drilled into the bottom and lower sides of bucket traps to prevent rainwater from accumulating in the bucket and potentially drowning the tortoise. Cover the bucket opening with paper or cloth and a small amount of soil (for camouflage) to create a pitfall trap for a gopher tortoise. Alternatively, a mesh wire cage trap may be used, either homemade (*e.g.*, "flap trap") set over the burrow entrance; or commercially available (*e.g.*, Havahart ®) that is set directly in front of a burrow to capture the resident tortoise. Both pitfall and cage traps must be completely shaded (using burlap, other cloth, plywood, and/or vegetation). It is possible that other state- or federally-listed, or at-risk species may be encountered during trapping activities. Any of these species found in traps should be photographed to provide unequivocal identification, and if no guidance already exists regarding appropriate disposition of these animals, the Service and/or appropriate state agency should be contacted immediately.

Marking and data collection

All trapped or excavated gopher tortoises must be individually marked, measured, weighed and given a health assessment. Care should be taken to clean all marking and measuring instruments with a dilute chlorine solution (as described above) to prevent transmission of pathogens between animals. Marking is performed by drilling holes in, or using a triangular file to notch, one or a combination of the eight rear-most marginal scutes (the four right ones and the four left ones) and the two right and left front marginal scutes, following a numbering system approved by the permitting/management authority (see Figure 1). Drilling or notching should be carefully undertaken to avoid injury to the limbs or head. Also, holes should be drilled closer to the marginal edge (without breaking through the edge) rather than higher up on the scutes. For adult tortoises, Passive Integrated Transponder (PIT) tags may be used as a different method for uniquely marking individuals. PIT tags are small microchips that can be injected into a tortoise's hind leg using a clean, hand-held applicator and following manufacturer's guidelines. Alternatively, PIT tags may be affixed to the carapace of tortoises (any age) using epoxy, trying to avoid applying epoxy across the gap between adjacent scutes. Juveniles (<130 mm carapace length) cannot be marked using a drill because of their pliable shells; instead, a triangular file or sharp scissors must be used to carefully notch the appropriate scutes.

Data collected should include the age class, sex (if determinable), and identification number of the tortoise, as well as straight-line carapace length, plastron length, width, weight, and photographs of the carapace and plastron. Additional measurements may be taken (see Figure 2). As a general rule, tortoises <130mm carapace length should be considered juveniles; those with carapace length 130-220mm should be considered subadults; and those with >220mm carapace length are considered adults (mature). Adult male tortoises, in comparison to females, have a concave plastron, a wider anal width relative to the anal notch, and a longer gular projection (see Figure 2). On the data sheet(s), the project site and recipient site should be recorded along with the results of a basic health assessment. The health assessment should consist of a basic physical examination of the posture/behavior of the tortoise, any apparent injuries or trauma, and an examination of the eyes, nostrils, skin, muscle mass, and shell.

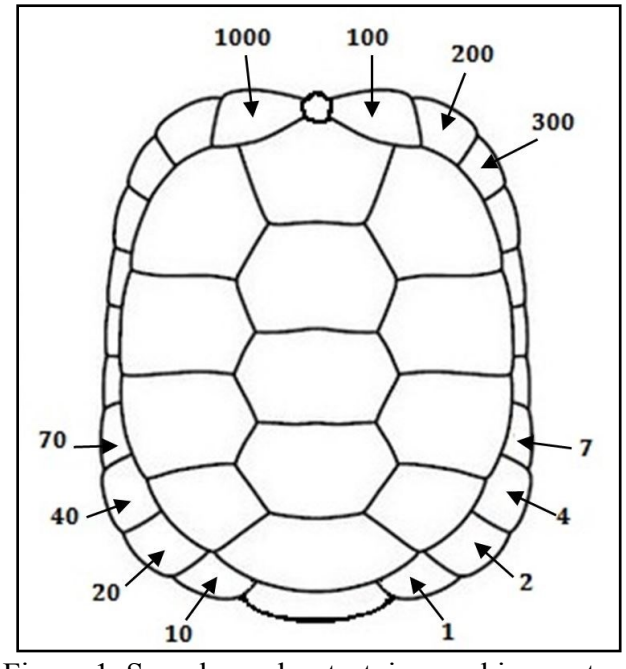

Figure 1. Sample gopher tortoise marking system

Some clinical signs of upper respiratory disease to watch for include: nasal discharge; congested breathing; severely eroded nostrils (nares); sunken eyes; eyes/eyelids severely swollen or reddened, with discharge; poor muscle mass and emaciated (abnormally thin) appearance (see Wendland *et al*. 2009 for additional health evaluation procedures). If a potentially-ill or injured tortoise is discovered, that tortoise must be isolated from other tortoises; and a wildlife rehabilitation facility/veterinarian must be contacted, as well as, the appropriate regulatory agency to discuss further action.

Holding and Transport

Gopher tortoises must be held in shaded conditions and in individual containers that are large enough to allow the tortoise to turn around. To help prevent dehydration, especially during times of drought, tortoises should be soaked for 20-30 minutes before transport in just enough water to cover the container bottom and to allow the tortoise to easily drink or soak. Moist soil from the burrow may be used to cover the bottom of the bin. Hay, straw, or shredded paper are other acceptable materials to place in the bin. Gopher tortoises must not be held more than 72 hours after capture—and preferably not more than 24 hours. Tortoises must be transported within covered, well-ventilated areas of vehicles (not in open trucks) and should be kept at moderate temperatures (*i.e*., 70-85˚ F). Containers should be marked with the identification number and sex of the tortoise and should be disinfected with a dilute chlorine solution after each use.

Soft Release

To ensure successful off-site translocations and permanent on-site translocations, gopher tortoises must be released into secure enclosures containing appropriately-managed habitat on suitable soils at the recipient site. All enclosures must provide abundant open, sunlit areas; areas with full shade; and plentiful, diverse, herbaceous forage. Enclosures should be designed in a way and constructed of a

material that prevents the passage of all sizes of tortoises (such as silt fencing or flashing) and without 90-degree corners (circular design is preferable). The enclosure must be large enough to allow for stocking rates of up to 4 gopher tortoises per acre (including any resident tortoises and taking available ground cover into consideration). Tortoises must be released into either existing abandoned burrows or excavated starter burrows. Naturally-occurring burrows will be inspected with a burrow camera to confirm (to the greatest extent possible) that they are unoccupied before releasing tortoises. Where no abandoned burrows exist, starter burrows should be dug at a 30-40˚ angle in suitable soils with (sharpshooter) shovels, post hole diggers, or power augers to the greatest distance possible (ideally 3 feet or longer). It is important that the roof of the starter burrow should be close to the same height as the depth of the shell of the animal to be placed therein. This can be difficult to do with post-hole diggers, so sharpshooter shovels are recommended over conventional shovels for creation of broad, relatively flat tunnels. Enclosures shall be monitored at least once a week for the first month and at least once a month afterward to check for structural integrity and for any issues regarding the safety and welfare of resident tortoises. In rare cases, enclosures may be constructed that are large enough to be a permanent home to the resident tortoises and will not need to be opened. In all other cases, tortoises must remain in the enclosure for 9 to 12 months; at the end of the confinement period, the enclosure fencing will be removed or otherwise opened to allow for free movement of tortoises across the site.

Additional information about the various capture and relocation methods can be accessed at:

Literature cited

Wendland L, Balbach H, Brown M, Diemer-Berish J, Littell R, Clark M. 2009. Handbook on gopher tortoise (*Gopherus polyphemus*) health evaluation procedures for use by land managers and researchers. US Army Corps of Engineers, Washington, DC, 82 pp. (https://erdc-library.erdc.dren.mil/xmlui/bitstream/handle/11681/20165/CERL-TR-09-1.pdf)

Other sources used to develop these guidelines

Florida Fish and Wildlife Conservation Commission. 2008 (revised 2017). Gopher Tortoise Permitting Guidelines; Tallahassee, Florida. (http://myfwc.com/license/wildlife/gopher-tortoise-permits)

U.S. Fish and Wildlife Service. 2012. Standard Gopher Tortoise Relocation Guidelines. 3 pp.

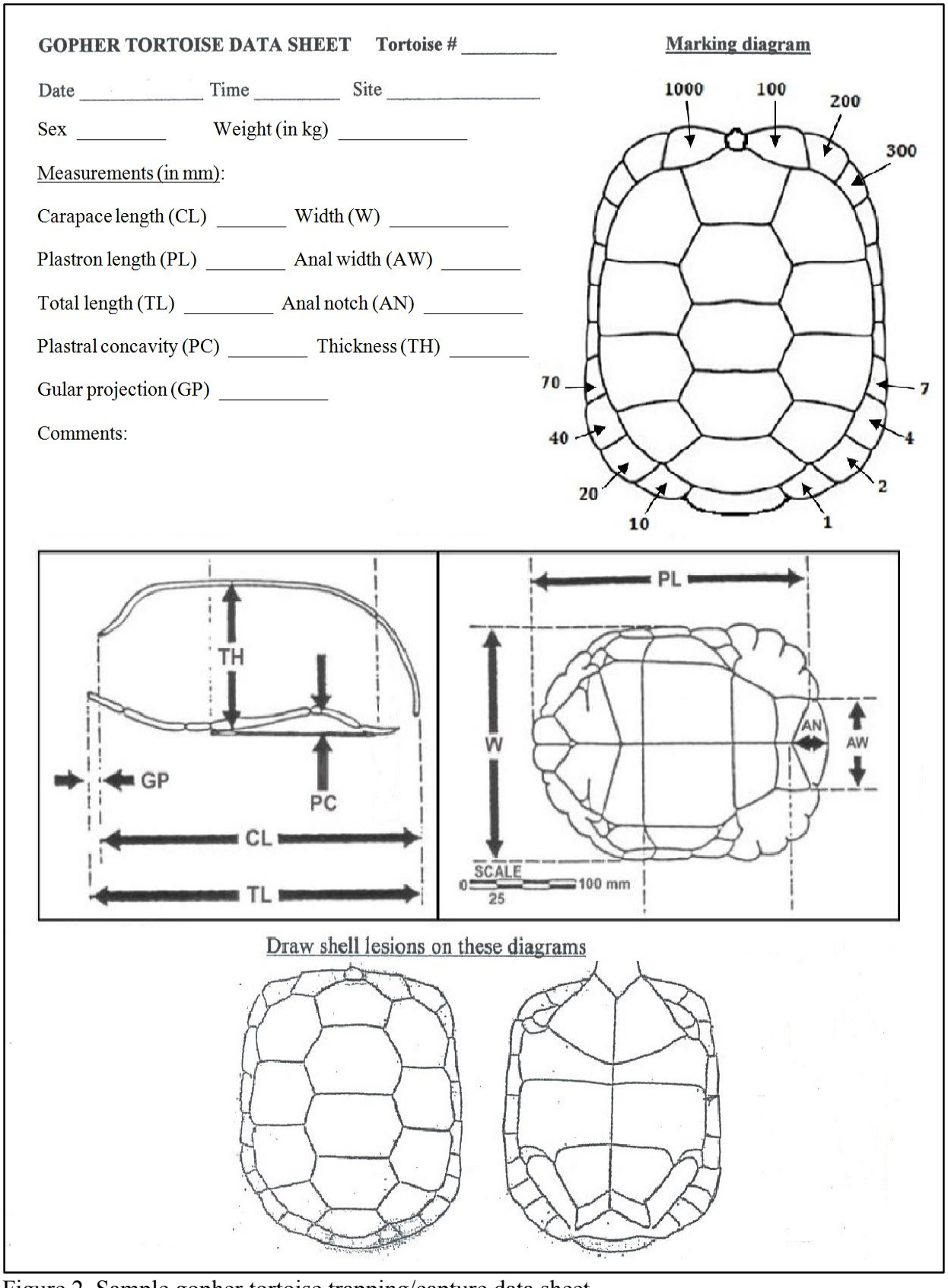

Figure 2. Sample gopher tortoise trapping/capture data sheet

APPENDIX C: DEFINITIONS

Adaptive Management: The integration of design, management, and monitoring through a scientific approach to systematically test assumptions in order to adapt and learn.

Bedding: A site preparation method which mounds the topsoil to raise the roots of seedlings above any temporary standing water.

Burrow apron: Fanned-out sandy area immediately in front of a tortoise burrow.

Carrying capacity: The maximum number of individuals that a site and its resources can support during the most unfavorable time of year.

Chemical Treatment: The use of herbicides to control undesired plant species.

Chopping: A site preparation method and land management tool to reduce the height and density of understory vegetation using a weighted drum with cutting blades to cut and chop vegetation.

Commensals: A biological relationship in which one species derives food, refuge, or other benefits from another animal species hurting or helping it; in the gopher tortoise's case, it is a species that shares the burrow with the tortoise.

Donor site: A site which tortoises are moved from during translocations.

Enclosure: A temporary, specified area of a recipient site that is surrounded by approved fencing or hay/pine straw bales to initially contain relocated tortoises and to help them acclimate to their new surroundings, and prevent them from attempting to return to their previous habitat. See "soft release."

Fuel loads: The amount of flammable materials (fuels) present in a habitat (e.g., trees, shrubs, grasses, etc.).

Hard release: A release without the benefit of temporary enclosures, creating starter burrows, or any other technique designed to improve site-fidelity.

Hatchling Head Start Program: Protects hatchlings until they are of sufficient size to be beyond normal hatchling mortality to increase their chances of survival upon release into the wild.

Logging Deck: Site where logs are prepared and loaded for transport.

Mechanical Treatment: The use of mechanical means such as chainsaws, roller chopping, or mowing to reduce competition from undesired vegetation when regenerating forest stands.

Off-Site Timber Species: A species growing in a habitat it normally would not occur in due to disruption of natural processes, such as fire suppression.

Off-site translocation: Translocation in which the recipient and donor sites do not allow free

movement between them.

On-site translocation: Translocation in which the recipient and donor sites are near enough to potentially allow free movement between them.

One Hour Fine Fuels: Fuels consisting of dead herbaceous plants, stems and branches less than ¼ - inch in diameter and the upper most layer of litter.

Predator Control: Removing predators, usually through trapping, to maintain their population well below natural levels for the benefit of some target species.

Recipient site: Site which tortoises are moved to during translocations.

Seropositive: A positive blood test indicating an immune response (exposure) to the bacteria that cause upper respiratory tract disease in gopher tortoises.

Site Preparation: Measures employed on a site to dispose of debris, reduce competitive vegetation, and prepare the soil for artificial or natural regeneration.

Skid: Moving of logs by means of heavy equipment from the point of harvest to a loading area.

Soft release: Those releases where relocated animals are contained in a temporary enclosure at the recipient site for some period of time before being allowed to roam freely; this differs from hard releases where animals are turned loose without any period to acclimate to their new surroundings.

Starter burrow: A shallow hole dug with a shovel or auger that approximates the angle of a gopher tortoise burrow entrance.

Take: Taking, attempting to take, pursuing, hunting, molesting, capturing, injuring, or killing any wildlife or freshwater fish, or their nests or eggs by any means, whether such actions result in obtaining possession of such wildlife or freshwater fish or their nests or eggs.

Top-kill: To kill the above-ground portion of a tree or shrub.

Waif tortoise: a gopher tortoise that has been removed from the wild but is not associated with a permitted translocation effort and is from an unknown location.

APPENDIX D: REFERENCES

Alberson, H. C. 1953. "Cracker chicken" hunt. Florida Wildlife 7(3):26–27, 31.

Alford, R. 1980. Population structure of *Gopherus polyphemus* in northern Florida. Journal of Herpetology 14:177–182.

Anderson, C. H. 1949. Gopher hunt. Florida Wildlife 3(6):10–11.

Aresco, M. J., and C. Guyer. 1999. Growth of the tortoise *Gopherus polyphemus* in slash pine plantations of southcentral Alabama. Herpetologica 55:499–506.

Ashton, P. S., and R. E. Ashton, Jr. 2004. The Gopher Tortoise: a life history. Pineapple Press, Sarasota, Florida. 67pp.

Auffenberg, W. and R. Franz. 1982. The status and distribution of the Gopher Tortoise (*Gopherus polyphemus*). Pages 95–126 *in* R. B. Bury, editor. North American tortoises: Conservation and ecology. U.S. Fish and Wildlife Service, Wildlife Research Report 12.

Auffenberg, W., and J. B. Iverson. 1979. Demography of terrestrial turtles. Pages 541–569 *in* M. Harless and H. Morlock, editors. Turtles: Perspectives and Research. Wiley-International, New York.

Basitosis, K.A., H.R. Mushinsky, and E.D. McCoy. 2005. Do gopher tortoises (*Gopherus polyphemus*) consume exotic cogongrass (*Imperata cylindrica*)? Results of a feeding experiment. Abstract *in* Joint Meeting of the 21st Annual Meeting of the American Elasmobranch Society, 85th Annual Meeting of the American Society of Ichthyologists and Herpetologists, 63rd Annual Meeting of the Herpetologists' League, and the 48th Annual Meeting of the Society for the Study of Amphibians and Reptiles; 6– 11 July 2005, Tampa, Florida.

Berish (Diemer), J. E. 1991. Identification of critical Gopher Tortoise habitat in South Florida. Florida Game and Fresh Water Fish Commission, Bureau of Wildlife Research Final Report Study No. 7539, Tallahassee. 23pp.

Berish, J. E. 2001. Management considerations for the Gopher Tortoise in Florida. Florida Fish and Wildlife Conservation Commission Final Report, Tallahassee. 44pp.

Breininger, D. R., P. A. Schmalzer, and C. R. Hinkle. 1994. Gopher tortoise (*Gopherus polyphemus*) densities in coastal scrub and slash pine flatwoods in Florida. Journal of Herpetology 28:60–65.

Brockway, D.G., K.W. Outcalt, D.J. Tomczak, and E.E. Johnson. 2004. Restoring longleaf pine forest ecosystems in the southern U.S. *In* Stanturf, J.A. and P. Madsen, editors. Restoration of Boreal and Temperate Forests. CRC Press, Boca Raton, FL. pp. 501-522.

Brown, M. B., G. S. McLaughlin, P. A. Klein, B. C. Crenshaw, I. M. Schumacher, D. R. Brown, and E. R. Jacobson. 1999. Upper respiratory tract disease in the Gopher Tortoise is caused by *Mycoplasma agassizii*. Journal of Clinical Microbiology 37:2262–2269.

Brown, D. R., I. M. Schumacher, G. S. McLaughlin, L. D. Wendland, M. B. Brown, P. A. Klein, and E. R. Jacobson. 2002. Application of diagnostic tests for mycoplasmal infections of desert and Gopher tortoises, with management considerations. Chelonian Conservation and Biology 4:497–507.

Buckland, S.T., D.R. Anderson, K.P. Burnham, J.L. Laake, D.L. Borchers, and L. Thomas. 2001. Introduction to Distance sampling: estimating abundance of biological populations. Oxford University Press, Great Britain. 432 pp.

Butler, J. A., and T. W. Hull. 1996. Reproduction of the tortoise, *Gopherus polyphemus*, in northeastern Florida. Journal of Herpetology 30:14–18.

Butler, J. A., and S. Sowell. 1996. Survivorship and predation of hatchling and yearling Gopher Tortoises, *Gopherus polyphemus*. Journal of Herpetology 30:455–458.

Causey, M. K., and C. A. Cude. 1978. Feral dog predation of the Gopher Tortoise, *Gopherus polyphemus*, in southeast Alabama. Herpetological Review 9:94–95.

Cox, J., D. Inkley, and R. Kautz. 1987. Ecology and habitat protection needs of Gopher Tortoise (*Gopherus polyphemus*) populations found on lands slated for large-scale development in Florida. Florida Game and Fresh Water Fish Commission, Nongame Wildlife Program Technical Report No. 4, Tallahassee. 75pp.

Diemer, J. E. 1986. The ecology and management of the Gopher Tortoise in the southeastern United States. Herpetologica 42:125–133.

Diemer, J. E. 1987. The status of the Gopher Tortoise in Florida. Pages 72-83 *in* R. Odom, K. Riddleberger, and J. Osier, editors. Proceedings of the Third Southeastern Nongame and Endangered Wildlife Symposium. Georgia Department of Natural Resources, Game and Fish Division, Atlanta.

Diemer, J. E. 1992. Home range and movements of the tortoise *Gopherus polyphemus* in northern Florida. Journal of Herpetology 26:158–162.

Diemer, J. E., and C. T. Moore. 1994. Reproduction of Gopher Tortoises in north-central Florida. Pages 129-137 *in* R. B. Bury and D. Germano, editors. Biology of North American tortoises. U.S. Department of Interior, National Biological Survey, Fish and Wildlife Research 13.

Douglass, J. F., and C. E. Winegarner. 1977. Predators of eggs and young of the Gopher Tortoise, *Gopherus polyphemus* (Reptilia, Testudines, Testudinidae) in southern Florida. Journal of Herpetology 11:236–238.

Enge, K. M., K. L. Krysko, K. R. Hankins, T. S. Campbell, and F. W. King. 2004. Status of the Nile

monitor (*Varanus niloticus*) in southwestern Florida. Southeastern Naturalist 3:571–582.

Enge, K.M., B.W. Kaiser, and R.B. Dickerson. 2006. Another large exotic lizard in Florida, the Argentine black and white tegu. Abstract in Proceedings of the 28th Gopher Tortoise Council Meeting, 26-29 October, Valdosta, Georgia.

Epperson, D. M., and C. D. Heise. 2003. Nesting and hatchling ecology of Gopher Tortoises *Gopherus polyphemus*) in southern Mississippi. Journal of Herpetology 37:315–324.

Ernst, C. H., and R. W. Barbour. 1972. Turtles of the United States. University Press of Kentucky, Lexington, Kentucky, USA. 347pp.

Faircloth, W.H., M.G. Paterson, J.H. Miller, and D.H. Teem. 2005. Wanted dead or alive: Cogongrass. Alabama A & M and Auburn Universities, Cooperative Extension System. ANR 1241.

Fisher, G. C. 1917. "Gopher pulling" in Florida. American Museum Journal 17:291–293.

Fitzpatrick, J. W., and G. E. Woolfenden. 1978. Red-tailed hawk preys on juvenile Gopher Tortoises. Florida Field Naturalist 6:49.

Florida Fish and Wildlife Conservation Commission. 2012. Gopher Tortoise Management Plan. FFWCC, Tallahassee, FL.

Garner, J. H., and J. L. Landers. 1981. Foods and habitat of the Gopher Tortoise in southwestern Georgia. Proceedings of the Annual Conference of the Southeastern Association of Fish and Wildlife Agencies 35:120–133.

Gates, C. A., M. J. Allen, J. E. Diemer Berish, D. M. Stillwaugh, Jr., and S. R. Shattler. 2002. Characterization of a Gopher Tortoise mortality event in west-central Florida. Florida Scientist 65:185–197.

Glitzenstein, J.S., W.J. Platt, and D.R.Streng. 1995. Effects of fire regime and habitat on tree dynamics in north Florida longleaf pine savannas. Ecological Monographs 65(4):441-476.

Glitzenstein, J.S., D.R. Streng, G.L., and D.D. Wade. 2003. Fire frequency effects on longleaf pine (*Pinus palustris* P. Miller) vegetation in South Carolina and northeast Florida, USA. Natural Areas Journal 23:22-37.

Hallinan, T. 1923. Observations made in Duval County, northern Florida, on the Gopher Tortoise (*Gopherus polyphemus*). Copeia 1923:11–20.

Hansen, K. 1963. The burrow of the Gopher Tortoise. Journal of the Florida Academy of Sciences 26:353–360.

Harcourt, H. 1889. Home life in Florida. John P. Morton and Company, Louisville, Kentucky. 433pp.

Hawkins, R. Z., and R. L. Burke. 1989. Of pens, pullers and pets: problems of Gopher Tortoise relocation. Page 99 *in* J. E. Diemer, D. R. Jackson, J. L. Landers, J. N. Layne, and D. A. Wood, editors. Proceedings of the Gopher Tortoise Relocation Symposium. Florida Game and Fresh Water Fish Commission, Nongame Wildlife Program Technical Report No. 5, Tallahassee.

Hicklin, J.R. 1994. The effects of Brazilian pepper (*Schinus terebinthifolius*) on gopher tortoise (*Gopherus polyphemus*) habitat utilization. M.S. Thesis, Florida Atlantic University, Boca Raton. 41pp.

Hutt, A. 1967. The Gopher Tortoise, a versatile vegetarian. Florida Wildlife 21(7):20–24.

Jackson, D. R., and E. G. Milstrey. 1989. The fauna of Gopher Tortoise burrows. Pages 86–98 *in* J. E. Diemer, D. R. Jackson, J. L. Landers, J. N. Layne, and D. A. Wood, editors. Proceedings of the Gopher Tortoise Relocation Symposium. Florida Game and Fresh Water Fish Commission, Nongame Wildlife Program Technical Report No. 5, Tallahassee.

Kent, D. M., M. A. Langston, and D. W. Hanf. 1997. Observations of vertebrates associated with Gopher burrows in Orange County, Florida. Florida Scientist 60:197–201.

Kushlan, J. A., and F. J. Mazzotti. 1984. Environmental effects on a coastal population of Gopher Tortoises. Journal of Herpetology 18:231–239.

Landers, J. L. 1980. Recent research on the Gopher Tortoise and its implications. Pages 8–14 *in* R. Franz and R. J. Bryant, editors. The Dilemma of the Gopher Tortoise--Is There a Solution? Proceedings of the 1st Annual Meeting, Gopher Tortoise Council.

Landers, J. L., and J. L. Buckner. 1981. The Gopher Tortoise: effects of forest management and critical aspects of its ecology. Southlands Experimental Forest Technical Note No. 56. 7pp.

Landers, J. L., and J. A. Garner. 1981. Status and distribution of the Gopher Tortoise in Georgia. Pages 45–51 *in* R. Odum and J. Guthrie, editors. Proceedings of the Non-game and Endangered Wildlife Symposium. Georgia Department of Natural Resources, Game and Fish Division Technical Bulletin WL5, Atlanta.

Landers, J. L., J. A. Garner, and W. A. McRae. 1980. Reproduction of the Gopher Tortoise (*Gopherus polyphemus*). American Midland Naturalist 103:353–359.

Lohoefener, R. 1982. Gopher tortoise ecology and land-use practices in southern Desoto National Forest, Harrison County, Mississippi. Pages 50–74 *in* R. Franz and R. J. Bryant, editors. The Gopher Tortoise and its sandhill habitat. Proceedings of the 3rd Annual Meeting of the Gopher Tortoise Council.

Macdonald, L. A., and H. R. Mushinsky. 1988. Foraging ecology of the Gopher Tortoise, *Gopherus polyphemus*, in a sandhill habitat. Herpetologica 44:345–353.

Main, M. B., S. F. Coates, and G. M. Allen. 2000. Coyote distribution in Florida extends southward. Florida Field Naturalist 28:201–203.

Matthews, E. L. 1979. The Gopher. Florida Wildlife 32(5):38–40.

McCoy, E. D., and H. R. Mushinsky. 1992a. Studying a species in decline: changes in populations of the Gopher Tortoise on federal lands in Florida. Florida Scientist 55:116–125.

McCoy, E. D., and H. R. Mushinsky. 1992b. Studying a species in decline: Gopher Tortoises and the dilemma of "correction factors." Herpetologica 48:402–407.

McCoy, E. D., and H. R. Mushinsky. 1995. The demography of *Gopherus polyphemus* (Daudin) in relation to size of available habitat. Project Report. Florida Game and Fresh Water Fish Commission, Nongame Wildlife Program, Tallahassee. 71pp.

McCoy, E. D., and H. R. Mushinsky. 2007. Estimates of minimum patch size depend on the method of estimation and the condition of the habitat. Ecology 88:1401-1407.

McCoy, E. D., H. R. Mushinsky, and J. K. Lindzey. 2005. Population consequences of upper respiratory tract disease on Gopher tortoises. Final Report. Florida Fish and Wildlife Conservation Commission, Tallahassee. 44pp.

McLaughlin, G. S. 1997. Upper respiratory tract disease in Gopher Tortoises, *Gopherus polyphemus*: pathology, immune responses, transmission, and implications for conservation and management. Dissertation, University of Florida, Gainesville. 110pp.

McLaughlin, G. S., E. R. Jacobson, D. R. Brown, C. E. McKenna, I. M. Schumacher, H. P. Adam, M. B. Brown, and P. A. Klein. 2000. Pathology of upper respiratory tract disease of Gopher tortoises in Florida. Journal of Wildlife Diseases 36:272–283.

McRae, W. A., J. L. Landers, and J. A. Garner. 1981. Movement patterns and home range of the Gopher Tortoise. American Midland Naturalist 106:165–179.

Mickler, L. E. 1986. Gopher stew. North Florida Living 6(1):68, 77.

Mushinsky. H. R., and E. D. McCoy. 1994. Comparison of Gopher Tortoise populations on islands and on the mainland in Florida. Pages 39–48, *in* R. B. Bury and D. J. Germano, editors. Biology of North American tortoises. U.S. Department of the Interior, National Biological Survey, Fish and Wildlife Research 13.

Mushinsky, H. R., and E. D. McCoy. 1996. Studies of wildlife and restoration of phosphate mined land. Publication No. 03-100-129, Florida Institute for Phosphate Research, Bartow, Florida. 97pp.

Mushinsky, H. R., and E. D. McCoy. 2001. Habitat factors influencing the distribution of small vertebrates on unmined and phosphate-mined flatlands in central Florida, and a comparison with unmined and phosphate-mine uplands. Publication No. 03-115-180, Florida Institute for Phosphate Research, Bartow, Florida. 118pp.

Mushinsky, H. R., D. S. Wilson, and E. D. McCoy. 1994. Growth and sexual dimorphism of *Gopherus polyphemus* in central Florida. Herpetologica 50:119–128.

Mushinsky, H.R., E.D. McCoy, J.E. Berish, R.E. Ashton, Jr., and D.S. Wilson. 2006. *Gopherus polyphemus* – gopher tortoise. *In* P.A. Meylan, editor. Biology and Conservation of Florida's Turtles. Chelonian Research Monographs No. 3, pp. 350-375.

Nomani, S.Z., R.R. Carthy, and M.K. Oli. 2008. Comparison methods for estimating abundance of gopher tortoises. Applied Herpetology **5**:13-31.

Owens, A. K., K. L. Krysko, and G. L. Heinrich. 2005. *Gopherus polyphemus* (Gopher Tortoise). Predation. Herpetological Review 36:57–58.

Provencher, L., B.J. Herring, D.R. Gordon, H.L. Rodgers, G.W. Tanner, L.A, Brennan, and J.L. Hardesty. 2000. Restoration of northwest Florida sandhills through harvest of *Pinus clausa*. Restoration Ecology 8(2):175-175.

Puckett, C., and R. Franz. 2001. Gopher tortoise: a species in decline. Florida Cooperative Extension Service, Institute of Food and Agricultural Science, University of Florida, Gainesville, Florida, USA. 5pp.

Rabatsky, A., and B. Blihovde. 2002. Gopher Tortoise die-off at Rock Springs Run State Reserve, Lake County, Florida. Turtle and Tortoise Newsletter No. 6:27-28.

Robertson, K.M. and T.E. Ostertag. 2007. Effects of land use on fuel characteristics and fire behavior in a pinelands of southwest Georgia, U.S.A. Pages 000-000 *in* R.E. Masters and K.E.M. Galley (eds.). Preccedings of the 23rd Tall Timbers Fire Ecology Conference: Fire in Grassland and Shrubland Ecosystems. Tall Timbers Research Station. Tallahassee, FL.

Shilling, D.G., T.A. Berwick, J.F. Gaffney, S.K. McDonald, C.A. Chase, and E.R.R.L. Johnson. 1997. Ecology, physiology, and management of cogongrass (*Imperata cylindrica*). Final Report. Florida Institute of Phosphate Research, Bartow, FL.

Smith, H. T., and R. M. Engeman. 2002. An extraordinary raccoon, *Procyon lotor*, density at an urban park. Canadian Field-Naturalist 116:636–639.

Smith, L. L. 1997. Survivorship of hatchling Gopher Tortoises in north-central Florida. Pages 100–103 *in* Conservation, Restoration, and Management of Tortoises and Turtles. New York Turtle and Tortoise Society.

Smith, L., and J.M. Stober. 2009. Gopher Tortoise Survey Handbook. Final report to US Army Corps of Engineers, Engineer Research and Development Center, Construction Engineering Research Laboratory. Report # ERDC/CERL TR-09-7.

Smith L.L., T.D. Tuberville, and R.A. Seigel. 2006. Workshop on the ecology, status, and management of the gopher tortoise (*Gopherus polyphemus*), Joseph W. Jones Ecological Research Center. 16-17 January 2003: final results and recommendations. Chelonian Conservation and Biology 5:326-330.

Smith, R. B., D. R. Breininger, and V. L. Larson. 1997. Home range characteristics of radiotagged Gopher Tortoises on Kennedy Space Center, Florida. Chelonian Conservation and Biology 2:358–362.

Smith, R. B., R. A. Seigel, and K. R. Smith. 1998. Occurrence of upper respiratory tract disease in Gopher Tortoise populations in Florida and Mississippi. Journal of Herpetology 32:426–430.

Styrsky, J. N., C. Guyer, H. Balbach, and A. Turkmen. 2010. The relationship between burrow abundance and area as a predictor of gopher tortoise population size. Herpetologica 66:403-410.

Taylor, R. W., Jr. 1982. Human predation on the Gopher Tortoise (*Gopherus polyphemus*) in north-central Florida. Bulletin of the Florida State Museum, Biological Sciences 28:79–102.

Tuberville, T.D., E. E. Clark, K. A. Buhlmann, and J. W. Gibbons. 2005. Translocation as a conservation tool: site fidelity and movement of repatriated gopher tortoises (*Gopherus polyphemus*). Animal Conservation 8: 349-358.

Williams, B.K., J.D. Nichols, M.J. Conroy. 2002. Analysis and Management of Animal Populations. Modeling, Estimation, and Decision Making. Academic Press, San Diego, California, USA.

Witz, B. W., D. S. Wilson, and M. D. Palmer. 1991. Distribution of *Gopherus polyphemus* and its vertebrate symbionts in three burrow categories. American Midland Naturalist 126:152–158.

Witz, B. W., D. S. Wilson, and M. D. Palmer. 1992. Estimating population size and hatchling mortality of *Gopherus polyphemus*. Florida Scientist 55:14–19.

APPENDIX E: ADDITIONAL PARTIES TO THE GOPHER TORTOISE CANDIDATE CONSERVATION AGREEMENT

Additional federal agencies, state and tribal agencies, NGOs, and private parties that share a desire to conserve gopher tortoise populations and habitat in order to prevent regulatory constraints and carry out their missions to the best of their ability are welcome to sign onto this Agreement at any time. To do so, the agency or organization interested in becoming a Party to the CCA must provide the GTT with the following information:

- A detailed description of the agency's or organization's authority to enter into such agreement (see Section 6 for examples), and
- Specific conservation commitments the agency or organization will implement and execute (see Section 10.2 for examples).

Upon receipt of this information and review and agreement among GTT members, the organization will be asked to submit a signed signature page, after which the GTT will amend this Appendix as appropriate.

APPENDIX F: POPULATION ESTIMATION AND MONITORING PROTOCOL

The gopher tortoise is currently listed by the U.S. Fish and Wildlife Service (USFWS) as Threatened in accordance with the federal Endangered Species Act (ESA) for populations occurring west of the Mobile and Tombigbee Rivers in Alabama, Mississippi, and Louisiana (50 CFR §17.11). The status of the gopher tortoise in its eastern range was evaluated by the USFWS in 2010-2011. The 12-month status review was published in the Federal Register (76(144):45130-45162) in July 2011 and included the finding that the species is warranted for federal listing under the ESA as Threatened but precluded from listing due to higher priority listing activities (U.S. Fish and Wildlife Service 2011). Because the gopher tortoise is currently a "Candidate" species in the eastern portion of its range, scientists and policy makers throughout the species' range have focused attention on proactively implementing beneficial conservation measures now to prevent it from becoming federally-listed in the future. As such, the 12-month finding notes a deficiency of a range-wide survey of gopher tortoises, and comprehensive surveys over large geographic areas. Survey data available at the time of the review were collected using a variety of methodologies ranging from one-time censuses to repeated surveys over several decades. Most surveys were based on counting burrows rather than observations of tortoises. The diversity of data poses a challenge when trying to evaluate the status of a species from a landscape perspective. Because of disparities in the type of data collected, methodologies in collecting data, and differences in the scope of studies, it is not possible to evaluate the status of the gopher tortoise throughout its range.

Working together to implement proactive and coordinated conservation activities that can, in turn, help preclude the need to list the gopher tortoise under the ESA, the Department of Defense, U.S. Forest Service, USFWS, Florida Fish and Wildlife Conservation Commission, Georgia Department of Natural Resources, South Carolina Department of Natural Resources, Alabama Division of Wildlife and Freshwater Fisheries, tribal organizations, and several non-governmental organizations (NGOs) entered into a Candidate Conservation Agreement (CCA) for the gopher tortoise in 2008 (as revised). At the 4th annual meeting (June 19-21, 2012) of the GT CCA Gopher Tortoise Team (GTT), the GTT participants agreed that a standardized population monitoring protocol was needed to provide consistency in monitoring the status of the gopher tortoise throughout its range. Based on results of a gopher tortoise monitoring workshop held at the Joseph W. Jones Ecological Research Center (April 9-11, 2012), the GTT participants agreed that Line Transect Distance Sampling (LTDS; Buckland *et al.* 2001), coupled with burrow camera searches of all gopher tortoise burrows found, regardless of status, will be the standard method for estimating tortoise population size and monitoring trends over time and throughout its range. Details of this methodology are outlined in the Gopher Tortoise Survey Handbook[i] (Smith, L., and J.M. Stober. 2009) included in Appendix F.

Current research suggests that a minimum of 250 acres of suitable habitat is required to support a viable population of gopher tortoises (McCoy and Mushinsky 2007; Styrsky *et al*. 2010). Therefore, land managers should prioritize determining baseline population levels and monitoring efforts using LTDS on protected and managed tortoise habitat 250 acres or greater in size. We recognize that population monitoring is also important on some tracts of gopher tortoise habitat <250 acres. Although LTDS is also recommended for small tracts of habitat, total counts can be conducted on smaller tracts (<250 ac), if done with a double observer approach (Nomani *et al.* 2008, Williams *et al.* 2002) and coupled with burrow camera searches

of all gopher tortoise burrows found, regardless of status. All sites should be monitored at intervals of at least 5 years, but no more than 10 years, though the intervals should be at least 5 years apart to allow for detectable change. Managers of public and private lands not under the jurisdiction of CCA parties are encouraged to follow one of the two survey approaches described above to allow evaluation of the status of the gopher tortoise across its range. The CCA parties will share data obtained from surveys and monitoring by way of Section IV of the annual CCA report submitted by each of the parties.

[i] https://www.fws.gov/southeast/pdf/methodology/gopher-tortoise-survey-handbook.pdf