Available Options to Address the Presence of Gopher Tortoises on Lands Slated for Development

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AVAILABLE OPTIONS TO ADDRESS THE PRESENCE OF GOPHER TORTOISES ON LANDS SLATED FOR DEVELOPMENT

The gopher tortoise (*Gopherus polyphemus*) is listed by the State of Florida as a Threatened Species. Without proper management, the gopher tortoise could become an endangered species in the future. The primary reason for the decline of this species is habitat destruction. The tortoise burrow itself serves as important habitat for a variety of other wildlife species. Many of these animals are also listed as threatened or species of special concern.

Gopher tortoise burrows may be recognized by a 3 to 6 foot wide mound of bare, excavated sand placed outside the entrance. The tortoise burrow is a tunnel into the ground with a cross-section that closely approximates the shape of the resident gopher tortoise. The burrow entrance has also been described as being in the shape of a "half-moon."

Due to its protected status, it is illegal to take, harm, or harass this species under rule 68A-27.004 of the Florida Administrative Code. Additionally, the destruction of gopher tortoise burrows constitutes taking under the law except as authorized by specific permit.

You should be fully aware of your responsibilities if you are currently developing or plan to develop property in gopher tortoise habitat. You may wish to solicit the services of an environmental consultant to determine whether gopher tortoises inhabit your property. The Florida Fish and Wildlife Conservation Commission have provided a variety of mechanisms by which you can assist in the conservation of this dwindling species. The following options are available to individuals planning to develop gopher tortoise habitat:

1. Avoid developing in the area occupied by tortoises.

2. Develop so as to avoid gopher tortoise burrows by avoiding concentrations of burrows altogether and/or staying at least 25 feet from entrances of individual burrows.

3. Mitigate for any accidental impacts to tortoises and the loss of their habitat by relocating all tortoises from the area of proposed development and providing a degree of habitat protection similar to that provided by Development of Regional Impact (DRI) developers with an incidental take permit (application requirements available online at http://myfwc.com/permits/Tortoise/pdf/GTITPermits.pdf).

4. Relocate those tortoises that would otherwise be "taken." Biologically, relocation of tortoises to sites without long term protection and management commitments is the least effective alternative. Relocations to protected recipient sites are the preferred alternative. A permit is also required (see Appendix III. Part A for the appropriate Species Conservation Planning Section contact person).

5. In cases where five or fewer tortoises are affected and some habitat or open space will exist on the site following construction, tortoises may be captured by the landowner or his agents and released back onto the site in an area where they can move freely. A permit is required (see Appendix III. Part B for the appropriate Regional Species Conservation Planning Section contact person). You may apply for this permit online at (application and permit is available online at http://myfwc.com/permits/Tortoise/default.asp).

Options 1 and 2 have no permitted or reporting requirements. You may wish to contact an environmental consultant to further explore options 3 - 5.

Guidelines for Gopher Tortoise Relocations
30 May 2008
State of Florida Fish and Wildlife Conservation Commission

The Florida Fish and Wildlife Conservation Commission (FWC) does not generally encourage relocation of wildlife, especially as a perceived solution to development/wildlife conflicts. Relocation may have negative impacts on both relocated and resident populations of wildlife. However, in instances where development of a site is imminent and all reasonable alternatives have been exhausted to accommodate the welfare of a particular species on-site, or where conservation measures have been agreed upon to preserve a species on portions of a site, the FWC will issue permits to authorize relocation of those individuals jeopardized by the impending development, provided that certain efforts are made to maximize the success of such relocations. Because in recent years the gopher tortoise has been the preeminent species conflicting with development plans, these guidelines have been created and revised over time to stipulate those measures which would effectively maximize the potential for relocation success. Such permitting authority/responsibility is embodied in Rules 68A-25.002 and 68A-27.004 of the Florida Administrative Code (F.A.C.).

DOCUMENTATION

1) Pursuant to the requirements of Rules 68A-25.002 and 68A-27.004 F.A.C., a permit for a gopher tortoise capture/relocation/release activity must be secured from the Commission prior to initiating any relocation work. Such permits will be issued pursuant to any and all applications which sufficiently accommodate these guidelines. Application forms to be used are available from the Permit Coordinator, Species Conservation Planning Section, Florida Fish and Wildlife Conservation Commission, 620 S. Meridian St., Mail Station 2A, Tallahassee, FL 32399-1600, (850)410-0656, ext. 17327/ (850)488-5297 fax or from the Commission's web site at http://myfwc.com/permits/Protected-Wildlife/. Complete applications should be submitted to the Gopher Tortoise Permit Coordinator at the above address at least 45 days prior to the time needed.

Because relocation is normally a last-resort accommodation of the welfare of any species, captures/relocations may be conducted only if local written approvals have been obtained for clearing, grading, or construction activities.

A recipient area is an area that will be or has been used for the placement of gopher tortoises relocated from a development area. Recipient areas may be on-site or off-site.

i. An on-site or adjacent recipient area is defined as an area that is contiguous to, abuts or is located within a 2-mile radius of the development area from which tortoises are to be removed. This includes sites under the same ownership and sites under different ownership, with approval of FWC and the owner.
ii. An off-site recipient area is one which does not meet the definition of an on-site recipient area.

Exceptions will be considered on a case-by-case basis. A permanent, management commitment for the long-term benefit of gopher tortoises should be ensured by either (a) filing conservation

easements for sites pursuant to 704.06 F.S., or (b) transmittal of confirmation letters or other formal commitments by the entities owning or otherwise controlling the recipient areas. Documented evidence of either course must be stated on the application form. Said documentation must be included with applications. The Commission's policy is to not issue relocation permits or incidental take permits for gopher tortoises on previously established recipient areas.

APPLICANT QUALIFICATIONS

Applicants should list credentials which demonstrate that they are suitably trained or experienced in relocation work on relocation applications.

HEALTH CONSIDERATIONS (INCLUDING UPPER RESPIRATORY TRACT DISEASE)

Most health variables are poorly known for wild gopher tortoises, and even veterinarians with advanced training in animal health can have difficulty detecting subtle clues that a tortoise is ill. However, Attachment 1, *Health Considerations for Gopher Tortoises During Relocations* outlines cursory health evaluations and lists some of the clinical signs (symptoms) that permittees and their environmental consultants can watch for, as well as providing a simple disinfection protocol that will help prevent spread of pathogens. Although detailed health exams are not required, permittees and their consultants should observe each tortoise for obvious clinical signs like nasal discharge. Disinfection of hands and equipment should be undertaken between handling tortoises within a donor site, but all equipment, particularly bins and bucket traps, must be disinfected between use on different donor sites. Blood tests for detecting exposure to the pathogen that causes mycoplasmal URTD are no longer mandated by the FWC. However, landowners (both donor and recipient site) have the option of requiring URTD testing prior to receiving relocated gopher tortoises. Procedures for the required training to collect such samples, and information on where to send samples are provided below for cases where recipient site owners require mycoplasmal URTD testing prior to relocation. Also provided below are options for accommodation of symptomatic tortoises (*i.e.*, those individuals that show signs of illness, especially respiratory disease) and those that test seropositive for mycoplasmal URTD.

It should be noted that there is currently no known cure for mycoplasmal URTD, making recovery of truly infected tortoises an unlikely scenario. Recipient site owners/managers reserve the right to request mycoplasmal URTD testing or other diagnostic tests that become available, and to refuse any, or all, tortoises from populations that have seropositive and/or symptomatic individuals. Making such decisions will depend on the goals and priority of the recipient site and thus determining the level of risk involved by allowing introduction of potentially ill or infected tortoises. In those cases where several clinically ill tortoises are encountered, consultation with FWC and wildlife veterinarians will be necessary to determine how best to accommodate such populations.

FWC recommends the following in cases where URTD testing is undertaken:

1. Gopher tortoises that test seronegative, suspect or seropositive and *are not* showing signs of disease (i.e. nasal or ocular discharge) may be released on-site, moved to a designated seropositive

property off-site (only if seropositive) or moved to any off-site recipient site with the written approval of the landowner.

2. Symptomatic gopher tortoises (see cursory health examination section above for clinical signs that are especially cause for concern), and/or those individuals that test seropositive in cases where blood tests for mycoplasmal URTD are undertaken:

    a. Should not be relocated off-site, unless they are to go to permanently fenced sites with no resident gopher tortoises or to specifically designated recipient sites for such cases.
    b. May be relocated on-site if sufficient suitable habitat will remain.
    c. May be quarantined in an FWC-licensed wildlife rehabilitation center facility or licensed veterinary facility for observation and treatment (in cases of recovery, these individuals may be subsequently released with others from their population).
    d. May be placed in an FWC-permitted disease research program.
    e. May be humanely euthanized by a licensed veterinarian if severely ill or suffering.

3. Gopher tortoise populations that meet the criteria of number 1 (e.g., do not show signs of disease) above may be relocated to:
    a. On-site recipient areas up to a final density of three tortoises or
    b. Off-site recipient areas up to a final density of two tortoises per acre of suitable upland habitat.

4. Individuals wishing to be permitted to capture and handle gopher tortoises for the purposes of collecting blood for URTD tests shall review training materials available from the Commission and sign an affidavit provided by the Commission stating they have reviewed the training materials and will be responsible for the safe treatment of gopher tortoises they capture and handle for the purpose of collecting blood for URTD tests. Training materials and affidavits are available from the Protected Species Permit Coordinator, Species Conservation Planning Section, Florida Fish and Wildlife Conservation Commission, 620 S. Meridian St., Mail Station 2A, Tallahassee, FL 32399-1600, (850) 921-5990, ext. 17310 or online at <http://myfwc.com/permits/Protected-Wildlife/apps/urtd_info.pdf>. A permit will be issued to qualified applicants (those submitting an appropriately signed affidavit) authorizing the following:
    a. Permittees will be granted blanket authorization to capture, hold and draw blood from gopher tortoises as needed for the purpose of compliance with these guidelines. Tortoises must not be held more than 72 hours, and preferably not more than 24 hours, unless otherwise stated in the issued permit.
    b. Prior to each instance where the authority conveyed by the blanket permit is exercised, the permittee shall notify the Commission's Protected Species Permit Coordinator in writing of the source location (i.e. address, Township, Range, Section, latitude and longitude), project name and estimated number of tortoises to be sampled. The permittee shall update this information in writing within 48 hours if circumstances change.
    c. Blood samples for testing (identified by the applicant's name, county and project name) shall be submitted by the applicant to Mycoplasma Testing Lab, University of Florida, Department of Pathobiology, 1600 SW Archer Road - BSB 350, Gainesville, FL 32610. The Lab may be contacted at (352)392-2239, extension 3986. The applicant is responsible for all fees and costs associated with testing.

d. Test results will be provided by the Testing Lab to the Commission and the applicant.

COLD AND HOT WEATHER HANDLING

1. During the colder months, tortoises shall only be relocated when the low temperature at the recipient site is forecasted by the National Weather Service (www.nws.noaa.gov) to be ≥ 50˚ Fahrenheit for three consecutive days after release (including the day of relocation). This three-day required window of milder overnight temperatures is to allow the relocated tortoises to settle into the recipient site and to reduce the chance of cold-related stress or mortality.

2. Because most tortoise relocations occur during the warmer months, overheating is a more common concern. 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 relocation can be reduced or eliminated by assuring that tortoises are continually in shaded conditions.

BURROW SURVEYS ON PROPOSED DONOR/DEVELOPMENT SITE

A burrow survey covering a minimum of 15% of the potential gopher tortoise habitat (see Attachment 3) to be impacted by development is required in order to apply for a relocation permit. Immediately prior to capturing tortoises for relocation, a 100% survey is required to effectively locate and mark all active and inactive tortoise burrows and to subsequently remove the tortoises. Surveys must be conducted within 90 days of when an application is submitted to FWC. However, surveys shall not be conducted within 30 days of any ground disturbance or clearing activities on the donor site. All tortoise surveys submitted with permit applications to the FWC are subject to field verification by the FWC.

Burrow survey methods are outlined in Attachment 3, Methods for Burrow Surveys on Development (Donor) and Recipient Sites.

RECIPIENT AREA SELECTION AND TREATMENT

1. Areas selected to receive relocatees should be either of similar habitat character and quality as corresponding donor areas or demonstrated to be otherwise suitable for gopher tortoise occupancy.

2. Areas already occupied by tortoises at or near carrying capacity (see Attachment 5) should not be selected as recipient sites. However, in some instances, especially at sites of marginal habitat quality, certain habitat manipulation measures (such as burning) could be employed to improve habitat quality and thereby increase carrying capacity, rendering the area acceptable as a recipient area. In those cases, however, continuous, periodic management treatments would normally be necessary to maintain carrying capacity at the elevated levels. Permit applicants opting for this course should list proposed measures for long-term management of recipient areas. The applicant shall include a long-term management plan with the application.

3. Relocation of 20 or fewer tortoises should be to recipient areas already occupied by tortoises or which abut areas already occupied. Relocation of more than 20 tortoises should be to recipient

areas either vacant or occupied at population levels substantially below carrying capacity (see Attachment 5).

4. Recipient areas may be situated any distance east or west of donor areas, but no more than 100 miles north or south of donor areas unless appropriately justified.

5. Recipient areas already occupied by tortoises should not overlap or abut areas supporting genetically unique or discrete tortoise populations or areas supporting populations which otherwise merit protection from genetic swamping. In instances where such a potential exists, the Commission should be consulted for a determination as to the area's acceptability.

6. Recipient areas already occupied by tortoises should be thoroughly surveyed prior to relocation and all encountered burrows plotted on maps and categorized as "active," "inactive" or "old" per the criteria of Auffenberg and Franz (1982) (see Attachment 4) and included with the application.

CAPTURE METHODOLOGY*

Tortoises may be captured via bucket traps, live traps, hand capture outside burrows, and excavation by hand or backhoe. To prevent impalement of tortoises during backhoe excavation, the backhoe bucket must have a flat plate rather than teeth (long prongs). Use of a pulling rod with a blunted tip to prevent injury to a tortoise will be allowed on a case-by-case basis, when experienced agents have demonstrated to FWC staff that they can capture tortoises in a safe manner.

If bucket or live traps are used, the traps must be checked at least once per day, and preferably twice per day (once in the morning and once in the late afternoon), and remain in place for at least 28 consecutive days or until the resident tortoise is captured, whichever occurs first. Bucket traps are not effective in capturing tortoises during cold weather, particularly in northern Florida, because tortoises may remain inactive for extended periods of time; therefore, bucket traps are not recommended November-March in northern Florida, but if they are used, all burrows where traps are set and no tortoise is captured must be excavated to determine if the burrows are occupied. Drainage holes sufficient in size and number to prevent rain water from accumulating in the bucket must be drilled into the bottom and lower sides of bucket traps.

Burrow scoping shall not be used to confirm vacancy or to determine site-specific correction factors (occupancy rates) because not all potentially occupied burrows can be successfully scoped (*e.g.*, due to curves or obstructions); however, burrow scopes may be used to enhance capture success for tortoises and their commensals. Also, merely capturing a tortoise outside a burrow is not a reason to assume the burrow is vacant. Although all burrows on the donor site must be flagged or otherwise marked, only active and inactive burrows must be trapped or excavated.

*Capture methodology could be modified on persistently wet sites or during periods of heavy rainfall.

HOLDING, TRANSPORT AND RELEASE METHODOLOGY

1. 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 in just enough water to cover the container bottom and to allow the tortoise to easily drink. Moist soil (e.g., from the burrow depths during backhoe excavation) may be used to cover the bottom of the bin. Hay, straw, or shredded paper are other acceptable materials to place in the bin. Care should be taken to avoid any physical damage (e.g., abrasions) to in-transit tortoises.

2. Gopher tortoises must not be held more than 72 hours after capture, and preferably not more than 24 hours. Tortoises should be transported within vehicles (not in open trucks) and should be kept at moderate temperatures (*e.g.*, 70-85˚ Fahrenheit).

3. Prior to release, each relocated tortoise should be sexed (adults only), marked and measured. Techniques for measuring shells and for individually and uniquely marking tortoises (*i.e.*, assigning them a permanent identification number) are provided in Attachment 6.

4. Tortoises being relocated to unoccupied recipient areas should preferably be released within 24 hours, but no more than 72 hours, after capture and in groups of no more than 20 in the same general vicinities with access to shade nearby. Relocated tortoises should be distributed throughout occupied recipient areas and, when possible, individuals should be released at "abandoned" or potentially occupied (“active” or "inactive" burrows per the criteria of Auffenberg and Franz [1982]).

REPORTING

1. Any tortoise mortality or debilitating injury occurring during the capture, relocation and release phases of a relocation effort is to be reported to the Commission Gopher Tortoise Permit Coordinator within two days of the incident.

2. A completed after action report form for gopher tortoise relocations shall be submitted to the Species Conservation Planning Section (SCP) regional gopher tortoise permit biologist, with copies provided to the recipient site landowner and FWC’s Gopher Tortoise Permit Coordinator in Tallahassee within 30 days of permit execution.

FWC staff has completed an approved species management plan and has identified restocking and responsible relocation as objectives to further the goal of gopher tortoise conservation, i.e., to restore and maintain secure, viable populations of gopher tortoises throughout the species’ current range in Florida. New permitting guidelines have also been approved and will be implemented in phases over the next year. Additionally, FWC staff will continue to work with a Gopher Tortoise Advisory Group of stakeholders to further hone and implement these guidelines. During this transitional year, FWC staff will update these guidelines accordingly and post those updates on our website.

Attachment 1

Health Considerations for Gopher Tortoises During Relocations

Making Decisions Regarding Relocations and Tortoise Health Assessments

Although relocation removes individual tortoises from harm on sites proposed for development, the transport of tortoises to new areas carries with it an inherent risk of exposure to infectious diseases for both recipient and donor populations. Determining the degree of risk and therefore the need for assessing tortoise health involves consideration of the following: the conservation value of the recipient site; whether tortoises exist within, or adjacent to, the recipient site; and the overall goals of the relocation (see Table 1 below). Relocations to sites with high conservation value and established or adjacent populations, for example, carry a greater risk of adversely affecting these priority populations, and therefore would generally warrant a correspondingly greater scrutiny of the relocated tortoises. Health assessments include physical examinations and the collection of biological samples (e.g., blood) for diagnostic tests. Currently, the only available blood test for a known gopher tortoise disease involves blood sampling for mycoplasmal upper respiratory tract disease (URTD; see below); however, even this well-documented test only indicates whether a tortoise has been exposed to the disease-causing organism, and does not provide information on whether the tortoise currently has the disease.

Table 1. Recipient Population Conditions, Goals, Disease Issues, and Suggested Health Assessment Needs

Recipient Population	Established or adjacent populations	Goals	Disease an issue?	Health Assessment Needs
Highest conservation value (relatively large sites with long term protection and management)	Yes	Healthy populations; minimize risks to adjacent/ existing populations	Yes - can impact both recipient and donor populations	Maximum on both donor and recipient populations. Monitor for success.
Highest conservation value	No	Healthy populations	Yes - due to established conservation goal	Maximum. Monitor for success.
Moderate conservation value (smaller protected sites, or large sites with non-perpetual easements)	Yes	Healthy populations; minimize risks to adjacent/ existing populations	Yes - can impact both recipient and donor populations	Moderate, or based on land manager's guidelines and risk to adjacent populations.

Moderate conservation value	No	Site specific	Questionable - depends on goals and site specifics	Based on land manager's guidelines. Monitor for success.
Minimal conservation value (sites with no long-term protection; may also be relatively small)	Yes	Humane or rescue relocation. Minimize risks to adjacent/ existing populations	Yes - can impact recipient and/or adjacent populations	Moderate or based on land manager's guidelines and risk to adjacent populations.
Minimal conservation value	No	Humane or rescue relocation.	No	Low. Based on land managers guidelines.

Cursory Health Evaluations

Knowledge pertaining to normal gopher tortoise behavior and appearance is necessary when conducting health examinations. If biological samples are going to be collected, appropriate training by (or assistance from) a veterinarian or other person with extensive experience working with tortoises and collecting such specimens is required. The basic components of a physical exam include an overall assessment of the posture/behavior of the tortoise, and an examination of the eyes, nostrils, skin, muscle mass, and shell. Shell measurements are not only important in determining the maturity of individual tortoises (e.g., juvenile, subadult, adult male or female), but, especially when correlated with weight, can be helpful in assessing the overall body condition. The following are components for a cursory physical examination:

- Overall posture/behavior - as noted above, some knowledge of tortoise behavior is necessary to discern between normal/abnormal.
- Alert and responsive or quiet but responsive- these two categories identify behavioral characteristics of normal tortoises. Alert/responsive tortoises paddle their forelimbs (front legs) when held, attempt to escape, and repeatedly retract into shell when handled. Quiet/responsive tortoises are shy and tend to remain withdrawn into their shell when being handled, but they have normal strength.
- Depressed and lethargic - these animals may hang forelimbs limp when lifted, may have poor muscle mass, are weak, and do not resist gentle tugging on their limbs.
- Walking/Moving - normally/abnormally.
- Breathing sounds (normal, congestion, distress) - Tortoises may normally create a very faint, high-pitched whistle when expelling air out of their nostrils. Wet or gurgling sounds associated with congestion are abnormal and pumping forelimbs up and down symmetrically when breathing may indicate pneumonia or other causes of respiratory distress.

- Examine eyes. May need a flashlight or, in some cases, magnification to examine.

- Clarity of eye (i.e., is cornea or lens clear or cloudy? Is there any discoloration?); position of eye within orbit (i.e., is eye bulging or sunken into orbit?)
- Discharges - clear/watery or cloudy; characterize as mild, moderate, or severe.
- Examine eyelids, conjunctiva (third eyelid), and area around eyes - look for swelling, redness, or traumatic wounds (i.e., lacerations). Characterize severity as mild, moderate, or severe.

- Examine nares (term for nostril openings).
- Discharges - clear/watery or cloudy/thick; describe color of discharge and characterize as mild, moderate, or severe. Note if dirt/material is obstructing nostrils.
- Erosion or irregular shape of the nares (evidence of long term discharge).

- Examine shell (scutes and seams between scutes).
- Flaking, discoloration, defects/erosions, soft areas, fractures, chew marks.
- Note the distribution and severity of lesions.
- Photographs and drawings are extremely useful.
- Measure carapace (top shell) and plastron (bottom shell) and record tortoise weight. Note whether tortoise has urinated/defecated as this waste elimination may significantly affect body weight.

- Examine skin and muscles
- Excessive flaking, discoloration of the skin, wounds, scars or evidence of prior injuries.
- Evaluate muscle mass on head and limbs to look for muscle loss (e.g., wasting away of muscles). Note whether the head has "old man appearance": sunken eyes; skin drawn tightly over skull).
- Check to make sure the limbs are symmetric, look for swollen areas or malformations, and check toenails for symmetrical wear patterns.
- Note the presence of external parasites (e.g., ticks) and number (< or > 10).

Note: Although determining the health of an individual tortoise at a particular moment in time can be difficult (i.e., certain clinical signs or "symptoms" may come and go), there are some tell-tale signs that authorized agents can watch for: nasal discharge; severely eroded nares; "old man appearance" (eyes sunken, skin drawn tightly over skull); eyes/eyelids severely swollen or reddened, with discharge; poor muscle mass and emaciated (abnormally thin) appearance. Options for accommodating individuals that appear ill, or that test positive for mycoplasmal URTD, are indicated below.

Disinfection Protocol

Caution must be taken during relocations and whenever handling gopher tortoises to ensure that authorized agents do not contribute to the spread of pathogens ("germs"). Therefore, it is recommended that hands and equipment be disinfected between handling individual tortoises. Cleaning and disinfecting bins, traps, and other equipment between use on donor (development) sites is required to reduce the chance of cross-contamination between populations.

Disinfection Solution: 1:20 dilution of 5% household bleach in water. A stronger 1:10 dilution of 5% household bleach in water is recommended for equipment that is particularly dirty (i.e., stained with soil or feces).

Solutions should be stored in dark bins or in opaque bottles and should be made fresh regularly (e.g., weekly depending on storage conditions). Bleach should be purchased in small bottles or dispensed into small bottles to minimize deterioration from opening/closing the lid.

Disinfecting Equipment: Remove dirt and feces by rinsing with water (e.g., from gallon jugs), or by brushing with paper towels. Spray equipment liberally with the bleach solution and allow to dry. Between donor sites, thoroughly scrub bins and buckets with detergent and water before spraying with the bleach solution.

Disinfecting Hands: A pump-applicator, plastic bottle of 60% ethyl alcohol is an efficient way to disinfect hands between handling tortoises; smaller pocket-size bottles of hand sanitizers are also useful in the field. If hands are extremely dirty, rinse with water before using the alcohol sanitizer.

Attachment 2

Equivalent Classification Systems for Gopher Tortoise Habitat Types

U.S. Soil Conservation Service	Florida Land-Use and Cover Equivalence(s)	Florida Natural Areas Inventory Equivalence(s)
North Florida Coastal Strand	310 Grassland 720 Sand other than beaches	Coastal Strand Overwash Plain
South Florida Coastal Strand	310 Grassland 720 Sand other than beaches	Coastal Strand Overwash Plain
North Florida Flatwoods	321 Palmetto prairies 411 Pine flatwoods 441 Coniferous planted forests	Mesic Flatwoods Scrubby Flatwoods Dry Prairie
South Florida Flatwoods	321 Palmetto prairies 411 Pine flatwoods 441 Coniferous planted forests	Mesic Flatwoods Scrubby Flatwoods Dry Prairie
Sand Pine Scrub	311 Coastal scrub 323 other scrub and brush 413 Sand pine scrub 441 Coniferous planted forests	Scrub
Longleaf Pine-Turkey Oak Hills	412 Longleaf pine-xeric oak 441 Coniferous planted forests	Sandhill
Mixed Hardwoods and Pine	431 Mixed forest 441 Coniferous planted forest 442 Hardwood planted forest	Upland Pine Forest Upland Mixed Forest
Upland Hardwood Hammocks	422 Other hardwood 442 Hardwood planted forest	Upland Hardwood Forest
Oak Hammocks (Ruderal)	421 Xeric oak forest 170 Recreational 180 Mixed 190 Open land and other 210 Cropland and pastureland 220 Orchards, groves (except citrus), etc. 230 Citrus groves 260 Grassland 450 Clear-cut areas 740 Altered Lands 760 Other barren land	Xeric Hammocks

Attachment 3

Methods for Burrow Surveys on Development (Donor) and Recipient Sites

(1) Development (donor) site surveys: A minimum of 15% of potential gopher tortoise habitat must be surveyed as a pre-application requirement for relocation. Because gopher tortoises and their burrows are protected from development activities by Florida law, regulatory compliance requires a comprehensive, 100% burrow survey of all potential tortoise habitat proposed for development. To effectively locate all potentially occupied tortoise burrows and to subsequently remove the tortoises, this 100% survey should be conducted immediately prior to capturing tortoises for relocation.

(2) Recipient site surveys: A minimum of 15% of potential gopher tortoise habitat must be surveyed on recipient sites that are proposed to receive relocated tortoises. The primary purpose of the recipient site survey is to obtain a density estimate of existing tortoises so that a biologically appropriate determination can be made regarding the number of relocated tortoises that can be added to the site. This value is the baseline density. The baseline density is subtracted from the maximum allowable stocking density (*e.g.*, two-four tortoises per acre) and the result is the final stocking rate for that particular recipient site.

(3) All surveys (development and recipient sites) should be completed by qualified persons and are subject to field verification by FWC.

(4) Documentation and reporting results from development and recipient site surveys:

Land Cover Map: Provide an up-to-date aerial photograph of the development site or recipient site and identify all land cover types (see types of land use classifications in Attachment 2). All maps, including the aerial photograph, should be at a scale of one-inch equals 800 feet or less. List all land cover types and provide the acreage and percent coverage for each, either on the map or on an accompanying table.

Soils Map: Attach a Natural Resources Conservation Service (NRCS) Web Soil Survey map depicting soil type and depth to water table (DWT) values for project site. Provide the acreage and percent coverage for each soil type.

Gopher Tortoise Habitat Map: Provide a map that delineates potential tortoise habitat on the project site or recipient site, and provide an acreage estimate by land cover type.

4. Burrow Location Map: Plot and label the location of each burrow observed during the burrow survey. Attach a table that shows the burrow label, activity class (see below), and associated Global Positioning System (GPS) coordinates.

Gopher Tortoise Burrow Activity Classification

Potentially Occupied Burrow: This classification combines the active and inactive categories, and therefore includes burrows with obvious sign of use and those with minimal or no obvious sign of use. A potentially occupied burrow is in good repair with the classic half-moon shaped entrance. These burrows may have tortoise tracks or plastron scrapes clearly visible on the burrow floor or on the mound, or may have subtle or no tortoise sign. The lack of observable tortoise sign may be due to

weather or season. The burrow floor may contain loose soil caused by tortoise activity or it may be hard packed. The burrow mound may or may not have vegetation growing on it, and may be partially covered by fallen leaves.

Abandoned Burrow: An abandoned burrow appears unused and dilapidated. The entrance may be partially or completely collapsed, and the burrow may be partially or completely filled with leaves or soil. Recent rains, or recent activity by livestock or humans, do not appear to be the primary reason for burrow collapse. There are no trails into the burrow that might indicate that a tortoise recently passed through the leaf litter or that a small tortoise is using a dilapidated, adult burrow. Surveys conducted during the colder months (*i.e.*, November-March), burrows that appear abandoned because of erosion or blockage with vegetation shall be considered potentially occupied.

Burrow Survey Methods (minimum of 15%)

Using evenly spaced belt transects, distribute these transects across all potential tortoise habitat within the designated donor or recipient site to provide at least 15% coverage. This initial step is a map exercise (see illustration below), and transect locations should be indicated on the gopher tortoise habitat map.

Maximum dimensions for each individual transect are 250 meters (820 feet) long and 16 meters (52 feet) wide. The area covered by this size transect is approximately one acre (0.4 hectare). In areas with heavy cover, the width of each transect must be reduced to allow for 100% detection of burrows within the transect, and the total area covered by the transect must be recalculated to adjust for the reduced width.

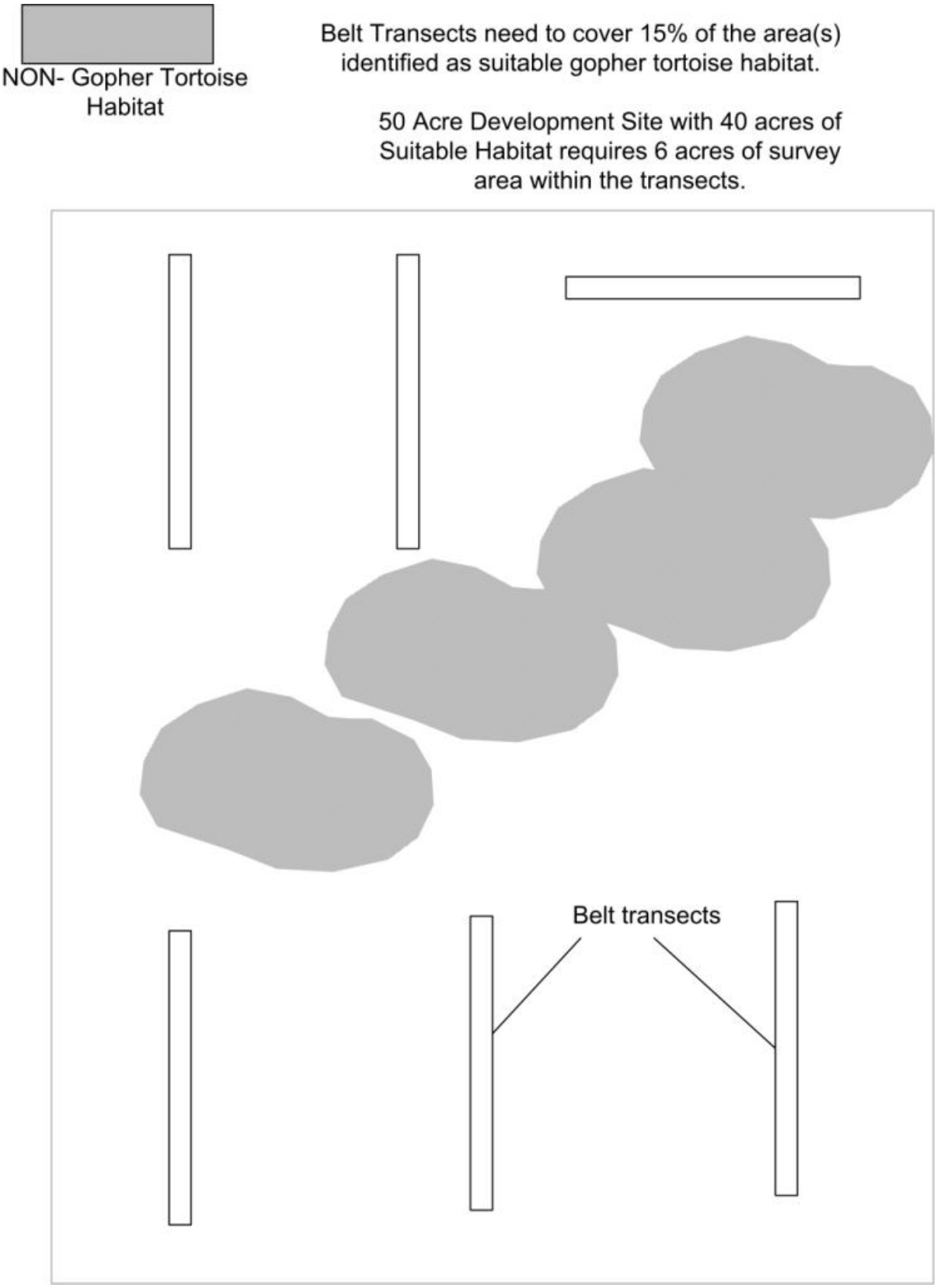
One or multiple observers may conduct these burrow surveys. When multiple observers are used, sufficient distance must exist between observers to ensure that transects do not overlap. It is essential that observers focus solely on searching for burrows, *i.e*., they should not be performing vegetation sampling (i.e., on recipient sites) concurrently or conducting other activities.

Activity class and GPS coordinates should be recorded for all burrows within each transect. A burrow is considered within the transect if any portion of the burrow or mound is within the boundaries.

For each transect, report the raw data in a table (transect dimensions, number of burrows by activity class, and burrow density per acre). For the donor or recipient site, report the average tortoise density using the following calculation:

$$\frac{\text{(Total Potentially Occupied Burrows)}}{\text{(Total Acres within Survey Area)}} \times (0.614) = \text{Tortoises / Acre}$$

Example of burrow survey using belt transects:



Burrow Survey Methods (100%)

All potential gopher tortoise habitat that will be impacted by development activities must be searched for burrows. The recommended approach is to systematically search the entire impact zone by traveling parallel transects spaced appropriately for the habitat conditions (*i.e.,* the length may be consistent or vary with the shape of the site, but the width should allow 100% detection of burrows). The search can be conducted by one or more observers. Transect edges should be marked with flagging to ensure complete coverage. In open habitat, such as mowed pasture or natural sandhill, transects should be spaced no more than 10 meters (33 feet) apart. In thicker habitat, such as flatwoods and scrub, transects should be spaced as close as five meters (16 feet) apart. Patches of extremely thick habitat, such as saw palmetto or blackberry patches, should be searched more intensely with spacing at approximately one meter (three feet) or less.

All burrows observed (i.e., potentially occupied and abandoned) should be marked with flagging tape that indicates the burrow's label and activity class. This will assist field verification of survey completeness by FWC. The burrow label, status, and GPS coordinates should be recorded and reported to FWC so that the burrow can be identified later.

ATTACHMENT 4

Criteria for Determining the Status of Gopher Tortoise Burrows

Burrows are to be judged active if they are in good repair with a classic half-moon shaped entrance and appear to be in use by tortoises, inactive if they are in good repair but don't show sign of recent tortoise use, and abandoned if they appear unused and dilapidated (e.g, entrance has been washed in or covered with debris).

Reference: Auffenberg, W. & R. Franz. 1982. The status and distribution of the gopher tortoise (*Gopherus polyphemus*). pp. 95-126 *in* North American Tortoises: Conservation and Ecology, U.S. Fish & Wildl. Serv. Wildl. Res. Rept. 12 (R. Bury, Ed.).

ATTACHMENT 5

Gopher Tortoise Habitat Carrying Capacity

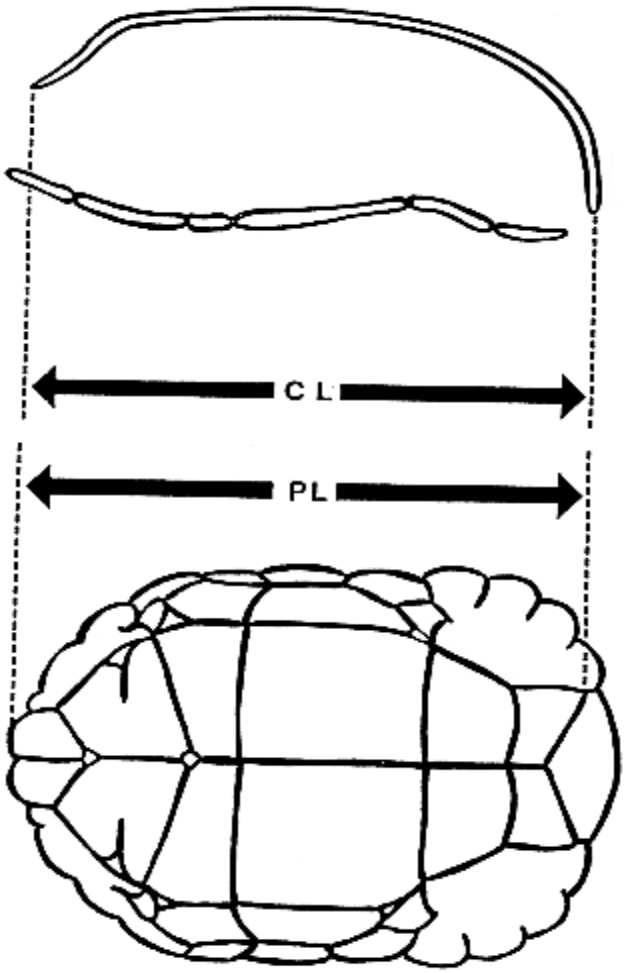
Gopher tortoise habitat carrying capacity varies with habitat types (see Attachment 1) and habitat quality within those types. There are as yet no quantitative parameters for formulae one can reference to determine with precision what the carrying capacity of a given site is. However, one way to demonstrate conclusively that a site is at some, although quantitatively indeterminate, level below carrying capacity is to demonstrate that a sustained tortoise harvest has occurred on the given site over recent years. Considering the low reproductive potential of the gopher tortoise, any substantial sustained harvest on a site will result in suppressed tortoise numbers for a considerable amount of time. Demonstration of such could be achieved by one or more, in combination, of three methods: (1) consulting local persons having knowledge of the history of the site; (2) analyzing the ratio of "old" (see Attachment 2) burrows to active ones (an inordinately high proportion of old burrows would indicate a previously more numerous population); and (3) analyzing the tortoise population structure on the sites (a "bottom heavy" population, or one with disproportionately high numbers of small or young individuals, could indicate past exploitation of that population).

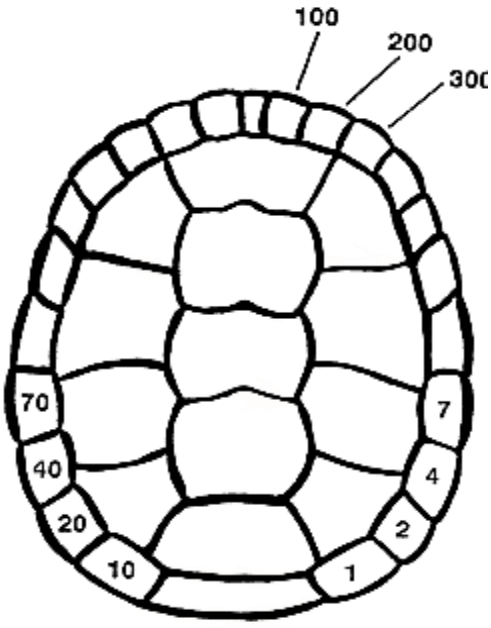
ATTACHMENT 6

Marking and Measuring Gopher Tortoises

Marking: Tortoises may be marked by notching of drilling holes in one or a combination of the eight rearmost scutes - the four right ones and the four left ones - and the three right-front ones. Each scute is assigned a numerical value per the scheme devised by Cagle (1939), as illustrated below. The scheme is additive; e.g., tortoise #5 would require the drilling or notching of the first and third scutes right of the rear marginal, tortoise #14 would require the drilling or notching of the first scute left of the rear marginal and the third scute right of the rear marginal, etc. The left front marginals can be used for site-specific codes; also, all relocated tortoises must have the third marginal on the left front side drilled. The size of the drill bit should be relative to the size of the tortoise, but no more than 25% the width of the marginal scute. Drilling 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 scute. PIT (Passive Integrated Transponder) tags may be used as an alternative to drilling marginal scutes. These small microchips are about the size of a grain of rice and are injected into a tortoise's hind leg using a hand-held applicator. A hand-held scanner reads the tag's electromagnetic code and displays the tag's number.

Measuring: Straight-line carapace length (CL) and plastron length (PL) should be recorded in millimeters (see below). Forestry tree calipers are useful for making those measurements.





CARAPACE
(Upper Shell)

APPENDIX I - Tortoise Habitat Protection Option and **APPENDIX II** - FWC Contacts for Gopher Tortoise Incidental Take have been removed from this document. Please visit the following website, http://myfwc.com/permits/Tortoise/pdf/GopherTortoiseIncidentalTakePermitsText.pdf for updated information on tortoise incidental take applications, or contact the office by phone at (850)410-0656, ext. 17327.

APPENDIX III. PART A

SPECIES CONSERVATION PLANNING SECTION
STANDARD TORTOISE RELOCATION CONTACTS

One original copy of the complete standard relocation application, with all pertinent attachments, must be sent to **Mr. Rick McCann, Division of Habitat and Species Conservation, Species Conservation Planning Section, Florida Fish and Wildlife Conservation Commission, 620 South Meridian Street (Mail Station 2A), Tallahassee, FL 32399-1600. A second complete original copy of the application must be sent to the appropriate Regional Division of Habitat and Species Conservation – Species Conservation Planning Section** office where initial processing of the application will occur. The appropriate points of contact for questions or submission of gopher tortoise standard relocation permit applications are as follows:

Region	Project Location (county)	Biologist Contact	Office	Phone Number
NW	Bay	Daphne McCann	Tallahassee	850-410-0656, ext. 17328
NW	Calhoun	Daphne McCann	Tallahassee	850-410-0656, ext. 17328
NW	Escambia	Daphne McCann	Tallahassee	850-410-0656, ext.17328
NW	Franklin	Daphne McCann	Tallahassee	850-410-0656, ext. 17328
NW	Gadsden	Daphne McCann	Tallahassee	850-410-0656, ext.17328
NW	Gulf	Daphne McCann	Tallahassee	850-410-0656, ext. 17328
NW	Holmes	Daphne McCann	Tallahassee	850-410-0656, ext. 17328
NW	Jackson	Daphne McCann	Tallahassee	850-410-0656, ext. 17328
NW	Jefferson	Daphne McCann	Tallahassee	850-410-0656, ext. 17328
NW	Leon	Daphne McCann	Tallahassee	850-410-0656, ext. 17328
NW	Liberty	Daphne McCann	Tallahassee	850-410-0656, ext. 17328
NW	Okaloosa	Daphne McCann	Tallahassee	850-410-0656, ext. 17328
NW	Santa Rosa	Daphne McCann	Tallahassee	850-410-0656, ext. 17328
NW	Wakulla	Daphne McCann	Tallahassee	850-410-0656, ext. 17328
NW	Walton	Daphne McCann	Tallahassee	850-410-0656, ext. 17328
NW	Washington	Daphne McCann	Tallahassee	850-410-0656, ext. 17328
NC	Alachua	Daphne McCann	Tallahassee	850-410-0656, ext. 17328
NC	Baker	Daphne McCann	Tallahassee	850-410-0656, ext. 17328
NC	Bradford	Daphne McCann	Tallahassee	850-410-0656, ext. 17328
NC	Citrus	Daphne McCann	Tallahassee	850-410-0656, ext. 17328
NC	Clay	Daphne McCann	Tallahassee	850-410-0656, ext. 17328
NC	Columbia	Daphne McCann	Tallahassee	850-410-0656, ext. 17328
NC	Dixie	Daphne McCann	Tallahassee	850-410-0656, ext. 17328
NC	Duval	Daphne McCann	Tallahassee	850-410-0656, ext. 17328
NC	Gilchrist	Daphne McCann	Tallahassee	850-410-0656, ext. 17328
NC	Hamilton	Daphne McCann	Tallahassee	850-410-0656, ext. 17328
NC	Lafayette	Daphne McCann	Tallahassee	850-410-0656, ext. 17328
NC	Levy	Daphne McCann	Tallahassee	850-410-0656, ext. 17328
NC	Madison	Daphne McCann	Tallahassee	850-410-0656, ext. 17328
NC	Nassau	Daphne McCann	Tallahassee	850-410-0656, ext. 17328
NC	Suwannee	Daphne McCann	Tallahassee	850-410-0656, ext. 17328
NC	Taylor	Daphne McCann	Tallahassee	850-410-0656, ext. 17328
NC	Union	Daphne McCann	Tallahassee	850-410-0656, ext. 17328
NE	Brevard	Chance Cowan	Vero Beach	352-732-1225
NE	Flagler	Lisa Wargo	Ocala	352-732-1225
NE	Indian River	Chance Cowan	Vero Beach	352-732-1225
NE	Lake	Lisa Wargo	Ocala	352-732-1225
NE	Marion	Lisa Wargo	Ocala	352-732-1225

NE	Orange	Chance Cowan	Vero Beach	352-732-1225
NE	Osceola	Chance Cowan	Vero Beach	352-732-1225
NE	Putnam	Lisa Wargo	Ocala	352-732-1225
NE	Seminole	Lisa Wargo	Ocala	352-732-1225
NE	St. Johns	Lisa Wargo	Ocala	352-732-1225
NE	Sumter	Lisa Wargo	Ocala	352-732-1225
NE	Volusia	Lisa Wargo	Ocala	352-732-1225
South	Broward	Chance Cowan	Vero Beach	352-732-1225
South	Collier	Heather Rigney	Terra Ceia	941-721-2068, ext.210
South	Glades	Chance Cowan	Vero Beach	352-732-1225
South	Hendry	Chance Cowan	Vero Beach	352-732-1225
South	Martin	Chance Cowan	Vero Beach	352-732-1225
South	Miami-Dade	Chance Cowan	Vero Beach	352-732-1225
South	Monroe	Chance Cowan	Vero Beach	352-732-1225
South	Okeechobee	Chance Cowan	Vero Beach	352-732-1225
South	Palm Beach	Chance Cowan	Vero Beach	352-732-1225
South	St. Lucie	Chance Cowan	Vero Beach	352-732-1225
Southwest	Charlotte	Heather Rigney	Terra Ceia	941-721-2068, ext. 210
Southwest	De Soto	Heather Rigney	Terra Ceia	941-721-2068, ext. 210
Southwest	Hardee	Heather Rigney	Terra Ceia	941-721-2068, ext. 210
Southwest	Hernando	Heather Rigney	Terra Ceia	941-721-2068, ext. 210
Southwest	Highlands	Heather Rigney	Terra Ceia	941-721-2068, ext. 210
Southwest	Hillsborough	Heather Rigney	Terra Ceia	941-721-2068, ext. 210
Southwest	Lee	Heather Rigney	Terra Ceia	941-721-2068, ext. 210
Southwest	Manatee	Heather Rigney	Terra Ceia	941-721-2068, ext. 210
Southwest	Pasco	Heather Rigney	Terra Ceia	941-721-2068, ext. 210
Southwest	Pinellas	Heather Rigney	Terra Ceia	941-721-2068, ext. 210
Southwest	Polk	Chance Cowan	Vero Beach	352-732-1225
Southwest	Sarasota	Heather Rigney	Terra Ceia	941-721-2068, ext. 210

The mailing addresses for submittal of standard relocation permit applications to Tortoise Permitting Biologist offices are:

Ms. Daphne McCann
Same mailing address as referenced above for Rick McCann
(Please mail both copies in one package-Thanks)

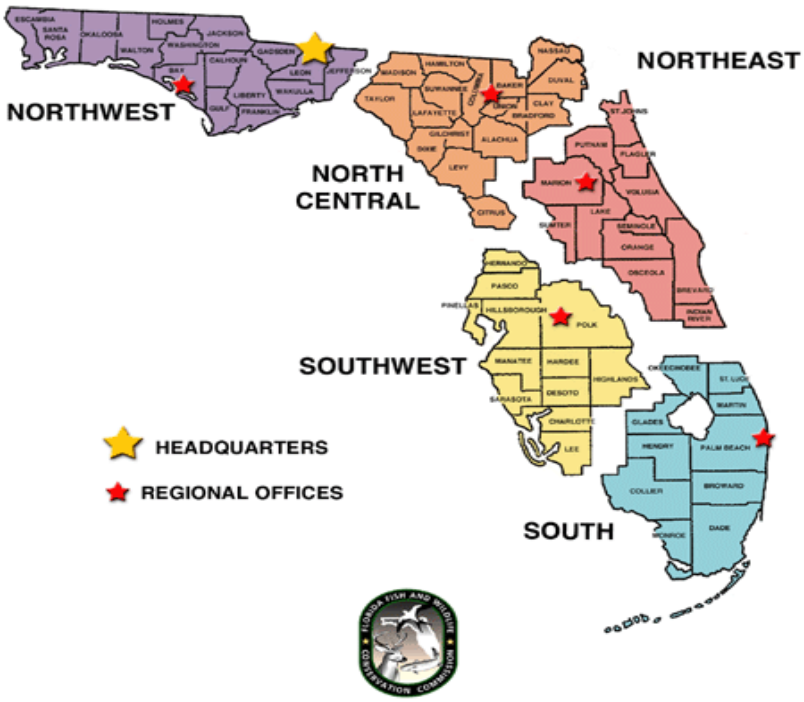
Ms. Heather Rigney
Florida Fish and Wildlife Conservation Commission
Species Conservation Planning Section
DEP- Terra Ceia Aquatic Preserve Office
Post Office Box 309
Terra Ceia, FL 34250

Ms. Chance Cowan
Florida Fish and Wildlife Conservation Commission
Species Conservation Planning Section
255 154th Avenue
Vero Beach, FL 32968-9041

Ms. Lisa Wargo
Florida Fish and Wildlife Conservation Commission
Species Conservation Planning Section
Northeast Regional Office
1515 East Silver Springs Blvd, Suite 106
Ocala, FL 34470

APPENDIX III. PART B

Florida Fish and Wildlife Conservation Commission
DIVISION OF HABITAT AND SPECIES CONSERVATION
SPECIAL TORTOISE RELOCATION CONTACTS



SPECIAL TORTOISE RELOCATION
(Five or fewer for on-site relocation)
http://myfwc.com/permits/Tortoise/default.asp (online)
Or Mail/ fax application to:

Northwest Region
Species Conservation Planning Section
FL Fish and Wildlife Conservation Commission
3911 Highway 2321
Panama City, FL 32409-1658
(850) 265-3677/Fax (850) 747-5690

North Central Region
Species Conservation Planning Section
FL Fish and Wildlife Conservation Commission
P.O. Box 177
Olustee, FL 32072
(904) 758-0525/Fax (904) 758-0533

Please visit the aforementioned website for additional information regarding, tortoise biology, capture and relocation methods and other tortoises references.

Northeast Region
Species Conservation Planning Section
FL Fish and Wildlife Conservation Commission
1239 S.W. 10th Street
Ocala, FL 34474-2797
(352) 732-1225/Fax (352) 369-2455

Southwest Region
Species Conservation Planning Section
FL Fish and Wildlife Conservation Commission
3900 Drane Field Road
Lakeland, FL 33811-1299
(863) 648-3203/Fax (863) 701-1248

South Region
Species Conservation Planning Section
FL Fish and Wildlife Conservation Commission
8535 Northlake Boulevard
West Palm Beach, FL 33412
(561) 625-5122/Fax (561) 625-5129

SPECIAL tortoise contacts.doc revised 26 October 2007