DRAFT

SAFE HARBOR AGREEMENT

Between

ENVIRONMENTAL DEFENSE FUND, INC.

And

U.S. DEPARTMENT OF THE INTERIOR,
FISH AND WILDLIFE SERVICE

TABLE OF CONTENTS

1. INTRODUCTION

This Safe Harbor Agreement (Agreement) is entered into between Environmental Defense Fund, Inc. (EDF) and the U.S. Department of the Interior, Fish and Wildlife Service (Service); hereinafter collectively called the "Parties." The purpose of this Agreement is to increase Houston toad (*Bufo* [=*Anaxyrus*] *houstonensis*) populations in the wild through the implementation of specific conservation activities that are expected to create and restore habitat for the Houston toad on properties owned by non-Federal landowners throughout the species' range. This is a programmatic Agreement that will facilitate private landowner participation in Houston toad recovery. Landowners choosing to enroll in the Agreement will enter into a Cooperative Agreement with EDF. Under the associated Enhancement of Survival Permit (Permit), EDF will issue Certificates of Inclusion to landowners who agree to carry out habitat improvements for the Houston toad and abide by the terms and conditions of the Permit. This Agreement follows the Service's Safe Harbor Agreement policy (64 Federal Register [FR] 32717) and regulations (64 FR 32706 and 52676, and 69 FR 24084), both of which implement section 10(a)(1)(A) of the Endangered Species Act (Act) of 1973, as amended.

As an Applicant, EDF has shown the capability for and commitment to implementing all of the terms and conditions of this Agreement. Established in 1967, EDF is a national nonprofit organization representing more than 700,000 members. Its mission is to "preserve the natural systems on which all life depends" by using science to design and transform markets to bring lasting solutions to serious environmental problems. EDF has over 350 scientists, economists, attorneys, and other professionals on staff and a budget of $104.5 million (2009). This organization is the permit holder of a programmatic Safe Harbor Agreement for the endangered golden-cheeked warbler (*Dendroica chrysoparia*) and black-capped vireo (*Vireo atricapillus*), and has administered this Agreement over a 25-county area within the central Texas area since 2000. The Service has partnered with EDF to help in the development and implementation of several individual landowner Safe Harbor Agreements for the conservation of the Houston toad in Bastrop County, Texas. In 2010, EDF secured funding through the Natural Resources Conservation Service's (NRCS) Cooperative Conservation Partnership Initiative (CCPI) specifically for habitat protection and restoration for the Houston toad.

2. LIST OF COVERED SPECIES

This Agreement covers the following federally listed species, which is hereafter referred to as the "covered species":

Houston toad (endangered)

Description

In October 1970, the Houston toad was federally listed as an endangered species (35 FR 16047). Critical habitat was designated for this species in January 1978 (43 FR 4022). Houston toads are generally brown and speckled, although individual coloration can vary considerably. The Houston toad's underside is usually pale with small, dark spots. Males have dark throats, which

appear bluish when distended. Adult Houston toads are 2 to 3.5 inches (5 to 9 centimeters) long and, like all toads, are covered with raised patches of skin that resemble warts (Brown 1971). Although Houston toads are similar in appearance to the closely-related Gulf Coast toad (*B. valliceps*) and Woodhouse's toad (*B. woodhouseii*), these species can be discerned by physical and genetic characteristics (Brown 1971, Hillis et al. 1984). Mitochondrial DNA sequence analysis indicates that the Houston toad is a unique evolutionary unit separate from the other species (Forstner and Dixon 2000).

Range

The Houston toad is endemic to east central Texas (Dixon 2000). Since the 1980s, the known range of the Houston toad included nine Texas counties (Hillis et al. 1984, Yantis 1989, 1990, 1991, 1992). These included Austin, Bastrop, Burleson, Colorado, Lavaca, Lee, Leon, Milam, and Robertson counties. However, rangewide audio surveys conducted from 2006 to 2008 have resulted in the detection of the species in only six counties (Forstner et al. 2007, Dr. Michael Forstner, Texas State University – San Marcos, pers. comm. 2008). There is a high correlation between the occurrence of the Houston toad and outcrops of the Eocene Epoch Sparta Sand, Weches, Queen City Sand, Recklaw, and Carrizo Sand formations (Yantis 1991, Seal 1994, Forstner 2003). The Carrizo Sand and Reklaw formations give rise to deep sandy soils, such as the Patilo-Demona-Silstid and Axtell-Tabor soils that are often found in toad habitat (Dixon et al. 1990, Forstner 2003).

Habitat

Houston toad habitat can be categorized as such: breeding and nursery habitat, occupied habitat, and dispersal habitat (McHenry and Forstner 2009). Water is an important component to Houston toad breeding and nursery habitat. Houston toads are known to breed in small pools of water and ephemeral ponds (Kennedy 1962, Brown 1971, Forstner 2003). They also have been heard calling or have been captured in ditches, lakes, puddles in roads, moist areas in yards, flooded pastures, potholes, streams, stock tanks, and permanent ponds (Forstner 2001, Forster 2003). Survival of eggs, tadpoles, and emerging juveniles may be low in permanent water bodies (Forstner 2003) because they are more likely to harbor predators such as birds, mammals, snakes, turtles, fish, aquatic invertebrates, and bullfrogs (Quinn and Ferguson 1983, Dixon et al. 1990) and potential competitors, such as Woodhouse's and Gulf Coast toads (Hillis et al. 1984). Permanent water bodies also have an increased probability of livestock usage (Forstner 2003), which can negatively impact the quality of habitat along the shoreline of breeding ponds (Forstner 2001, Forstner 2003).

Occupied habitat includes a breeding pond and the 200 meters (656 feet) of surrounding adjacent upland where adults are most commonly found (Swannack 2007, McHenry and Forstner 2009). Houston toads typically occupy habitat consisting of rolling uplands characterized by pine and/or oak woodlands underlain by deep, sandy soils (Kennedy 1962, Brown 1971, Seal 1994). Tree species vary, but typically include loblolly pine (*Pinus taeda*), post oak (*Quercus stellata*), blackjack oak (*Q. marilandica*), and/or sandjack oak (*Q. incana*) (Forstner 2003). Although the Houston toad does not appear to be tied to the presence of a particular tree species, pine is

dominant in the Lost Pines region of Bastrop County (Brown and Thomas 1982), which is home to the largest known populations of Houston toads (Hillis et al. 1984, Seal 1994). Subsequently, areas consisting of the following are not considered suitable habitat for the Houston toad: (1) open pastures absent of canopy cover (Forstner 2002a, Forstner 2003); (2) pastures of coastal Bermuda grass (*Cynodon dactylon*) or other heavy, rhizomatous mat-forming grasses; or (3) forested areas with a dense, woody understory and low light availability. Although not considered suitable habitat, it may be possible for Houston toads to move through such areas while dispersing to suitable habitat areas or breeding sites. Therefore, Houston toads may still be found within these types of habitats at any given time, but it is likely they do not persist in these locations for long periods.

Houston toad dispersal habitat represents the corridors through which unidirectional movements of juvenile and adults take place (McHenry and Forstner 2009). Although poorly understood for the Houston toad, dispersal is likely important for survival, recruitment, immigration, genetic exchange, and the long-term health of an anuran population (Bull 2009). Drainages are the most likely corridor route for dispersing Houston toads because they provide moisture that can prevent dessication. Hillis et al. (1984) observed Houston toad adults and juveniles using gulleys leading to ponds, and telemetry data has also shown that adults use drainages for dispersal (Swannack 2007). Dispersal habitats are larger than breeding and occupied habitat. They may not be restricted to continguous areas of deep sandy soils, but likely require some overstory components to prevent dessication (McHenry and Forstner 2009).

Life History

The life expectancy of the Houston toad is at least three years, but may be longer (Price 1993). Males reach sexual maturity at about one year of age, but females require one to two years to achieve reproductive maturity (Quinn 1981, Quinn and Mengden 1984). In mark-recapture surveys of Houston toads in Bastrop County, observed sex ratios of males to females have been highly skewed in favor of males ranging from 3:1 to 10:1 (Dixon et al. 1990, Forstner 2002a, 2002b, 2003, 2006). The Houston toad is an "explosive" breeder, appearing in large numbers at breeding ponds where the males call to attract females over a period of a few nights throughout the breeding season, beginning as early as January 18 (Hillis et al. 1984, Dixon et al. 1990). Houston toads typically breed from late January to June (Kennedy 1962, Hillis et al. 1984). Reported egg-laying dates in the field range from February 18 to June 26 (Kennedy 1962, Dixon 1982, Hillis et al. 1984). Breeding is believed to be triggered in part by rainfall and warm night time temperatures (Kennedy 1962). Other factors may also play a role in the timing of chorusing activity. For example, Price (1992) found that Houston toads do not generally call during 7 to 10 days prior to a full moon. However, all cues that may stimulate Houston toad breeding activity are not known.

This species tends to concentrate their reproductive efforts into producing large numbers of eggs, but each egg has less than one percent probability of survival (Seal 1994). Eggs are laid in strings in the water and hatch into tadpoles that metamorphose into juvenile toadlets approximately 60 days after egg deposition (Hillis et al. 1984). After metamorphosis, juvenile

Houston toads move into the surrounding terrestrial habitats where they grow and develop into adults (Forstner 2003).

Threats

Small, sedentary species with restricted distributions, specialized habitat niches, and narrow climatic tolerances are especially sensitive to changes in habitat conditions (deMaynadier and Hunter 1998, Welsh 1990). The distribution of the Houston toad appears to be restricted naturally as the result of specific habitat requirements for breeding and development. These natural restrictions make them particularly vulnerable to the negative effects of human-induced changes that result in habitat loss, degradation, and fragmentation (Hillis et al. 1984). Habitat disturbance also encourages the establishment and proliferation of red-imported fire ants (*Solenopsis invicta*) (fire ants). Fire ants are known to prey on newly-metamorphosed toadlets (Freed and Neitman 1988, Forstner 2002a) as well as the invertebrate community that is believed to be an important part of the food base for the Houston toad (Bragg 1960) and for most toad species within the genus *Bufo* (Clarke 1974). Paved roads and other forms of urban development can prevent or hinder amphibian dispersal and increase mortality (Van Gelder 1973, Reh and Seitz 1990, Soulé et al. 1992, Fahrig et al. 1995, Yanes et al. 1995, Findlay and Houlahan 1997, Gibbs 1998, Vos and Chardon 1998, Knutson et al. 1999).

Other forms of habitat loss or disturbance include expanding urbanization, conversion of woodlands to agricultural use, logging, mineral production, alteration of watershed drainages, wetland degradation or destruction, and other processes that contribute to loss of suitable breeding, feeding, or sheltering habitat (Brown 1971, Seal 1994). Population viability analyses for the Houston toad indicate that risk of extinction increases with reduced migration and dispersal, survivorship, reproductive success, and sustained reduction of available habitat. Maintaining several relatively large populations of equal sizes that are interconnected so as to allow dispersal and re-colonization can enhance population survival (Seal 1994).

3. DESCRIPTION OF ENROLLED LANDS

The Permit area will include Austin, Bastrop, Burleson, Colorado, Lavaca, Lee, Leon, Milam, and Robertson counties (Figure 1). These counties comprise the entire known range of the Houston toad since the 1980s (Hillis et al. 1984, Yantis 1989, 1990, 1991, 1992). Within the Permit area, EDF intends to give highest priority to those landowners with existing populations of Houston toads, as well as those with land adjacent or near public and private land parcels currently being managed for Houston toad conservation. These parcels include, but are not necessarily limited to Bastrop State Park, the Boy Scouts of America/Capital Area Council's (BSA/CAC) Griffith League Ranch in Bastrop County, Texas, and properties enrolled in other Houston toad Safe Harbor Agreements (Figure 2). Habitat improvements on the properties enrolled in this Agreement ("enrolled properties") will benefit conservation efforts on the parcels listed above, that are already managed for Houston toads by buffering them from incompatible land uses, enlarging the areas capable of supporting Houston toads, and increasing habitat connectivity and the overall amount of suitable habitat to facilitate dispersal of Houston toads among lands managed for their conservation.

Each property under consideration for enrollment will differ with regard to vegetation conditions, other habitat conditions, and land management practices. Specific details describing and assessing these characteristics for each enrolled property will be included in each individual Cooperative Agreement (the Cooperative Agreement template is included as Attachment A to this Agreement). These details will include a map of the property boundary, delineation of the enrolled property (if different than the property boundary), descriptions of baseline conditions, including land management practices and habitat conditions, at the time of enrollment.

Prior to enrolling a property, EDF will use the National Register of Historic Places National Register Information System to determine if the property is listed in or eligible for listing in the National Register of Historic Places. If a property is listed in or eligible for listing in the National Register of Historic Places, EDF will confer with the appropriate landowner, the Service, and the Texas Historical Commission to determine if the proposed conservation activities are compatible with the historic integrity of the property. Activities deemed incompatible with the historic integrity of the property will not be conducted.

4. BASELINE DETERMINATION

Before landowners can enroll properties under this Agreement, they will work directly with EDF to complete a habitat assessment of each property to be enrolled and develop a corresponding Cooperative Agreement. Habitat assessments will be used to help determine the baseline characteristics of the properties to be enrolled. EDF may partner with other qualified entities to conduct baseline habitat assessments. In all cases, a property will be enrolled in the Agreement only after both EDF and the Service concur with the baseline determination. If the Service does not concur with a baseline assessment for a property, that property may not be enrolled in the Agreement.

Baseline will consist of (1) habitat conditions (e.g., vegetation, aquatic habitat, and soils) as determined through the habitat assessment, and (2) land management practices on each property prior to the time of enrollment. Habitat characteristics and other property features will be documented on a map that will be attached to the corresponding Cooperative Agreement. Habitat conditions and land management practices will be determined and quantified as described below.

Habitat conditions

Habitats will be assessed on each enrolled property to determine their suitability for Houston toads. The information listed below will be incorporated into a check-list in the Cooperative Agreement to establish environmental baseline for each property to be enrolled.

- Known history, presence, and reproductive activity of the Houston toad on the property (including survey reports with positive and negative results, if available)

- Potential breeding pond characteristics including size, depth, slope, vegetation conditions, and distance to nearby forest or woodland

- Aquatic species present in ponds including the presence of predatory fish, insects, and amphibian species

- Water quality status including eutrophication (i.e., a condition that occurs when water bodies receive excess nutrients that stimulate excessive plant growth, which leads to reduced oxygen levels and the death of other aquatic organisms) or other water quality conditions that could be detrimental to the development of Houston toad tadpoles

- Vegetation conditions characterizing the structure, composition, and extent of all vegetation types present including canopy cover, density, and ground layer conditions with an explanation of the sampling methods used to determine suitability in different habitat areas on the property

- Soil conditions characterizing the structure, texture, and consistency of soil types present on the property (e.g., deep sandy soils that are loose or friable or soils that contain more clay particles than sand)

Land management practices and existing structures

Land management practices will be described in each Cooperative Agreement. These practices may include, but are not limited to the following:

- Livestock management activities including size of herd, grazing regime, and cattle water source locations
- Hunting activities
- Silviculture (forestry) activities

- Fence line, road, and facilities maintenance activities
- Pesticide/herbicide use and treatment regimes
- Water management including pond maintenance, dam maintenance, and water level management
- Prescribed burning activities
- Locations of buildings, other permanent structures, and paved surfaces

The habitat assessment and development of the Cooperative Agreement will take place within the year prior to enrollment. The date at which the assessment is completed shall serve as the effective date of baseline conditions. EDF will provide copies of the draft Cooperative Agreements to the Service to review, comment, and concur on the baseline determination and recommended conservation activities. The Service will make every effort to respond to EDF within 20 business days of receiving a baseline assessment. The Service must concur with the proposed baseline determination before a landowner is enrolled under this Agreement. EDF will also make available to the Service, upon request, other records and materials related to the implementation of the Agreement.

Upon the finalization of a Cooperative Agreement between the landowner and EDF, with the concurrence of the Service on the baseline determination, EDF will then issue a certificate of inclusion to the landowner. A property will be considered enrolled under this Agreement only after a landowner has received his/her certificate of inclusion. The certificate of inclusion will document the landowner's participation in this Agreement and convey incidental take authorization and safe harbor assurances from the permit held by EDF to the certificate's recipient.

Return to baseline

Under this Agreement, a landowner may return his or her property to baseline conditions upon the expiration of a Cooperative Agreement and before the expiration of the associated Permit. Once a property is returned to its baseline conditions, the landowner is no longer covered for incidental take of Houston toads under this Agreement. Alternatively, at the end of the management period specified within the Cooperative Agreement, and before the expiration of EDF's Permit, a landowner may renew his or her Cooperative Agreement with EDF.

This is not a "zero baseline" Agreement. Baseline determinations will not include the number of Houston toads known to occur on the enrolled property, degree of reproductive activity, or other specific measures related to Houston toad populations. Therefore, returning to baseline conditions will be measured with regard to habitat rather than the presence or absence of Houston toads following return-to-baseline activities. Returning an enrolled property to baseline conditions would only constitute the following: (1) stopping conservation activities (e.g., brush management, prescribed burning activities), (2) removing enhancements (e.g., exclusion fencing around a pond), (3) returning the enrolled property to its baseline habitat conditions, and (4) returning to previous property management practices.

It is important to note that if a participating landowner chooses to reintroduce Houston toads on his/her property during their enrollment in the Agreement, there is no guarantee that all or any of the Houston toads that have been released on the property will or can be captured or removed before the Permit's expiration. Therefore, the Service will not authorize the removal of reintroduced or headstarted Houston toads as a return-to-baseline activity. Because not all of the Houston toads that are reintroduced on a property can subsequently be removed, the risk for "incidental take" of the species may continue after the Permit's expiration, unless EDF chooses to renew its Permit.

Other restrictions on returning properties to baseline conditions include the following:

- Under no circumstances will a landowner be authorized to purposefully take (e.g., intentionally kill, injure, capture, or transport) a Houston toad in an effort to return the property to baseline conditions or for any other purpose.

- Landowners will notify EDF and the Service prior to the breeding season before they plan to return the property to its baseline conditions. Landowners will also allow EDF and the Service access to enrolled properties to capture Houston toads and move them off the property, if the Service considers this to be advantageous for Houston toad conservation.

- Activities designed to return a property to its baseline conditions will take place between July 1 and December 31 (outside of the Houston toad breeding season and emergence period), when Houston toads are less active.

- To be covered for incidental take of Houston toads, returning a property to its baseline conditions must be completed within the 30-year term of EDF's Permit. Cooperative Agreements may be extended if EDF's Permit is renewed under this Agreement, and if that renewal allows for such extension.

Returning enrolled properties to baseline conditions is subject to EDF's right to terminate Cooperative Agreements pursuant to section 10.B, "*Termination of Cooperative Agreements*" of this document.

5. CONSERVATION ACTIVITIES

Landowners will work collaboratively with EDF to implement conservation activities to improve the quality of Houston toad habitat on enrolled properties. The goals of the conservation activities are (1) to create or enhance Houston toad breeding, occupied, and dispersal habitat and/or (2) allow for the reintroduction of a sustainable Houston toad population through reintroduction or expansion from adjacent properties.

Specific details and guidance on how to minimize impacts to the Houston toad while conducting conservation activities included in this Agreement are provided in Attachment B "*Conservation Activity Guidelines*." All conservation activities will follow the guidelines outlined in Attachment B unless otherwise approved by the Service in writing prior to implementation.

Implementation of this Agreement will follow an adaptive management approach. Therefore, if the methods for carrying out the following conservation activities, as listed in Attachment B or elsewhere in this document, do not meet the overall goal of improving the Houston toad's status, they will be modified accordingly pursuant to section 10.A, "*Modification of the Agreement*" of this document. The conservation activity guidelines set forth in Attachment B may be modified as new information on Houston toad management becomes available through a minor amendment to the Permit as long as the modifications do not result in an increase of incidental take beyond what was authorized in the original Permit.

Specific conservation measures may include, but are not necessarily limited to, the following:

- **Brush management to create desired understory conditions and facilitate restoration of native ground cover**

  Forest thinning is the practice of removing undesirable vegetation (this may include select trees or understory vegetation) from a forested area. The suppression of wildfires has led to a dramatic increase in the understory density within the range of the Houston toad. The positive correlation between insect and plant community diversity on the forest floor is commonly recognized, as explained and demonstrated by Siemann et al. (1998). Thus, a reduction in vegetation community diversity on the forest floor may account for a decline in insect diversity and abundance. Since insects comprise the Houston toad's food source, plant community diversity can affect the availability of food for the Houston toad. Thinning is expected to increase light availability and penetration, which may increase the herbaceous vegetation diversity on the forest floor. Brush management activities are expected to produce benefits for the Houston toad within the first 2 years of initial thinning.

- **Forest enhancement/restoration to create favorable canopy conditions**

  Pine and oak species that are native to the area may be transplanted in open areas to establish a forest canopy amongst the restored, native herbaceous plant community. Tree planting that occurs within relatively open areas is expected to produce benefits for the Houston toad within 10 to 20 years of initial planting. These benefits include the creation of shade and micro-climates that will not only support a diverse assemblage of native grasses and forbs, but also provide a more favorable temperature regime for the Houston toad. These conditions are expected to facilitate and enhance Houston toad movement and foraging.

- **Prescribed burning**

  Prescribed burning is a technique used to restore, create, and maintain desired understory and ground cover conditions. Habitat may be subjected to multiple, low-intensity "management" burns following initial understory restoration work (i.e., thinning). The purpose of low-intensity burns is to maintain the open understory and enhance the quality and cover of the native herbaceous vegetation, thereby increasing native insect prey abundance and diversity and improving conditions for Houston toad movement.

  McCollough et al. (1998) summarized existing literature on the effects of fire on insects in northern boreal forests and indicated that such effects vary among taxonomic groups, sampling time after fire, and the intent of the research study. Studies have shown that increased light on the forest floor can provide an opportunity for increased herbaceous plant diversity (Halls and Schuster 1965, Thomas et al. 1999). Because of this, it is predicted that maintaining light availability through prescribed burning will increase the diversity of plant species and, subsequently, the diversity of the insect community (Siemann et al. 1998) in Houston toad habitat.

  In existing forests and woodlands with moderate to heavy woody understory species, the Service and EDF expect benefits for the Houston toad to begin accruing within one year of initial brush thinning and prescribed fire implementation. Increased light penetration to the forest floor and regrowth of native herbaceous vegetation are expected to continue increasing in a stepwise fashion following each subsequent thinning and fire treatment.

  Prescribed burning activities will be planned in cooperation with the Texas Forest Service, the Service, and other appropriate parties, such as Texas Parks and Wildlife Department. Historically, the natural fire season for the Houston toad's habitat was likely during the warm summer months (Dr. Michael Forstner, Texas State University – San Marcos, pers. comm. 2011). However, given the high levels of fuel load resulting from decades of fire suppression, burning during the summer months may pose a significant risk to both the Houston toad and public safety. For these reasons, prescribed fires will be limited to the period of July 1 through December 31, outside of the Houston toad's breeding season, to minimize the possibility of direct toad mortality during burning and to address public safety concerns. This restriction may be modified in the future if new information on ecosystem effects becomes available that indicates it is preferable to conduct prescribed burning activities during the summer without posing risks to public safety. During periods of relatively cold weather (when Houston toads are not as likely to be moving across the landscape surface), prescribed fires may be conducted during the period January 1- January 15 in areas distant from known Houston toad breeding areas after coordination with and written approval by the Service.

- **Existing breeding pond enhancement**

  Improvements to potential Houston toad breeding ponds may be conducted. Such activities may include fence construction to restrict livestock from some or all portions of the pond, bank stabilization, restoration of the tree canopy adjacent to ponds, and re-vegetation at pond edges to provide cover for emerging toadlets.

- **Control of red-imported fire ants**

  Red-imported fire ant (fire ant) mounds near ponds may be controlled through the application of fire ant control methods that are best suited for each property. Fire ants will be treated in such a manner that will maximize successful toadlet emergence from breeding ponds and survival of all Houston toad life stages. Pesticides may be used for fire ant control after coordination with the Service. Pesticides must be used in strict accordance with the product label and must only be placed near fire ant mounds and not near the mounds of native ant species. All pesticide applications will be consistent with "*Recommended Protection Measures for Pesticide Applications in Region 2 of the U.S. Fish and Wildlife Service*" (White 2004). However, application methodology and frequency will be adaptively modified based on the availability of new information on fire ant control as well as monitoring information, such as fire ant mound densities after treatments and toadlet emergence success and survival. Fire ant control is expected to reduce mortality of Houston toad adults and juveniles within the first year of implementation.

- **New breeding pond creation**

  Ephemeral ponds may be created on select properties in different size and shape configurations to provide new breeding habitat for Houston toads. Pond construction will only take place under the following circumstances: (1) through the recommendation of Houston toad experts and with thoughtful consideration of the best available science that would support the need for new ponds at sites that would not reduce the reproductive success of other known Houston toad chorus ponds in the area and (2) when the surrounding upland habitat conditions are of sufficient quality and extent to support the full life cycle of Houston toads emerging from those ponds.

  The quality of terrestrial, upland habitat surrounding a potential breeding site is just as significant as the aquatic habitat, with regard to amphibian reproduction and survival. (Dodd and Cade 1998, Pope et al. 2000, Semlitsch 2000). Most pond-breeding amphibians, including the Houston toad, live in the surrounding terrestrial habitat during the non-breeding season (Semlitsch 1998, Semlitsch 2000, Forstner 2002a, Forstner 2003, Swannack and Forstner 2004). Therefore, the sufficiency of upland habitat conditions for Houston toad dispersal and foraging will be assessed on each property as part of the baseline determination before a Certificate of Inclusion is issued. If upland conditions are deemed to be of suitable quality and extent by Houston toad experts or the

best available science and it is determined that a new pond would not reduce the reproductive success of other known Houston toad chorus ponds in the area, then ephemeral breeding ponds may be created.

Upland habitat restoration may be necessary on some enrolled properties before pond construction can be initiated. It can be reasonably expected that a new breeding pond will provide conservation benefits to the Houston toad within the first 5 years after it is constructed. However, monitoring of Houston toad activity may be necessary to make this determination for a specific pond.

- **Headstarting and/or reintroduction of captively-bred Houston toads**

Headstarting refers to the concept of collecting individuals of a particular life stage, usually a young and more vulnerable life stage, in the wild and captively hatching and/or rearing those individuals to release them back into their native habitat after they reach a certain age or size. Through a partnership with Texas State University and the Houston Zoo, the Service authorized the initiation of a headstarting program for Houston toads in Bastrop County in 2007. The Service believes that headstarting will provide a means for Houston toad eggs, tadpoles, and juveniles to overcome high immediate mortality, increase population size, and decrease the risk of imminent extinction for the remaining Houston toad populations.

Reintroductions are attempts to return individuals of a species to parts of their historical range where they have been extirpated (Seddon et al. 2007, Armstrong and Seddon 2008). The Service, with the coordination of all appropriate agencies and species experts, may choose to begin reintroducing captively-bred Houston toads into the wild at some time after this Agreement is finalized. The Service will not carry out these activities without first receiving written landowner permission. If a landowner is willing to allow Houston toad reintroductions on his/her property and chooses to be enrolled in this Agreement, such reintroductions will only be carried out after the landowner has included the reintroduction activities in his/her Cooperative Agreement with EDF and has received a certificate of inclusion.

Through this Agreement, the Service expects to expand headstarting efforts and possibly initiate reintroduction efforts for the Houston toad within the nine counties covered under this Agreement and the associated Permit. Houston toads will only be headstarted or reintroduced on sites that have suitable breeding and upland habitat for foraging, dispersal, and hibernation. All activities involving the release of captively-bred or reintroduced Houston toads will be conducted in accordance with the Service's "*Policy Regarding Controlled Propagation of Species Listed under the Endangered Species Act*." (65 FR 56916)

Given the effort and expense necessary to raise Houston toads in captivity, participating landowners must commit to allowing the persistence of headstarted or reintroduced

Houston toads on their properties for at least 10 to 20 years before becoming eligible to return to baseline conditions. Headstarting and reintroduction sites will be prioritized based on (1) the ability for the location of a potential site to significantly contribute to overall Houston toad recovery and (2) the length of time a landowner commits to allowing Houston toads to remain on his/her property before it is returned to baseline.

Expected conservation benefits of this Agreement include the following:

- Enhancement of Houston toad foraging and hibernating habitat by reducing the density of woody understory species, restoring favorable canopy conditions, and facilitating the establishment and maintenance of native herbaceous vegetation and Houston toad prey base

- Creation and enhancement of Houston toad breeding and toadlet emergence habitat

- Facilitation of Houston toad dispersal through the creation and enhancement of habitat linkages throughout the species' range

- Increase in Houston toad population numbers through headstarting and reintroduction efforts

- Facilitation of viable, self-sustaining Houston toad subpopulations

EDF will not enter into any Cooperative Agreement that does not allow enough time for conservation benefits to accrue on a given property. The rate of benefit accrual and the achievement of maximum benefits will depend on the following:

- Baseline habitat conditions of each property - Enhancements to management areas that have relatively good baseline conditions are expected to be modest, but immediate. In contrast, enhancement of areas that have relatively poor baseline conditions will be substantial, but will likely take several years to achieve maximum benefits.

  Example 1 - Prescribed burning within a loblolly pine forest that already has a relatively open understory will not significantly increase light penetration to the ground, but will quickly remove excessive duff and stimulate re-sprouting of herbaceous vegetation.

  Example 2 - An existing forest with a dense understory and deep duff layer will take several iterations of brush thinning and/or prescribed fire to achieve the desired conditions. Conservation activities within a habitat area with an intact tree canopy, dense understory vegetation, and an excessive duff layer would be expected to accrue maximum conservation benefits within 15 years (after three to four applications of thinning and prescribed burning).

- The type(s) of conservation activities to be undertaken by each property owner - Different rates of conservation benefit accrual will vary depending on the conservation activity, starting conditions, weather, and other factors.

  Example 3 - In the case of re-forestation of a relatively open area, maximum benefits are expected to be achieved once canopy cover reaches 50 percent. This would be expected to occur within 10 to 20 years of planting (in the case of loblolly pines). In comparison, landowners conducting prescribed burning and brush thinning in existing forest may begin to see conservation benefits as early as one year from the initiation of these activities.

- The amount of time the property owner will engage in the specified conservation activities and commit to maintaining improvements and enhancements

Each Cooperative Agreement will stipulate that conservation activities be maintained for a period that is expected to result in the use of restored, enhanced, or newly created habitat by the Houston toad. Landowners will be required to maintain suitable Houston toad habitat through the implementation of the conservation activities outlined in the corresponding Cooperative Agreement for at least 10 consecutive years after conservation benefits are anticipated to begin to accrue.

The Service and EDF anticipate that implementation of these conservation activities will produce net conservation benefits for the Houston toad. The Service and EDF also believe that the 30-year duration of the Agreement and associated Permit term are sufficient to achieve these conservation benefits.

Incidental Take

The conservation activities outlined in this Agreement are designed to expand, create, and restore habitat for the Houston toad throughout its range, thereby increasing its population numbers. Consequently, it is reasonable to expect that Houston toads will move onto and/or increase on the enrolled properties after conservation activities have been initiated as a result of an increase in the availability of higher quality habitat. Houston toads may also be reintroduced onto enrolled properties. This could result in incidental take of Houston toads during understory thinning, prescribed burning, or pond construction activities. It is also reasonably foreseeable that there may be an increased risk of death or injury to individual Houston toads as a result of normal property maintenance activities and usage.

The conservation activities described in this Agreement are likely to result in habitat improvement and the expansion and/or reintroduction of Houston toads onto various enrolled properties. Eligibility to return to baseline will be effective after the conservation activities have been fully implemented and the net conservation benefits have had time to accrue. Each

Cooperative Agreement will indicate when the participating landowner will be eligible to return his/her property to baseline conditions and by what means this will occur.

The Service believes that the majority of incidental take from returning the enrolled properties to their baseline conditions will result from the elimination of ephemeral breeding ponds. EDF and the participating landowners will not undo any of the habitat improvements or take part in activities that may reduce the population size of the Houston toad until EDF has given the Service notice and a reasonable opportunity to relocate any affected individual Houston toads. This opportunity will include at least one spring breeding season so as to allow capture of Houston toads at their breeding ponds when they are most active.

Participating landowners may decide not to return their properties to their baseline conditions before the expiration or termination of the Permit and to forego using their authorization to "take" under the permit. Authorization to take ceases after the permit expires, although, the permit may be renewed prior to expiration.

Net Conservation Benefit

The conservation activities described in section 5 of this Agreement are expected to create or restore suitable habitat for Houston toads. This may result in Houston toads expanding onto enrolled properties from surrounding properties with previously established Houston toad populations. Houston toad management activities not pertaining to this Agreement are already underway on other properties in Bastrop County. Expansion and linkage of Houston toad habitat areas between Bastrop State Park and the BSA/CAC's Griffith League Ranch, and also in the areas immediately surrounding these two properties, may be important to the future viability of the Houston toad. EDF expects this Agreement to facilitate the enrollment of at least 20 landowners within this area of Bastrop County. Their participation in the conservation activities described in section 5 of this Agreement is expected to lead to the expansion of known Houston toad populations and, potentially, the founding of new populations.

Restoration and enhancement of Houston toad habitat within portions of its range outside of Bastrop County are considered vital to the overall viability and recovery of the species. Few, if any, conservation activities are currently being implemented to achieve these goals outside of Bastrop County. As a result of this Agreement, and within 20 years of Permit issuance, EDF expects to enroll at least 40 landowners in areas outside of Bastrop County. The combined effects of these efforts are expected to result in enhanced habitat conditions for the Houston toad on a rangewide level.

The Service and EDF expect this Agreement to result in the creation and enhancement of Houston toad habitat throughout its range. The conservation activities will likely support increased numbers of Houston toad individuals as the habitat improves on the enrolled properties over time. As Houston toads move onto or otherwise increase in number on the enrolled properties, they may encounter a greater risk of injury or death due to the factors described under

"Incidental Take" above. However, these are considered small risks overall, given the scope and expected benefits of the planned enhancements, headstarting, and reintroduction activities.

EDF and the Service believe that the conservation activities described in this Agreement will provide net conservation benefits for the Houston toad. EDF and the Service also believe that the 30-year duration of the Agreement and the associated Permit are sufficient to achieve the conservation benefits.

6. NEIGHBORING LANDOWNERS

Landowners who own property near or adjacent to landowners that are enrolled under this Agreement may have concerns about potential regulatory restrictions that could occur as a result of their neighbors' participation in the Safe Harbor program. For example, a participating landowner's conservation activities could result in an increase of Houston toads in a given area causing Houston toads to move onto and occupy other properties not enrolled under this Agreement. In the absence of regulatory protections, such "neighboring landowners" could face legal liabilities under section 9 of the Act. Section 9 prohibits take (including harm and harassment of endangered species, unless a permit has been issued to cover the take).

To alleviate these concerns, neighboring landowners will have the option to receive regulatory protections and safe harbor assurances under this Agreement by completing a baseline assessment for their property and committing to monitoring and notification requirements, as described below. In such cases, neighboring landowners will enter into a "Neighboring Landowner Cooperative Agreement" (see Attachment E of this Agreement) with EDF and receive a Certificate of Inclusion to enroll their property in this Agreement. Allowing for the inclusion of neighboring landowners under this Agreement is expected to increase the benefits to the Houston toad by encouraging the participation of landowners who might otherwise be concerned about the potential effects of their conservation activities on their neighbors' properties.

EDF and the Service will work together to notify neighboring landowners of this Agreement prior to the commencement of conservation activities on a nearby enrolled property. If any participating landowners' voluntary conservation activities are reasonably expected to result in Houston toads occupying other properties, the neighbors of that property will be given the option to enroll their own properties in this Agreement, with limited responsibilities, as outlined in the "Neighboring Landowner Cooperative Agreement" included as Attachment E of this Agreement. The longest recorded straight-line dispersal movement of a Houston toad is 2.3 miles (3.7 kilometers). Therefore, neighboring properties within 2 to 4 miles (3.2 to 6.4 kilometers) of other enrolled properties will be considered for neighboring landowner enrollment. Landowners that have not entered into a Cooperative Agreement with EDF and have not received a Certificate of Inclusion are not Parties to this Agreement or any permit associated with this Agreement.

Responsibilities of Neighboring Landowners

There are two principal differences between the Agreement's conservation program as implemented by participating landowners and neighboring landowners. First, participating landowners may consent to the reintroduction of Houston toads onto their properties, while Houston toads would typically occupy a participating neighbor's property only through dispersal from nearby or adjacent properties. Second, participating landowners will be required to conduct one or more conservation activities described in this Agreement to achieve a net conservation benefit for the species (e.g., brush management, forest enhancement and restoration, prescribed burning, existing breeding pond enhancement, control of fire ants, new breeding pond creation, and/or Houston toad headstarting or reintroduction). However, a neighboring landowner will only be required to establish and document the baseline conditions of their properties and commit to other monitoring and notification responsibilities, as described below.

To participate in this Agreement and receive safe harbor assurances, neighboring landowners must commit to the following:

A. Baseline Determination – Neighboring landowners will work directly with EDF to complete a habitat assessment of their property to be enrolled and develop a corresponding "Neighboring Landowner Cooperative Agreement" included as Attachment E of this Agreement.

   The habitat assessment will be used to help determine the baseline characteristics of the properties to be enrolled. As described in section 4 "*Baseline Determination*" of this Agreement, baseline will consist of (1) habitat conditions (e.g., vegetation, aquatic habitat, and soils) as determined through the habitat assessment, and (2) land management practices on each property prior to the time of enrollment.

B. Notification Requirements – Upon issuance of a Certificate of Inclusion, a neighboring landowner agrees to the following:
   1. Informing EDF and the Service whenever the neighboring landowner has reason to believe that Houston toads have or may have colonized any site enrolled under the Agreement (if such site was not known at the time of enrollment);

   2. Providing a minimum of 60 days notice to EDF and the Service prior to the following:
      a. The removal or alteration of an enrolled aquatic site supporting Houston toads or any other significant change in land-use activity at an enrolled site that would be expected to result in take (e.g., death, injury, or other harm) of Houston toads. Neighboring landowners must provide the Service (and/or other representatives, as appropriate) access to such properties to capture and/or translocate any potentially affected Houston toads.

b. The sale or transfer or ownership of the enrolled property, so that EDF or the Service can attempt to contact the new owner, explain the responsibilities of the previous property owner under the Agreement, and seek to interest the new owner in signing the existing Agreement or a new one to benefit the Houston toad on the enrolled property.

C. Monitoring – Neighboring landowners must provide EDF, the Service (or other cooperating personnel, as appropriate and agreed upon by the landowner) access to enrolled properties to allow for baseline establishment and to subsequently monitor any changes in baseline that could have occurred from habitat modifications or other activities. Specific baseline monitoring requirements include a maximum of one visit per year (and a minimum of one visit every three years) to each property enrolled in this Agreement. EDF or Service monitoring personnel, or their representatives, will notify the neighboring landowner at least one week prior to such visits and arrange the visits in a manner that is compatible with the landowner's schedule and needs. This monitoring requirement shall commence from the effective date of the Certificate of Inclusion for each enrolled neighboring landowner.

Biological monitoring requirements of neighboring landowners enrolled in this Agreement are limited to granting access to EDF and/or Service personnel (or their designated representatives, as appropriate) to survey for the presence of Houston toads. Additional monitoring of occupied sites is subject to the neighboring landowner's approval.

7. OTHER RESPONSIBILITIES OF THE PARTIES

EDF Responsibilities

Cooperative Agreements – EDF will require all participating landowners to sign Cooperative Agreements (template provided in Attachment A) with EDF. Landowners will receive a Certificate of Inclusion upon execution of a Cooperative Agreement with EDF. Each Cooperative Agreement will include: (1) a map of the property including digital boundaries and coordinates to which the Cooperative Agreement applies, (2) delineation of the enrolled area of the property and its acreage (if only a portion of a particular property is enrolled), (3) a description of the landowner's environmental baseline, (4) the conservation activities to be undertaken, (5) an estimate of the time required for the enrolled habitats to reach suitability for Houston toad use, and (6) the duration for which the habitat enhancement along with the headstarted or reintroduced Houston toad populations must be maintained to achieve a net conservation benefit before the property can be returned to its baseline conditions. Through the appropriate Cooperative Agreements with EDF, landowners will commit to carry out the conservation activities set forth in section 5 above. In addition, EDF agrees to:

A. Require the landowner to notify both EDF and the Service at least 60 calendar days in advance of the breeding season prior to any planned activity that the landowner reasonably anticipates will result in take (i.e., death, injury, or other harm) of the Houston toad on the enrolled property as a result of the conservation activities outlined in section 5 above or from returning the property to baseline. Landowners must provide the Service access to such properties to capture and/or relocate any potentially affected Houston toads, if appropriate. The Service can suspend any conservation activities (as agreed to as conditions of the Agreement and Permit) likely to result in take of Houston toads due to conditions (e.g., suspensions on prescribed burning activities during drought or years with little reproductive activity) that could be particularly detrimental to the species or poses a risk to public safety. Such suspensions could be lifted when conditions improve.

   Emergency situations, such as hurricanes, floods, droughts, insect infestations, or epidemic disease, may require management actions not specified in this Agreement. In these situations, the Parties acknowledge that it may be impossible to notify the Service in advance of the Houston's breeding season prior to initiation of activities that could result in take of the Houston toad. However, the landowners or EDF will notify the Service within 10 days of discovering such a situation and will make reasonable accommodations to the Service to survey for and/or relocate affected Houston toads prior to these management actions post-emergency. The Parties acknowledge that survey and translocation may be precluded by certain urgent or emergency situations.

B. Monitor implementation of the Cooperative Agreement on each enrolled property annually, as specified in the terms and conditions of the associated Permit. To monitor compliance of the Cooperative Agreements, EDF will contact each enrolled landowner (Certificate of Inclusion holders) annually to evaluate the status of their conservation activities. EDF will visit each enrolled property at least once a year for the first five years following enrollment and every 5 years after this period to verify conservation commitments have fulfilled. EDF will also visit each property the year before it is returned to its baseline conditions. EDF will note any ongoing uses of the properties (e.g., hiking, grazing, etc.) during site visits. Photographs of various habitat characteristics will also be taken for future reference.

   To gauge the overall success of this Agreement, EDF will conduct biological monitoring to assess Houston toad responses to habitat management of a sufficiently large representative sample of the enrolled properties. Specifically, the biological monitoring framework provided in Attachment C, "*Logic Framework for Monitoring Activities*," will be applied to ongoing conservation activities on at least 25 percent of enrolled properties each year. All enrolled properties will be visited on a basis sufficient to measure and evaluate

conservation benefits to the Houston toad. If feasible, EDF will sponsor or undertake a more intensive assessment of the effects of the conservation activities on Houston toad populations on the enrolled properties. Such activities will be conducted with the cooperation of or the coordination with Houston toad experts, the Service, and other appropriate State and Federal agencies. All monitoring activities (both compliance and biological) will be conducted in accordance with Attachment C, "*Logic Framework for Monitoring Activities*."

C. Require the landowner upon reasonable notice by EDF (and/or its designee) and the Service, to allow access to the enrolled property for purposes related to this Agreement. This includes any activities for which the Parties are responsible, including, but not limited to, monitoring, capture, and relocation of Houston toads.

D. Require the landowner to notify EDF and the Service at least 60 days in advance of any transfer of ownership, so that EDF or the Service can attempt to contact the new owner, explain the responsibilities of the previous property owner under the Agreement, and seek to interest the new owner in signing the existing Agreement or a new one to benefit the Houston toad on the enrolled property.

E. Require the landowner to report to the Service any dead, injured, or ill specimens of the Houston toad observed on the enrolled property.

F. Provide the Service with an annual report by August 31 of each year. The report will include: (1) information on progress made in implementing the specified conservation activities on each enrolled property (compliance monitoring); (2) results of monitoring activities (biological monitoring); (3) copies of all Certificates of Inclusion, associated Cooperative Agreements, and habitat management activities performed under each Cooperative Agreement; (4) the amount of Houston toad habitat potentially created, enhanced, or restored as a result of the conservation activities conducted under each Cooperative Agreement; (5) estimates and locations of any incidental take of Houston toads that is believed to have occurred including explanations of the circumstances surrounding the incidental take; (6) a list of landowners that have completed or terminated their Cooperative Agreements; (7) dates for the completion or termination of Cooperative Agreements; (8) amount of habitat taken back to baseline conditions, estimates of take associated with returning properties to their baseline conditions, and estimates of when take occurred; (9) a list of landowners found to be noncompliant with the terms and conditions of their Cooperative Agreement, this Agreement, or the associated Permit; and (10) a list of measures employed to remediate non-compliance issues.

G. Require the landowner to make a good faith effort and use due diligence to implement the provisions of this Agreement and to adhere to the terms and

conditions of the associated Permit. Landowners will work with EDF and/or other organizations and agencies to obtain funding necessary to implement the conservation activities described in their Cooperative Agreements. For many of the planned conservation activities, such as brush management, landowners may provide labor and other forms of in-kind services. They may also work with other organizations and agencies to obtain grants and services to conduct prescribed burning activities.

H. Ensure, along with the Service, that the Agreement, Cooperative Agreements, and the conservation activities covered in these documents are consistent with applicable Federal and State laws and regulations. EDF and participating landowners will abide by all other applicable Federal, State, Tribal, and local laws and regulations when returning the enrolled property to its baseline conditions at the end of the Agreement.

I. Ensure, along with the Service, that the terms and conditions of the Agreement, associated Permit, and Cooperative Agreements will not conflict with any ongoing conservation or recovery programs for the Houston toad. Nothing in this Agreement will limit or constrain any Party or any other entity from taking additional actions at their own expense to protect or conserve the Houston toad. Nothing in this Agreement will limit the ability of Federal and State conservation authorities to perform their lawful duties and conduct investigations as authorized by statute and by court guidance and direction.

Service Responsibilities

In consideration of the foregoing, the Service agrees to:

A. If the SHA is approved, the Service will issue the Permit to EDF in accordance with the Act section 10(a)(1)(A), authorizing take of the Houston toad by participating and enrolled neighboring landowners as a result of lawful activities on the enrolled properties in accordance with the terms of the enhancement of survival permit and the applicable Cooperative Agreement with EDF. The term of the permit will be 30 years.

B. Review draft Cooperative Agreements and baseline determinations, and attempt to provide comments or concurrence within 20 business days.

C. Provide technical assistance to EDF, to the extent practicable, when requested; and provide information on Federal funding programs.

8. AGREEMENT DURATION

The Agreement becomes effective upon issuance by the Service of the section 10(a)(1)(A) Enhancement of Survival Permit, and will be in effect for 30 years. Both the Agreement and Permit may be renewed if agreed to by the Service and EDF.

9. ASSURANCES TO LANDOWNERS REGARDING TAKE OF COVERED SPECIES

Provided that incidental take is **consistent with maintaining the baseline conditions** identified in the applicable Cooperative Agreement, the Permit referenced in section 7 hereof shall authorize landowners who have signed a Cooperative Agreement with EDF and received a Certificate of Inclusion to take Houston toads incidental to otherwise lawful activities in the following circumstances:

A. Implementing the conservation activities identified in section 5 hereof.

B. Carrying out any normal (e.g., agricultural, silvicultural, recreational, or other) activities on the enrolled property as described as part of the baseline conditions in the corresponding Cooperative Agreement after conservation activities identified in section 5 have been initiated.

C. Implementation of conservation activities described in section 5 hereof is expected to result in improvements to the habitat for the Houston toad and an increase in its population size above baseline on each enrolled property. At the end of the management period specified in the corresponding Cooperative Agreement, participating landowners may return their properties to baseline conditions.

10. MODIFICATIONS

A. Modification of the Agreement. Either EDF or the Service may propose amendments to this Agreement, as provided in 50 CFR 13.23, by providing written notice to, and obtaining the written concurrence of, the other Party. Such notice shall include a statement of the proposed modification, the reason for it, and its expected results. Modifications will need to include an explanation of how they will apply to existing Certificate of Inclusion holders, as modifications cannot require additional land, water, or other resources beyond what is agreed to when a landowner is enrolled. EDF is responsible for ensuring any modifications are disseminated to Certificate of Inclusion holders. The Parties will use their best efforts to respond to proposed modifications within 30 days of receipt of such notice. Proposed modifications will become effective upon the other Parties' written concurrence. Modification of this Agreement does not necessarily constitute an amendment of the associated Permit.

B. Termination of Cooperative Agreements. As provided for in part 12 of the Service's Safe Harbor Policy (64 Federal Register 32717), participating landowners may terminate their Cooperative Agreement for circumstances beyond their control. In such circumstances, a participating landowner may return the enrolled property to baseline conditions even if the conservation activities identified in section 5 have not been fully implemented, provided that the participating landowner gives EDF and the Service the notification required by section 7.A above prior to carrying out any activity likely to result in the taking of the covered species. Participating landowners may terminate their Cooperative Agreements for any other reason; however, such termination shall extinguish a landowner's authority to incidentally take Houston toads under the Permit, as specified in section 9, "*Assurances to Landowners Regarding Take of Covered Species*," above.

C. Permit Suspension or Revocation. The Service may suspend or revoke the Permit for cause in accordance with the laws and regulations in force at the time of such suspension or revocation. The Service also, as a last resort, may revoke the Permit if continuation of permitted activities would likely result in jeopardy to the Houston toad (50 CFR 13.28(a)). In such circumstances, the Service will exercise all possible measures to avoid revoking the Permit.

D. Baseline Adjustment. The baseline conditions set forth in each Cooperative Agreement may, by mutual agreement of the Parties, be adjusted if, during the term of the Agreement and for reasons beyond the control of the Cooperator, the use of the enrolled property by the Houston toad or the quantity or quality of habitat suitable for or occupied by the covered species is reduced from what it was at the time the Cooperative Agreement was negotiated.

11. OTHER MEASURES

A. Remedies. Each party shall have all remedies otherwise available to enforce the terms and conditions of this Agreement and the Permit, except that no party shall be liable in damages, including monetary damages, for any breach of this Agreement, any performance or failure to perform an obligation under this Agreement, or any other cause of action arising from this Agreement.

B. Dispute Resolution. The Parties agree to work together in good faith to resolve any disputes, using dispute resolution procedures agreed upon by all Parties.

C. Succession and Transfer. If a participating landowner transfers his/her interest in the enrolled property to a non-Federal entity, the Service will regard the new owner as having the same rights and responsibilities with respect to the enrolled property as the original participating landowner, if the new property owner agrees and commits in writing to become a party to the Cooperative Agreement and the associated Permit.

D. Availability of Funds. Implementation of this Agreement is subject to the requirements of the Anti-Deficiency Act and the availability of appropriated funds. Nothing in this

Agreement will be construed by the Parties to require the obligation, appropriation, or expenditure of any funds from the U.S. Treasury. The Parties acknowledge that the Service will not be required under this Agreement to expend any Federal agency's appropriated funds unless, and until, an authorized official of that agency affirmatively acts to commit to such expenditures as evidenced in writing.

E. 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 or associated Cooperative Agreements 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.

F. Other Listed Species, Candidate Species, and Species of Concern. There are four other federally listed animals and two federally listed plants that occur within the general area where the Agreement is to be carried out. These listed species or other proposed, candidate, or species of concern may occur in the future on the enrolled properties as a direct result of the conservation activities specified in section 5 above. If this occurs, and if EDF so requests, the Parties may agree to amend the Agreement and associated Permit to cover additional listed species and establish appropriate baseline conditions for these species. Baseline will be assessed at the time new species are added based on existing and new information specific to each species added.

Table 1 lists these species as well as an assessment as to whether they might be affected by the activities carried out through this agreement. Attachment D, "*Federally Listed Species within the Safe Harbor Agreement Area*," provides further explanation.

Table 1. Other Federally Listed Species Occurring in Agreement Area

Species	Listing Status	Potential to be Impacted?
Animals		
American alligator (*Alligator mississipiensis*)	T(S/A)	No
Attwater's greater prairie-chicken (*Tympanuchus cupido attwateri*)	E	Unlikely
Interior least tern (*Sterna antillarum*)	E	No
Whooping crane (*Grus americana*)	E	No
Plants		
Large-fruited sand verbena (*Abronia macrocarpa*)	E	Yes
Navasota ladies'-tresses (*Spiranthes parksii*)	E	Yes

Listing Status

E – Endangered
T(S/A) – Threatened due to similarity of appearance

Since the large-fruited sand verbena and the Navasota ladies'-tresses occur within the range of Houston toad, these plant species may be affected by some of the conservation activities outlined in this Agreement. Although plants are not afforded the same level of protection under the Act, the Service must still ensure that permitted conservation activities conducted under this Agreement will not jeopardize the large-fruited sand verbena or the Navasota ladies'-tresses. Attachment D, "*Federally Listed Species within the Safe Harbor Agreement Area*," provides an explanation of measures to be taken to avoid jeopardy of these species during the implementation of this Agreement.

If a federally listed, candidate, or species of concern not covered by the associated incidental take Permit is located at any time during a property's baseline assessment or implementation of conservation activities, EDF will confer with the Service as to what actions should be taken.

G. Notices and Reports. Any notices and reports, including monitoring and annual reports, required by this Agreement shall be delivered to the persons listed below, as appropriate:

Field Supervisor, Austin Ecological Services Office
U.S. Fish and Wildlife Services
10711 Burnet Road, Suite 200
Austin, Texas 78758
(512) 490-0057

Regional Director, Southwest Region
U.S. Fish and Wildlife Service
P.O. Box 1306, Room 6034
Albuquerque, NM 87102
(505) 248-6920

12. LITERATURE CITED

Armstrong, D.P. and P.J. Seddon. 2008. Directions in reintroduction biology. Trends in Ecology and Evolution 23:20-25.

Bragg, A.N. 1960. Feeding in the Houston toad. Southwestern Naturalist 5:106.

Brown, L.E. 1971. Natural hybridization and trend toward extinction in some relict Texas toad populations. Southwestern Naturalist 16:185-199.

Bull, E. 2009. Dispersal of newly metamorphosed and juvenile western toads (*Anaxyrus boreas*) in northeastern Oregon, USA. Herpetological Conservation and Biology 4:236-247.

Brown, L.E. and R.A. Thomas. 1982. Misconceptions about the endangered Houston toad (*Bufo houstonensis*). Herpetological Review 13:37.

Clarke, R.D. 1974. Food habits of toads, genus *Bufo* (Amphibia: Bufonidae). American Midland Naturalist 91:140-147.

deMaynadier, P. and M. Hunter. 1998. Effects of silvicultural edges on the distribution and abundance of amphibians in Maine. Conservation Biology 12:340-352.

Dixon, J.R. 1982. Final report: Houston toad survey. Texas A&M University, College Station, Texas, USA.

Dixon, J.R. 2000. Amphibians and reptiles of Texas. Second Edition. Texas A&M Press, College Station, Texas, USA.

Dixon, J.R., N.O. Dronen, J.C. Godwin, and M.A. Simmons. 1990. The amphibians, reptiles, and mammals of Bastrop and Buescher State Parks: with emphasis on the Houston toad (*Bufo houstonensis*) and the short-tailed shrew (*Blarina* sp.). Prepared for the Texas Parks and Wildlife Department. Austin, Texas, USA.

Dodd, C.K. and B.S. Cade. 1998. Movement patterns and the conservation of amphibians breeding in small, temporary wetlands. Conservation Biology 12:331-339.

Fahrig, L. and J. Pedlar, S. Pope, P. Taylor, and J. Wegner. 1995. Effect of road traffic on amphibian density. Biological Conservation 73:174-182.

.

Findlay, C. and J. Houlahan. 1997. Anthropogenic correlates of species richness in southeastern Ontario wetlands. Conservation Biology 11(4):1000-1009.

Forstner, M.R.J. 2001. Final Report, Griffith League Ranch Houston Toad Survey 2001, Bastrop County, Texas. Report prepared for the Capitol Area Council, Boy Scouts of America.

Forstner, M.R.J. 2002a. Houston toad research and surveys 2002 data and final report. Report prepared for BSA/CAC-Lost Pines & Griffith League Ranch, Bastrop County, Texas.

Forstner, M.R.J. 2002b. Final report of the 2002 Houston toad surveys in Bastrop County. Report submitted to the Bastrop County Citizen's Workgroup, County Houston Toad Project, Bastrop, Texas.

Forstner, M.R.J. 2003. Final: Biology/Ecology of the Houston Toad (*Bufo houstonenesis*). Report submitted to Bastrop County, Texas.

Forstner, M.R.J. 2006. Current status of the Houston toad: a summary of recent research and field determinations with solutions for recovery of the species by programs of active stewardship. Submitted to the U.S. Fish and Wildlife Service.

Forstner, M.R.J. and T.L. Ahlbrandt. 2003. Abiotic pond characteristics potentially influencing breeding of Houston toads (*Bufo houstonensis*). Texas Journal of Science 55:315-322.

Forstner, M.R.J. and J. Dixon. 2000. An overview and genetic assessment of the occurrence of Houston toads on the Three Oaks Lignite Mine site. Final report submitted to Alcoa, Inc. Rockdale, Texas.

Forstner, M.R.J. and L. Villalobos, P. Crump, S. McCracken, D. McHenry, J. Jackson, M. Gaston, T. Swannack, J. Bell, J. Gaertner, S. Mays, D. Hahn, and J.R. Dixon. 2007. The Houston toad 2007: annual summary of research and monitoring. Submitted to the U.S. Fish and Wildlife Service and our collaborating partners.

Freed, P.S. and K. Neitman. 1988. Notes on predation on the endangered Houston toad, *Bufo houstonensis*. The Texas Journal of Science 40: 454-455.

Gibbs, J. 1998. Amphibian movements in response to forest edges, roads, and streambeds in southern New England. Journal of Wildlife Management 62:584-589.

Greuter, K.L. and MR.J. Forstner. 2004. Post metamorphic bioecology of the juvenile Houston toad, *Bufo houstonensis*, juvenile survivorship. Pages 2:29-71 in M.R.J. Forstner and T.M. Swannack, editors. The Houston toad in context. Final Report submitted to Texas Parks and Wildlife Department and U.S. Fish and Wildlife Service.

Halls, L. K. and J. L. Schuster. 1965. Tree-herbage relations in pine-hardwood forest of Texas. Journal of Forestry 63:282-283.

Hillis, D.M., A.M. Hillis, and R.F. Martin. 1984. Reproductive ecology and hybridization of the endangered Houston toad *(Bufo houstonensis)*. Journal of Herpetology 18:56-71.

Kennedy, J. P. 1962. Spawning season and hybridization of the Houston toad, *Bufo houstonensis*. Herpetologica 17: 239-245.

Knutson, M., J. Sauer, D. Olsen, M. Mossman, L. Hemesath, and M. Lannoo. 1999. Effects of landscape composition and wetland fragmentation on frog and toad abundance and species richness in Iowa and Wisconsin, U.S.A. Conservation Biology 13:1437-1446.

McCollough, D.G., R.A. Werner, and D. Neumann. 1998. Fire and insects in northern and boreal forest ecosystems of North America. Annual Review of Entomology 43:107-127.

McHenry, D.J. and M.R.J. Forstner. 2009. Houston toad metapopulation assessment and genetics: data necessary for effective recovery strategies in a significantly fragmented landscape. Section 6 grant report E-76 submitted to Texas Parks and Wildlife Service and U.S. Fish and Wildlife Service. San Marcos, Texas.

Pope, S.E., L. Fahrig, and H.G. Merriam. 2000. Landscape complementation and metapopulation effects on leopard frog populations. Ecology 81:2498-2508.

Price, A.H. 1992. Houston toad (*Bufo houstonensis*) status survey. Performance report: Project No. E-1-4, Job No. 8. Funded by U.S. Fish and Wildlife Service and Texas Parks and Wildlife Department under section 6 of the Endangered Species Act. Austin, Texas.

Price, A.H. 1993. Houston toad (*Bufo houstonensis*) status survey. Final report: Project No. E-1-4, Job No. 8. Funded by U.S. Fish and Wildlife Service and Texas Parks and Wildlife Department under section 6 of the Endangered Species Act. Austin, Texas.

Quinn, H. 1981. Captive propagation/release program of the Houston toad, *Bufo houstonensis*. Final Report presented to U.S. Fish and Wildlife Service, Office of Endangered Species.

Quinn, H. and G. Ferguson. 1983. Release program for captive-raised and wild-caught Houston toads (*Bufo houstonensis*). Progress report for work completed from February through June 1983. Presented to U.S. Fish and Wildlife Service, Office of Endangered Species.

Quinn, H. and G. Mengdon. 1984. Reproduction and growth of *Bufo houstonensis* (Bufonidae) Southwestern Naturalist 29:189-195.

Reh, W. and A. Seitz. 1990. The influence of land use on the genetic structure of populations of the common frog *Rana temporaria*. Biological Conservation 54:239-249.

Seal, U.S., editor. 1994. Population and habitat viability assessment: Houston toad (*Bufo houstonensis*). Workshop conducted by IUCN/SSC Conservation Breeding Specialist Group in partial fulfillment of USFWS contract #94-172. Apple Valley, Minnesota.

Seddon, P.J., D.P. Armstrong, and R.F. Maloney. 2007. Developing the science of reintroduction biology. Conservation Biology 21:303-312.

Semlitsch, R. D. 2000. Principles for management of aquatic-breeding amphibians. Journal of Wildlife Management 64:615-631.

Semlitsch, R. D. 1998. Biological delineation of terrestrial buffer zones for pond-breeding salamanders. Conservation biology 12:1113-1119.

Siemann, E., D. Tilman, J. Haarstad, and M. Ritchie. 1998. Experimental tests of the dependence of arthropod diversity on plant diversity. The American Naturalist 152:738-750.

Soulé, M.E. A.C. Alberts, and D.T. Bolger. 1992. The effects of habitat fragmentation on chaparral plants and vertebrates. Oikos 63: 39-47.

Swannack, T.M. and MR.J. Forstner. 2004. Spatial distribution and habitat associations of adult Houston toads. Pages 1:22-30 in M.R.J. Forstner and T.M. Swannack, editors. The Houston toad in context. Final Report submitted to Texas Parks and Wildlife Department and U.S. Fish and Wildlife Service.

Swannack, T.M. 2007. Ecology of the Houston toad (Bufo houstonensis). Ph.D. Texas A&M University, Department of Wildlife and Fisheries Sciences.

Thomas, S.C., C.B. Halpern, D.A. Falk, D.A.Liguori, and K.A. Austin. 1999. Plant diversity in managed forests: understory responses to thinning and fertilization. Ecological Applications 9:864-879.

Van Gelder, J. 1973. A quantitative approach to mortality resulting from traffic in a population of *Bufo bufo*. Oecologica 13:93-95.

Vos, C.C. and J.P. Chardon. 1998. Effects of habitat fragmentation and road density on the distribution pattern of the moor frog *Rana arvalis*. Journal of Applied Ecology 35:44-56.

Welsh, H. 1990. Relictual amphibians and old-growth forests. Conservation Biology 14: 309-319.

White, J.A. 2004. Recommended protection measures for pesticide applications in Region 2 of the U.S. Fish and Wildlife Service. U.S. Fish and Wildlife Service Environmental Contaminants Program. Austin, Texas.

Yanes, M., J. Velasco, and F. Suarez. 1995. Permeability of roads and railways to vertebrates: the importance of culverts. Biological Conservation 71:217-222.

Yantis, J.H. 1989. Houston toad distribution and habitat status. Performance report, Job No. 76. Texas Parks and Wildlife Department. Austin, Texas.

Yantis, J.H. 1990. Houston toad distribution and habitat status. Performance report, Job No. 76. Texas Parks and Wildlife Department. Austin, Texas.

Yantis, J.H. 1991. Houston toad distribution and habitat status. Performance report, Job No. 76. Texas Parks and Wildlife Department. Austin, Texas.

Yantis, J.H. 1992. Houston toad distribution and habitat status. Performance report, Job No. 78. Texas Parks and Wildlife Department. Austin, Texas.

12. SIGNATURES

IN WITNESS WHEREOF, THE PARTIES HERETO have executed this Safe Harbor Agreement to be in effect as of the date that the Service issues the Associated Permit.

_____	_____
Environmental Defense Fund, Inc.	Date

_____ _____

Deputy Regional Director, Southwest Region Date
U.S. Fish and Wildlife Service

13. FIGURES

Figure 1. Texas Counties Included in the Houston Toad Programmatic Safe Harbor Agreement.

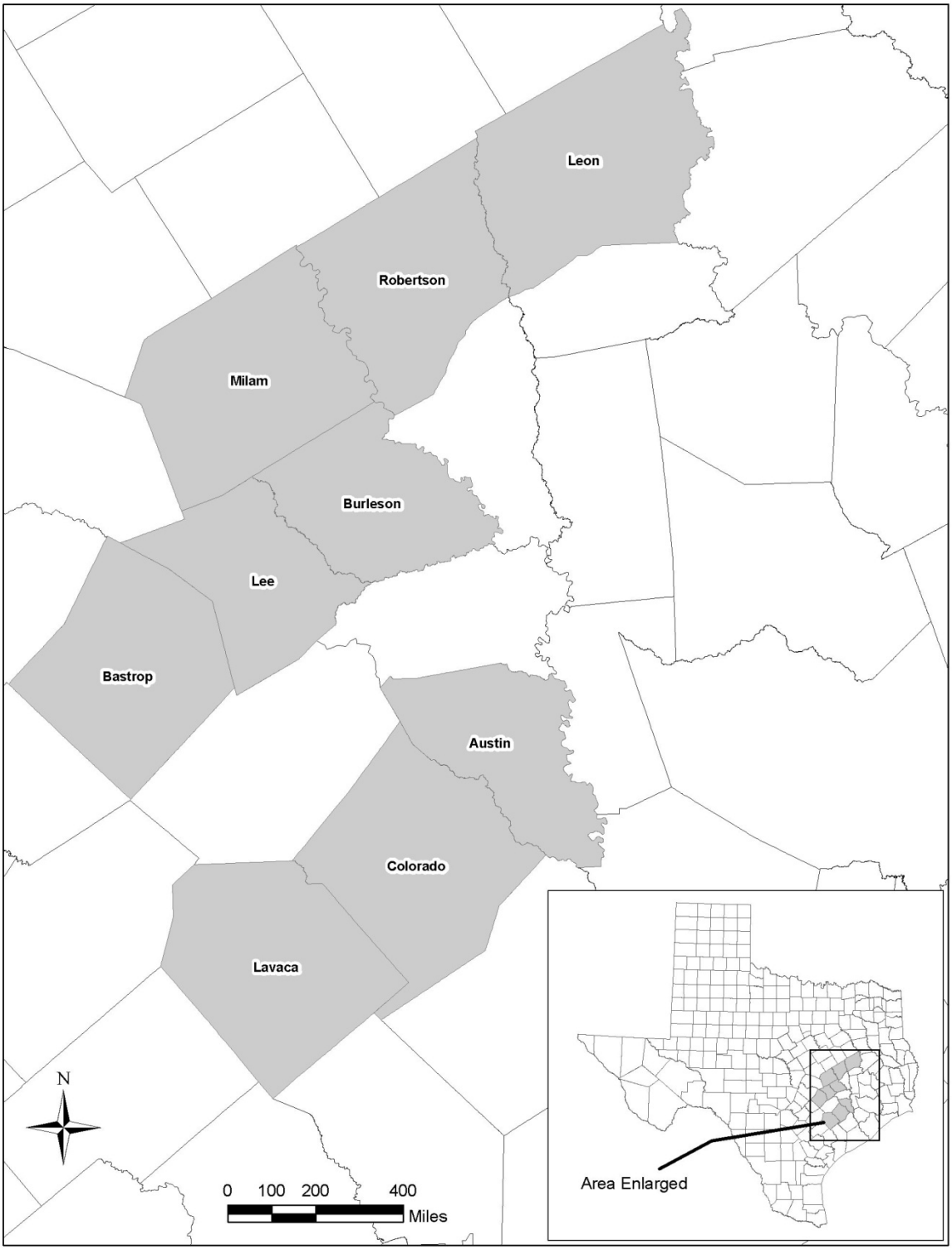
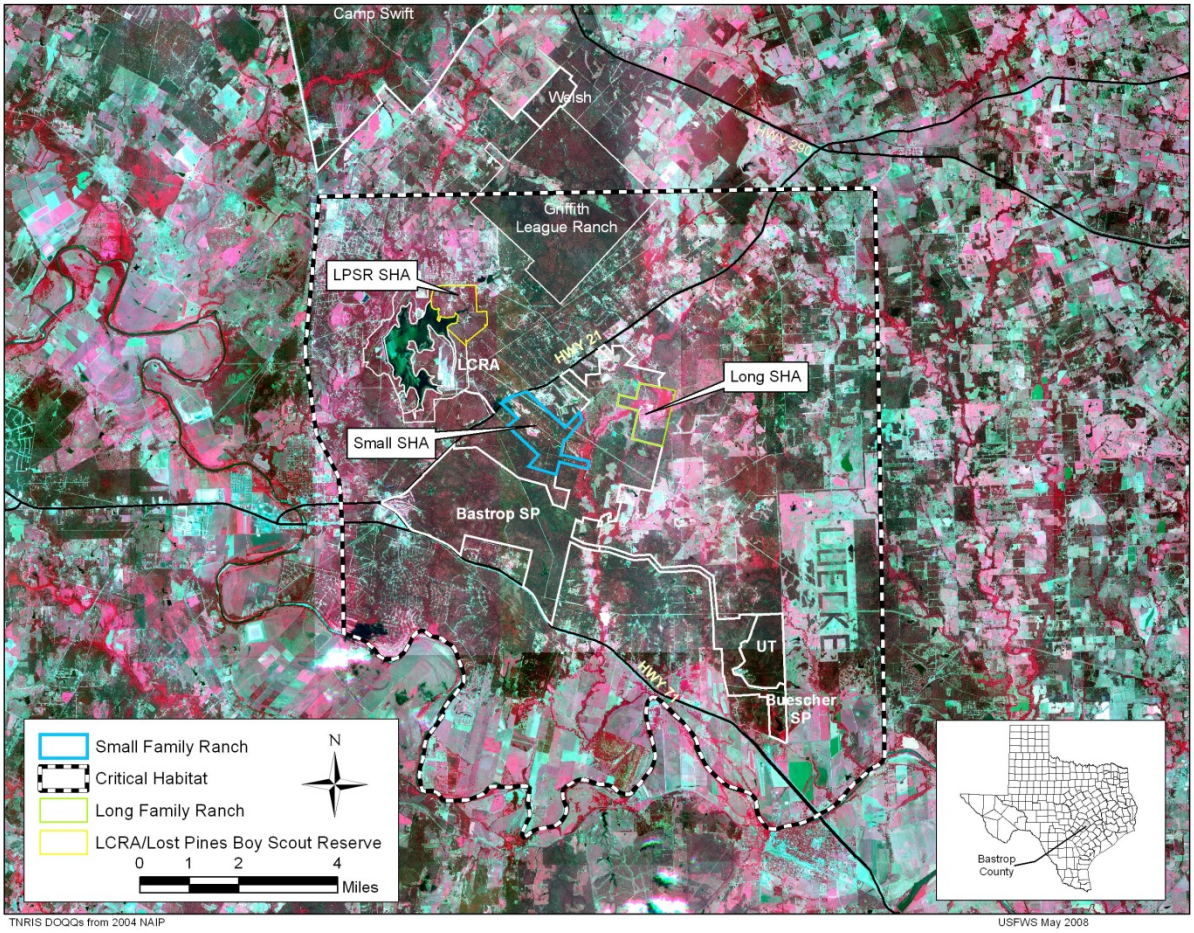


Figure 2. Landscape Around and Between Bastrop State Park and Griffith League Ranch



Attachment A
COOPERATIVE AGREEMENT

1. **Involved Parties.** This Cooperative Agreement, between Environmental Defense Fund, Inc. (EDF) and _____(Cooperator), is intended to promote good land stewardship by assisting the Cooperator in carrying out actions to restore or create Houston toad habitat on land owned by the Cooperator. Entering into a Cooperative Agreement with EDF is also a prerequisite for obtaining a Certificate of Inclusion under EDF's Section 10(a)(1)(A) Enhancement of Survival Permit (Permit).

2. **Enrolled Property.** Cooperator owns _____ acres of property in _____ County, Texas at (*insert street address*) that contains habitat that may be or may become suitable for the federally endangered Houston toad and meets the eligibility requirements for enrollment, as defined in the Safe Harbor Agreement between EDF and the U.S. Fish and Wildlife Service (Service). EDF will enroll _____acres of this property under the Safe Harbor Agreement, as shown on the attached property map. Other species (listed and non-listed) of wildlife may occur on the property, but will not be covered for incidental take under the terms and conditions of EDF's Permit.

3. **Access to Enrolled Property.** The Cooperator agrees to allow EDF and the Service, or their representatives, reasonable access to the enrolled property for the purposes of (a) assessing the habitat value and baseline conditions of the property; (b) implementing the habitat improvements specified below and that are to be carried out by EDF or their authorized representatives; (c) determining that the habitat improvements specified in this Cooperative Agreement have been implemented and are being maintained in the manner required by the Safe Harbor Agreement; and (d) evaluating how well such improvements are benefiting any Houston toads using the enrolled portions of the property; (e) verifying the presence of Houston toads on the property; (f) capturing and/or translocating any Houston toads that could potentially be affected by the removal or alteration of an enrolled aquatic site or any other significant change in land-use activity at an enrolled site that would be expected to result in take (e.g., death, injury, or other harm) of Houston toads; (g) ensuring compliance with any of the landowner commitments described in the Safe Harbor Agreement.

   EDF and the Service will coordinate with each other and with the Cooperator so as to schedule and conduct visits to the property at times that avoid inconvenience to the Cooperator or disruption to the Cooperator's use of the property. EDF shall give the Cooperator at least one week's advance notice when requesting to enter the property for any of the above purposes, and the Cooperator shall not unreasonably withhold permission for such entry.

4. **Liability.** The Cooperator assumes no liability for injury to any employee or representative of EDF or the Service in the course of any visit to the property under this Cooperative Agreement. EDF, the Service, and their representatives shall not be liable for any damage to the property of the Cooperator arising from any visit to the property pursuant to this Cooperative Agreement. None of the parties waive their rights under Federal law including,

but not limited to, claims filed pursuant to the Federal Torts Claims Act (FTCA) or the Federal Employees Compensation Act (FECA).

5. <u>Baseline Determination and Habitat Management Plan</u>. Pursuant to this Cooperative Agreement, the Cooperator agrees to carry out or allow EDF's authorized representatives to carry out, the specific habitat improvements listed below.

Based upon site surveys conducted on the Cooperator's property on (*insert dates*) the following has been determined:

A. Baseline determination for the Safe Harbor Agreement – This determination shall include a description of baseline conditions and how they were measured. Baseline conditions should be described on any part of the property where incidental take is likely to occur due to the conservation activities.

1. Habitat conditions – *Baseline vegetation conditions shall be surveyed across the ranch sufficient to characterize the structure, composition, and extent (in acreage) of all vegetation types present. Other baseline habitat conditions shall be described. This description will include the following characteristics*:

- *Known history, presence, and reproductive activity of the Houston toad on the property including survey reports with positive and negative results, if available*
- *Potential breeding pond characteristics including size, depth, slope, vegetation conditions and distance to nearby forest or woodland*
- *Aquatic species present in ponds including the presence of predatory fish, insect, and amphibian species*
- *Water quality status including eutrophication or other water quality conditions that could be detrimental to the development of Houston toad tadpoles*
- *Current vegetation conditions characterizing the structure, composition, and extent of all vegetation types present including canopy cover, density, and ground layer conditions with an explanation of the sampling methods used to determine suitability in different habitat areas on the property*
- *Soil conditions characterizing the structure, texture, and consistency of soil types present on the property (e.g., deep sandy soils that are loose or friable or soils that contain more clay particles than sand)*

2. Land management practices – *Land management practices will be considered part of the baseline and shall be described. This description will include the following practices*:

- *Livestock management activities including size of herd, grazing regime, and cattle water source locations*
- *Hunting activities*
- *Silviculture (forestry) activities*
- *Fence line, road, and facilities maintenance activities*
- *Pesticide/herbicide use and treatment regimes*

- *Water management including pond maintenance, dam maintenance, and water level management*
- *Prescribed burning activities*
- *Locations of buildings, other permanent structures, and paved surfaces*

3. Amount of acreage to be enrolled (should include areas where conservation activities take place and any other areas where incidental take could occur due to those activities) – *Cooperator's enrolled property will be delineated on a map and attached to the Cooperative Agreement*.

   Incidental take of Houston toads is not covered or authorized by this Permit or Cooperative Agreement on any areas that are not specifically designated as "enrolled" property.

B. Minimization measures – Activities that may result in incidental take of Houston toads shall be identified and associated minimization measures shall be specified.

C. Amount of enrolled property to be restored or created for the Houston toad:

_____ acres

D. Other federally listed species or habitat – List the species that could potentially be affected by the implementation of the planned conservation activities and measures to be taken to avoid jeopardy of these species during the implementation of the Safe Harbor Agreement. No incidental take of these or other species is authorized or permitted under the Safe Harbor Agreement or this Cooperative Agreement.

E. Habitat management plan – Taking into account the results of the site survey, baseline habitat assessment, and possible presence/absence or effects on other federally listed species and their habitat, EDF recommends the following management activities to enhance the quality and expand the boundaries of Houston toad habitat on the Cooperator's property.

Brush management	
Forest enhancement/restoration (e.g., tree planting)	
Prescribed burn	
Restoration of native ground cover	
Existing pond enhancement	
Control of red-imported fire ants	
New pond creation	
Release of headstarted or reintroduction of captively-bred Houston toads	

This Cooperative Agreement will contain a detailed account of when, how, and where on the property these actions will be used (i.e. number of acres, shrub and tree density data for planting, etc.), who will implement them, and what techniques will be used.

Attachment B to the Safe Harbor Agreement, "*Conservation Activity Guidelines*," also provides further guidance on how conservation activities will be implemented. These guidelines may be modified as new information on Houston toad management becomes available through a minor amendment to the Permit as long as the modifications do not result in an increase of incidental take beyond what was authorized in the original Permit.

6. <u>Terms and Conditions.</u> The Cooperative Agreement is subject to the following additional terms and conditions:

A. Cooperator Responsibility – The Cooperator agrees to maintain the created or restored Houston toad habitat for at least 10 consecutive breeding seasons after it has become suitable before taking it back to baseline conditions.

B. Length of Cooperative Agreement – This Cooperative Agreement will be valid until the date that EDF's Permit expires (*insert date*).

C. Restrictions on Taking Properties Back to Baseline – This is not a "zero baseline" Safe Harbor Agreement. Baseline determinations will not include the number of Houston toads known to occur on the enrolled property, degree of reproductive activity, or other specific measures related to Houston toad populations. Therefore, returning to baseline conditions will be measured with regard to habitat rather than the presence or absence of Houston toads following return-to-baseline activities. Returning an enrolled property to baseline conditions would only constitute the following: (1) stopping conservation activities (e.g., brush management, prescribed burning activities), (2) removing enhancements (e.g., exclusion fencing around a pond), (3) returning the enrolled property to its baseline habitat conditions, and (4) returning to previous property management practices.

It is important to note that if a participating landowner chooses to reintroduce Houston toads on his/her property during their enrollment in the Safe Harbor Agreement, there is no guarantee that all or any of the Houston toads that have been released on the property will or can be captured or removed before the Permit's expiration. Therefore, the Service will not authorize the removal of reintroduced or headstarted Houston toads as a return-to-baseline activity. Because not all of the Houston toads that are reintroduced on a property can subsequently be removed, the risk for "incidental take" of the species may continue after the Permit's expiration, unless EDF chooses to renew its Permit.

- Under no circumstances will a landowner be authorized to purposefully take (e.g., intentionally kill, injure, capture, or transport) a Houston toad in an effort to return the property to baseline conditions or for any other purpose.

- EDF and the participating landowners will not undo any of the habitat improvements or take part in activities that may reduce the population size of the Houston toad until EDF has given the Service notice and a reasonable opportunity to relocate any affected individual Houston toads. This opportunity will include at least one spring breeding season so as to allow capture of Houston toads at their breeding ponds when they are most active.

- Activities designed to return a property to its baseline conditions will take place between July 1 and December 31 (outside of the Houston toad breeding season and emergence period), when Houston toads are less active.

- Returning a property to its baseline conditions must be completed within the 30-year term of EDF's Permit. Cooperative Agreements may be extended if EDF's Permit is renewed under this Safe Harbor Agreement, and if that renewal allows for such extension.

D. Notification – The Cooperator agrees to notify EDF and the Service's Austin Ecological Services Field Office, 10711 Burnet Road, Suite 200, Austin, Texas, 78758, phone (512) 490-0057; fax (512) 490-0974 in advance of the breeding season prior to any planned activity that the landowner reasonably anticipates will result in take (i.e., death, injury, or other harm) of the Houston toad on the enrolled property as a result of the conservation activities outlined in section 5 of the Safe Harbor Agreement or from returning the property to baseline. Landowners must provide the Service access to such properties to capture and/or relocate any potentially affected Houston toads, if the Service considers relocation to be advantageous for Houston toad conservation.

E. Reporting requirements – The Cooperator understands that to fulfill the responsibilities of the Safe Harbor Agreement, EDF must report all implementation and monitoring activities conducted in accordance with the Safe Harbor Agreement to the Service. Therefore, Cooperators must provide EDF with information related to take of the species that has occurred, and implementation of activities under this Safe Harbor Agreement.

F. Early termination – The Cooperator may terminate this Cooperative Agreement at any time because of circumstances beyond his or her control, upon written notification to EDF and the Service's Austin Ecological Services Field Office, as specified in paragraph D above. Such termination shall not affect the Cooperator's authorization under EDF's Permit to incidentally take any Houston toad, at the time of termination, that is not part of the landowner's baseline.

The Cooperator may terminate this Cooperative Agreement for any other reason, upon written notification to EDF and the Service's Austin Ecological Services Field Office. However, such termination shall extinguish the Cooperator's incidental take coverage under EDF's Permit, as specified in section 10 of the Safe Harbor Agreement.

G. Transfer of Property – The Cooperator will notify EDF and the Service no less than 60 days prior to selling or transferring the enrolled property to another entity, in order to provide EDF the opportunity to secure the successor's Cooperative Agreement to continue the identified conservation activities.

H. Unforeseen Circumstances – If, prior to the expiration of EDF's Permit, EDF should cease to exist or cease to continue administering the Safe Harbor Agreement, and no other entity satisfactory to the Service is willing to assume EDF's responsibilities as administrator of this Safe Harbor Agreement, EDF will relinquish its Permit to the Service. In the event of the foregoing, the Service shall convert the Certificates of Inclusion that have been previously issued by EDF to participating landowners into freestanding permits. Such permits will provide

incidental take coverage for the same conservation activities as had been authorized by the Certificates of Inclusion. This action is contingent upon the participating landowners' agreement to fulfill the conservation activities for each of their properties, as well as the administration, monitoring, and reporting requirements of the Safe Harbor Agreement, as outlined in this Cooperative Agreement and the Safe Harbor Agreement.

AGREED TO BY:

_____	_____
Cooperator	Environmental Defense Fund, Inc.
_____	_____
Date	Date
(*insert address*)	EDF Suite 100 44 East Avenue Austin, Texas 78701

Concurrence with Baseline Condition: _____

Field Supervisor, Austin ESFO

Attachment B
CONSERVATION ACTIVITY GUIDELINES

The conservation activities described below are designed to create, enhance, or restore Houston toad habitat and aid in providing a net conservation benefit for the species. For upland habitats the majority of projects can be divided into two types:

1. Brush management: existing forests and woodlands that have a dense understory of yaupon, eastern red cedar, or mesquite require brush removal and/or prescribed fire to reduce understory density and to facilitate the establishment of a diverse assemblage of native grasses and forbs.
2. Reforestation: open pastures/grasslands require tree planting to create desired canopy cover.

The specific goals for canopy cover, understory density, herbaceous cover, and other associated habitat parameters will be identified for enrolled properties in each Cooperative Agreement. Details on management practices for Houston toad conservation activities are provided below.

Brush Management - Mechanical

Objective: Reduce understory cover of yaupon, eastern red cedar, and mesquite to facilitate establishment of a diverse assemblage of native grasses and forbs so as to provide optimal foraging habitat and movement corridors for the Houston toad. Subsequent use of prescribed fire will further enhance and maintain pine and mixed pine - oak savannah/woodland/forest conditions.

Methods: Acceptable methods include hand thinning with loppers or chainsaws, shredding with a hammer-flail, or brush shearing with hydraulic shears attached to a skid-steer loader. When shredding brush with a hammer-flail, relatively small diameter shrubs and trees (those less than about 2 inch diameter at breast height (dbh)) will be shredded automatically once they are contacted by the flail attachment. Relatively larger shrubs and trees, once cut, should not be shredded, as they may serve as microhabitats for burrowing Houston toads. Loblolly pines of 6.5 feet (2 meters) in height or greater should not be cut or shredded, as they have the potential to become desired canopy trees.

Season: Hand thinning with loppers or chainsaws may be conducted year round. Brush shredding or shearing may be conducted from July 1 through December 31 (outside of the Houston toad breeding season and emergence period).

Impact Minimization Measures: The seasonal restrictions and methods described above serve to minimize potential harmful impacts. Tracked vehicles (e.g., bulldozers) or other mechanized vehicles that tend to create significant soil disturbance should not be used to reduce understory density.

Brush Management - Chemical

Objective: Same as mechanical brush management, although chemical brush management is often used as a follow-up treatment to reduce re-sprouting of mechanically treated brush. The use of herbicides can extend the period between mechanical brush management activities within Houston toad habitat.

Methods: Herbicides must be used in accordance with the product label and application is limited to individual plant treatment or ground application.

Season: Herbicides may only be used July 1 through December 31 (outside of the Houston toad breeding season and emergence period).

Impact Minimization Measures: Enrolled landowners should try to minimize the use of herbicides and seek guidance from the U.S. Fish and Wildlife Service (Service) or other appropriate agencies before using herbicides within Houston toad habitat. All herbicide applications will be consistent with "*Recommended Protection Measures for Pesticide Applications in Region 2 of the U.S. Fish and Wildlife Service*" (White 2004). However, application methodology and frequency will be adaptively modified based on the availability of new information. Only the least toxic, non-persistent herbicides will be selected for use. To lessen the potential for runoff, herbicides will not be used in the vicinity of ponds or other water sources. Environmental Defense Fund, Inc. (EDF) will require that enrolled landowners comply with all pesticide label requirements for dilution, application, disposing of rinse water, and disposing of empty containers. Following the methods described above and adhering to the seasonal restrictions will minimize any potential negative impacts of herbicide application.

Forest Enhancement/Restoration

Objective: Restore or enhance forest canopy cover by planting trees and/or selectively thinning undesirable trees.

Methods: Planting of individual trees shall be conducted in accordance with Texas Forest Service guidelines. Details on site preparation, native species to be planted, density, location of plantings, and site follow-up management will be specific to each enrolled property and described within each Cooperative Agreement.

Selective thinning shall be limited to relatively small, spindly trees in the understory and sub-canopy.

Season: Hand planting of tree seedlings may be conducted at any time during the year. Site preparation activities such as prescribed fire and brush management shall be conducted in accordance with the provisions outlined in the brush management section of this document.

Hand thinning of undesirable trees may be conducted at any time during the year. Mechanical thinning shall be conducted in accordance with the provisions outlined in the brush management section in this document.

Impact Minimization Measures: Following the methods described above and adhering to the seasonal restrictions will minimize any potential negative impacts of forest enhancement/restoration.

Prescribed Burning

Objective: Maintain and enhance pine and mixed pine - oak savannah/woodland/forest conditions by controlling understory cover of yaupon, eastern red cedar, and mesquite. Establish, enhance, and maintain a diverse assemblage of native grasses and forbs so as to provide optimal foraging habitat and movement corridors for the Houston toad.

Methods: A prescribed burn plan shall be prepared consistent with Chapter 153.047 of the Texas Natural Resources Code, effective September 1, 1999, as amended and in cooperation with the Texas Forest Service and other appropriate agencies. All burns shall be conducted in accordance with the associated plan.

Season: Prescribed burning and associated site preparations for prescribed burning shall be conducted between July 1 and December 31 (outside of the Houston toad breeding season and emergence period). All burning activities will cease immediately if it is determined that Houston toads have become active during the burning season from July 1 to December 31. During periods of relatively cold weather, prescribed burns may be conducted during the period January 1 – January 15 in areas distant from known Houston toad breeding activity with prior written concurrence from the Service.

Impact Minimization Measures: All necessary precautions will be taken to prepare proper fire breaks and other buffers before all burning activities commence. Enrolled landowners will work with fire management personnel and EDF to develop specific prescriptions for each burn area that will treat the woodland areas effectively while minimizing impacts to the Houston toad. Following the methods described above and adhering to the seasonal restrictions will minimize any potential negative impacts of prescribed burning.

Restoration of Native Ground Cover

Objective: Restore a diverse assemblage of native grasses and forbs to provide optimal foraging habitat and movement corridors.

Methods: Planting of seeds, sprigs, or transplants shall be conducted in accordance with the grower's instructions.

Season: Hand planting of seeds, sprigs, or transplants may be conducted at any time during the year. Mechanical planting (e.g., with a seed drill) may only be conducted between July 1 and December 31 (outside of the Houston toad breeding season and emergence period).

Impact Minimization Measures: Following the methods described above and adhering to the seasonal restrictions will minimize any potential negative impacts of restoration of native ground cover.

Existing Pond Enhancement

Objective: Enhance characteristics within and/or immediately adjacent to a pond to facilitate breeding and successful productivity of Houston toads. This includes creating shade at the pond edges, restoring native vegetation to pond banks, and reducing or minimizing eutrophication.

Methods:

1. Bank Stability Index – Bank stability for each pond to be enhanced will be assessed based on slope, vegetation composition and amount of cover, and slope integrity (i.e., degree to which soil has been disturbed as a result of livestock or wildlife usage, vehicle traffic, or other factors). The assessment will include measures of slope in the four

cardinal directions, a description of bank vegetation and amount of cover, and a determination of the percentage of bank soil that has been disturbed. Bank stability will then be qualitatively ranked as either unsuitable, poor, fair, good, or excellent. Unsuitable is defined as having a steep slope (greater than 5:1), no vegetative cover, and highly disturbed soil conditions (approximately 100 percent disturbed). Excellent is defined as having shallow slope (maximum of 5:1), a high percentage (approximately 100 percent) of vegetative cover consisting of native grass and forb species, and undisturbed soil conditions (approximately 0 percent disturbed). The intermediate rankings of poor, fair, and good will be a gradation between the two extremes and will be assigned by EDF and described in each Cooperative Agreement, as applicable. Using this approach, EDF can measure progress toward specific effects to habitat conditions and help evaluate if the expected rate of benefit accrual were attained.

2. Creating shade at pond edges by planting trees – tree planting shall be conducted in accordance with the forest enhancement guidelines provided above.
3. Restoring native vegetation to pond banks – planting of native ground cover on the pond banks. Planting of native ground cover shall be conducted in accordance with the restoration of native ground cover guidelines above.
4. Protecting pond edges from disturbance during breeding/emergence – includes temporary or permanent livestock exclosures and avoiding recreational impacts during the breeding and emergence season. Livestock may be allowed access to a small portion of the pond or excluded entirely. Access may be restored between July 1 through December 31 (outside of the Houston toad breeding season and emergence period).
5. Reducing and minimizing eutrophication – in addition to the enhancements listed above, other methods of controlling eutrophication such as the installation of solar-powered aerators may be considered on a case-by-case basis.

Season: Enhancements may be conducted at any time during the year for ponds with no record of Houston toad breeding activity. Enhancements may only be conducted between July 1 and December 31 for ponds with a record of Houston toad breeding activity.

Impact Minimization Measures: Following the methods described above and adhering to the seasonal restrictions will minimize any potential negative impacts of existing pond enhancement.

<u>New Pond Construction</u>

Objective: Create a pond that facilitates breeding and successful emergence of Houston toads if the pond site is (1) adjacent to and surrounded by suitable upland habitat and (2) would not reduce the reproductive success of other known Houston toad chorus ponds in the area.

Methods:

1. Ponds should be located within 0.5 miles (0.8 kilometer) of deep sands.
2. Canopy cover adjacent to and surrounding the pond construction site should be 50 percent or greater.
3. Ponds should be located as far from permanent water as practicable and have a maximum bottom slope of 5:1, excluding the face of the dam.

4. Landowners and/or equipment operators may clear up to 0.25 acres (0.1 hectare) to stack and burn trees and brush removed during pond construction.
5. Pond edges will be vegetated with native perennial grass species to establish cover for emerging toadlets. Annual grasses (e.g., oats, wheat, or rye) should also be planted to provide cover the first year after pond construction.
6. If surrounding tree canopy does not provide sufficient shade, logs and/or tree limbs should be located in piles along newly constructed pond edges to provide shade for emerging toadlets. Care should be taken to stack logs and tree limbs in a manner that would not provide suitable cover for predators.
7. Established forested canopy alongside native herbaceous plant community in low-lying areas is a good indicator of habitat that can support juvenile Houston toads. EDF will use the best available information regarding microhabitat preferences for juvenile Houston toads to evaluate habitat surrounding the ponds.

Season: Ponds may be constructed between July 1 through December 31 (outside of the Houston toad breeding season and emergence period).

Impact Minimization Measures: During pond construction, equipment operators must preserve as many trees as practicable. Since burning of brush piles can create sterilized soil conditions, it is best to place piles in existing roadways, fence line rights-of-way or other similar areas prior to burning.

Fire Ant Control

Objective: Control fire ant infestations to reduce mortality of Houston toads and other native insect species that provide the Houston toad's food source.

Methods: Individual fire ant mounds can be treated with commercial fire ant bait or other non-chemical means (e.g., boiling water).

Enrolled landowners can also help control fire ant infestations by limiting activities that result in soil disturbance and thoroughly inspecting all soil and plant products for fire ants and eggs prior to transplantation. If fire ants or their eggs are present, the soil or plant products will be treated prior to use.

Season: Year-round

Impact Minimization Measures: EDF will seek guidance from the Service or other appropriate agencies before using pesticides within Houston toad habitat. Baits must be used in accordance with the product label and may only be placed near fire ant mounds. Baits should not be placed near the mounds of native ant species. To avoid accumulation of excess baits and subsequent adverse effects to non-target species, baits should only be applied when fire ants are actively foraging.

Attachment C
LOGIC FRAMEWORK FOR MONITORING CONSERVATION ACTIVITIES

The purpose of this logic framework table is to explain the type of outputs and outcomes that are expected to result from conservation activities designed to benefit the Houston toad and provide an adaptive management framework for these activities throughout the implementation of this Safe Harbor Agreement. Specific, measurable outputs and outcomes will be identified for each enrolled property. For the purposes of this document, predicted project outputs are expected habitat results in the first few years conservation activities are implemented. Predicted project outcomes are medium to long-term effects on Houston toad habitat and populations. Once a conservation activity is completed at a particular site, progress toward specific outputs and outcomes can be measured and assessed. This information will be used to evaluate if the expected rate of benefit accrual and the achievement of maximum benefits to the Houston toad were attained. If the outputs and outcomes fall short of that which was expected, the conservation activities as implemented have failed to produce the expected results and will need to be adaptively modified.

The logic framework was initially developed in cooperation with the National Fish and Wildlife Foundation for six properties located between Bastrop State Park and the Boy Scouts of America/Capital Area Council's (BSA/CAC) Griffith League Ranch in Bastrop County, Texas. It has been modified from its original form to accommodate the range of outputs and outcomes that are expected to result for the conservation activities that are implemented through this Safe Harbor Agreement.

Conservation Activity	**Short-Term Outputs**	**Long-Term Outcomes**	**Indicator**	**Baseline Value**	**Predicted Value of Project Outputs**	**Predicted Habitat Value of Post-Project Outcomes**	**Overall Predicted Biological Value of Post-Project Outcomes**
Brush Management	Reduced understory density	Increased Houston toad populations	Amount of brush thinned	# of acres thinned and >80% cover of undesired tree saplings and shrubs on sites to be thinned	# of acres thinned and <10% cover of undesired tree saplings and shrubs on sites to be thinned	# of acres thinned to <10% cover of undesired tree saplings and shrubs within five years of initiation of thinning	**Moderate to substantial increase in Houston toad movement, dispersal, and foraging**

Conservation Activity	Short-Term Outputs	Long-Term Outcomes	Indicator	Baseline Value	Predicted Value of Project Outputs	Predicted Habitat Value of Post-Project Outcomes	Overall Predicted Biological Value of Post-Project Outcomes
Brush Management (cont.)			Houston toad population (for ponds with adjacent brush thinning)	To be determined (TBD)	No change to small increase	Moderate to substantial increase within five years of initiation of thinning	**Increased connectivity between Houston populations**
Forest Enhancement/ Restoration	Selectively thinned forest/ planting seedling pines	Increased Houston toad populations	Basal area # trees planted Tree seedling survival rate	Baseline basal area 0 Not applicable (N/A)	TBD TBD Goal % after one year	TBD TBD Goal % after ten years (of trees planted during project)	**Moderate to substantial increase in Houston toad movement, dispersal, and foraging** **Increased connectivity between Houston habitat areas and populations**
Prescribed Fire	Reduced understory density and reduced litter layer	Increased Houston toad populations	Understory density Litter layers (measured at each burn unit)	# acres with >50% cover of undesired tree saplings and shrubs Litter layers from 2” to 12”	# acres with <30% cover of undesired tree saplings and shrubs Litter depth reduced by 25%	# acres with <10% cover of undesired tree saplings and shrubs within ten years of initiating burning regime Litter depth reduced by at least 50% over # acres within ten years of initiating burning regime	**Moderate to substantial increase in Houston toad movement, dispersal, and foraging** **Increased Houston toad population size**

Conservation Activity	Short-Term Outputs	Long-Term Outcomes	Indicator	Baseline Value	Predicted Value of Project Outputs	Predicted Habitat Value of Post-Project Outcomes	Overall Predicted Biological Value of Post-Project Outcomes
Prescribed Fire (cont.)			% cover of grasses and forbs Toad population (for ponds with adjacent prescribed fire)	<10% cover of grasses and forbs TBD	>40% cover of grasses and forbs No change to small increase	>80% cover of grasses and forbs over # acres within ten years of initiating burning regime	**Increased connectivity between Houston habitat areas and populations**
Restoration of Native Ground Cover	Increased cover and diversity of native grasses and forbs	Increased Houston toad populations	Cover of native grasses and forbs Diversity of native grasses and forbs	TBD TBD	Small to moderate increase Small to moderate increase	>80% cover within five years of restoration TBD	**Increase of Houston toad juvenile survivorship** **Moderate to substantial increase in Houston toad movement and dispersal**
Existing Pond Enhancement	Increased cover adjacent to pond, improved bank stability, reduced eutrophication	Increased Houston toad populations	% canopy cover adjacent to pond Bank stability[1]	Baseline % cover Baseline slope, vegetation composition and	No change to small increase Small to moderate improvement	>80% cover within ten years of enhancements Bank stabilized within five years of enhancements	**Moderate to substantial increase in Houston toad breeding activity**

[1] Refer to the Bank Stability Index for existing pond enhancement under Attachment B, "*Conservation Activity Guidelines*."

Conservation Activity	Short-Term Outputs	Long-Term Outcomes	Indicator	Baseline Value	Predicted Value of Project Outputs	Predicted Habitat Value of Post-Project Outcomes	Overall Predicted Biological Value of Post-Project Outcomes
Existing Pond Enhancement (cont.)				% cover, and slope integrity (amount of disturbance)			**Increase of Houston toad emergence and juvenile survivorship** **Increase of Houston toad recruitment**
			Degree of eutrophication	Baseline clarity, nutrient levels, presence and cover of indicator plants	Small to moderate improvement in all baseline values	All values are within desired range within five years of enhancements	
			Presence of toad chorusing	TBD	No change to small increase	Moderate to substantial increase within five years of enhancements	
			Presence of females	TBD (likely zero)	No change to small increase	Moderate to substantial increase within five years of enhancements	
			Breeding success	TBD (likely zero)	No change to small increase	Moderate to substantial increase within five years of enhancements	
			Emergence success	TBD (likely zero)	No change to small increase	Moderate to substantial increase within five years of enhancements	

Conservation Activity	Short-Term Outputs	Long-Term Outcomes	Indicator	Baseline Value	Predicted Value of Project Outputs	Predicted Habitat Value of Post-Project Outcomes	Overall Predicted Biological Value of Post-Project Outcomes
Control of red-imported fire ants (fire ants)	Reduced fire ant density around ponds	Increased Houston toad populations	# active fire ant mounds at each project site	TBD prior to initiation of fire ant treatment	>90% reduction in # active fire ant mounds in treated area	>90% reduction in # active fire ant mounds around # ponds	**Increase of Houston toad emergence and juvenile survivorship**
			# fire ant mounds treated at each project site	TBD	TDB	Unknown[2]	**Increase of Houston toad foraging**
			# Houston toads at each project site	TBD	No change to small increase	Increase	
New Pond Creation	New Houston toad breeding habitat	Increased Houston toad populations	Presence of Houston toad chorusing	Zero	No change to small increase	Moderate to substantial increase within five years of pond creation	**Moderate to substantial increase in Houston toad breeding activity**
			Presence of female Houston toads	Zero	No change to small increase	Moderate to substantial increase within five years of pond creation	**Increase of Houston toad emergence and juvenile survivorship**

[2] Current technologies for control of fire ant mounds require ongoing treatments as the ants eventually recolonize treated areas.

Conservation Activity	Short-Term Outputs	Long-Term Outcomes	Indicator	Baseline Value	Predicted Value of Project Outputs	Predicted Habitat Value of Post-Project Outcomes	Overall Predicted Biological Value of Post-Project Outcomes
			Breeding success	Zero	No change to small increase	Moderate to substantial increase within five years of pond creation	**Increase of Houston toad recruitment**
			Emergence success	Zero	No change to small increase	Moderate to substantial increase within five years of pond creation	
Release of headstarted toads or reintroduction of captively-bred Houston toads	Increased number of juvenile Houston toads	Increased Houston toad population	Number and intensity of Houston toad choruses	TBD for specific monitoring ponds	Small to moderate increase	Moderate to large increase after five years of initial releases	**Increase in Houston toad juvenile survivorship**
			Number of female Houston toad	TBD for specific monitoring ponds	Small to moderate increase	Moderate to large increase after five years of initial releases	**Increase of Houston toad recruitment**
			Degree of breeding success	TBD for specific monitoring ponds	Small to moderate increase	Moderate to large increase after five years of initial releases	**Moderate to substantial increase in Houston toad population size**

Attachment D
FEDERALLY LISTED SPECIES WITHIN
THE SAFE HARBOR AGREEMENT AREA

The Permit area for this Safe Harbor Agreement (Agreement) will include Austin, Bastrop, Burleson, Colorado, Lavaca, Lee, Leon, Milam, and Robertson counties, Texas. Conservation activities included in this Agreement are specifically designed to benefit the Houston toad. However, a number of other federally listed species also occur in the counties listed above. Landowners enrolling in this Agreement will implement the conservation activities outlined in their Cooperative Agreements with EDF in consideration of the following species:

1. American alligator (*Alligator mississippiensis*) – The American alligator is federally listed as "threatened due to similarity of appearance" (T(S/A); 52 Federal Register 21059 – 21064). Section 4(e) of the Endangered Species Act of 1973, as amended (Act) authorizes the treatment of a species as endangered or threatened species even though it is not otherwise listed as endangered or threatened, if it is found that: (a) the species so closely resembles a federally listed species in appearance that enforcement personnel would have substantial difficulty in differentiating between listed and unlisted species; (b) the effect of this substantial difficulty is an additional threat to the listed species; and (c) such treatment of an unlisted species will substantially facilitate the enforcement. The U.S. Fish and Wildlife Service (Service) formally recognizes the American alligator as secure; however, several species of crocodiles and caimans are still facing extinction. For this reason, the Service continues to regulate the harvest of American alligators and legal trade in the animals, their skins, and products made from them to prevent the illegal take and trafficking of endangered "look-alike" reptiles.

Although the American alligator's range includes the nine Texas counties included in this Agreement, the T(S/A) designation of this species has no effect on land management activities by private landowners.

2. Attwater's greater prairie chicken (*Tympanuchus cupido attwateri*) – The Attwater's greater prairie chicken (prairie chicken) is federally listed as an endangered species (32 Federal Register 4001). Its distribution includes Austin and Colorado counties, Texas. These counties are included in the Permit area for this Agreement. The prairie chicken's habitat consists of coastal grassland prairies. Houston toads are not known to occur in this habitat type. Given the habitat characteristics of this species, it is unlikely that any of the conservation activities described in this Agreement will affect this species.

To avoid potential effects to the prairie chicken, EDF and landowners within Austin and Colorado counties will determine if any of their enrolled properties are potential prairie chicken habitat. This assessment should be conducted by a qualified individual that has experience in assessing habitat conditions for the prairie chicken. It should also be done prior to the commencement of any conservation activities that may impact this species, such as forest restoration activities. No coastal grassland prairie habitat that could serve as potential habitat for the prairie chicken will be converted to forested habitat for the Houston toad.

3. Interior least tern (*Sterna antillarum*) – The interior least tern is federally listed as an endangered species (50 Federal Register 21784-21792). This species is known to occur in Leon and Milam counties, Texas. Both counties are included in the Permit area for this Agreement. Interior least terns arrive at Texas breeding areas beginning in early April to early June each year, and spend three to five months on the breeding grounds. Nesting habitat of the interior least tern includes bare or sparsely vegetated sand, shell, and gravel beaches, sandbars, islands, and salt flats associated with rivers and reservoirs. Houston toads are not known to occur in this habitat type, and none of the Houston toad conservation activities are expected to take place in interior least tern habitat. Given the habitat characteristics of this species, it is unlikely that any of the conservation activities described in this Agreement will affect this species.

4. Whooping crane (*Grus americana*) – The whooping crane is federally listed as an endangered species (32 Federal Register 4001). Whooping cranes winter on the Aransas National Wildlife Refuge's 22,500 acres of salt flats and marshes on the coast of south Texas. Their winter habitat consists of coastal prairie dotted with swales and ponds. They summer and nest in poorly drained wetlands in Canada's Northwest Territories at Wood Buffalo National Park. Whooping cranes migrate throughout the central portion of the state from the eastern panhandle to the Dallas/Fort Worth area and south through the central Texas area to the coast during October-November and again in April of each year. It is because they migrate through the Houston toad's range that they are listed as occurring in each of the counties within the Permit area of this Agreement. However, none of the conservation activities described in this Agreement will affect the whooping crane's wintering or migrating habitat.

5. Large-fruited sand verbena (*Abronia macrocarpa*) – The large-fruited sand verbena is federally listed as endangered (53 Federal Register 37975-37978). Its distribution includes Leon and Robertson counties, Texas. These counties are included in the Permit area for this Agreement. Its habitat consists of open areas of deep sandy soils in post oak woodlands. The large-fruited sand verbena may be sympatric with the Houston toad within the two counties that both species occur. Therefore, the conservation activities outlined as part of this Agreement and designed to benefit the Houston toad may potentially affect the large-fruited sand verbena.

To avoid potential effects to the large-fruited sand verbena, EDF and landowners within Leon and Robertson counties should determine if any of their enrolled properties are potential large-fruited sand verbena habitat. This assessment should be conducted by a qualified individual that has experience in assessing habitat conditions for the large-fruited sand verbena. It should also be done prior to the commencement of any conservation activities that may impact the large-fruited sand verbena, such as prescribed burning and new pond construction.

Should a landowner choose not to conduct this habitat assessment or if such an assessment fails to exclude the possibility that the large-fruited sand verbena occurs on his or her enrolled property, the landowner will work closely with Environmental Defense Fund, Inc. (EDF) and the Service to ensure that conservation activities will be carried out in such a way that will avoid adverse effects to the large-fruited sand verbena. This can be achieved by such means as constructing ponds in areas distant from known large-fruited sand verbena habitat or scheduling prescribed burning activities so as not to disrupt the flowering, seed dispersal, or rosette-producing stages of this species. These precautions will be outlined in the landowner's

Cooperative Agreement with EDF. Because these life cycle stages (i.e., flowering period, rosette-producing, etc.) of the large-fruited sand verbena can begin at different times from season to season, the Service will seek information regarding these life cycle stages on lands known to be occupied by the large-fruited sand verbena by species experts each year to adequately advise EDF and enrolled landowners on the commencement of burning activities.

6. Navasota ladies'-tresses (*Spiranthes parksii*) – Navasota ladies'-tresses is federally listed as an endangered species (47 Federal Register 19539). Its distribution includes Bastrop, Burleson, Leon, Milam, and Robertson counties, Texas. These counties are included in the Permit area for this Agreement. Navasota ladies'-tresses habitat consists of lightly wooded stream banks within post oak savannahs of east-central Texas. Navasota ladies'-tresses may be sympatric with the Houston toad within the five counties that both species occur. Therefore, the conservation activities outlined as part of this Agreement and designed to benefit the Houston toad may potentially affect Navasota ladies'-tresses.

To avoid potential adverse effects to Navasota ladies'-tresses, EDF and the landowners within Bastrop, Burleson, Leon, Milam, and Robertson counties should determine if any of their enrolled properties are potential Navasota ladies'-tresses habitat. This assessment should be conducted by a qualified individual that has experience in assessing habitat conditions for Navasota ladies'-tresses. It should also be done prior to the commencement of any conservation activities that may impact Navasota ladies'-tresses, such as prescribed burning and new pond construction.

Should a landowner choose not to conduct this habitat assessment or if such an assessment fails to exclude the possibility that Navasota ladies'-tresses occur on his or her enrolled property, the landowner will work closely with EDF and the Service to ensure that conservation activities will be carried out in such a way that will avoid effects to Navasota ladies'-tresses. This can be achieved by such means as constructing ponds in areas distant from known Navasota ladies'-tresses habitat or scheduling prescribed burning activities so as not to disrupt the flowering, seed dispersal, or rosette-producing stages of this species. These precautions will be outlined in the landowner's Cooperative Agreement with EDF. Because these life cycle stages of the Navasota ladies'-tresses can differ slightly from season to season, the Service will seek information regarding these life cycle stages on lands known to be occupied by Navasota ladies'-tresses by species experts each year to adequately advise EDF and enrolled landowners on the commencement of burning activities.

Attachment E
NEIGHBORING LANDOWNER COOPERATIVE AGREEMENT

1. **Involved Parties.** This Cooperative Agreement, between Environmental Defense Fund, Inc. (EDF) and _____(Cooperator), is intended to allow for flexibility under the Endangered Species Act of 1973, as amended (Act) for landowners who own properties adjacent to or nearby a landowner conducting conservation activities to benefit the endangered Houston toad under the Safe Harbor Agreement. Entering into a Cooperative Agreement with EDF is a prerequisite for obtaining a Certificate of Inclusion under EDF's Section 10(a)(1)(A) Enhancement of Survival Permit (Permit).

2. **Enrolled Property.** Cooperator owns _____ acres of property in _____ County, Texas at (*insert street address*) that contains habitat that may become occupied by the federally endangered Houston toad or have increases in Houston toad numbers as a result of Houston toad conservation activities on adjacent or nearby properties.

   This property meets the eligibility requirements for enrollment, as defined in the Safe Harbor Agreement between EDF and the U.S. Fish and Wildlife Service (Service). EDF will enroll ___acres of this property under the Safe Harbor Agreement, as shown on the attached property map. Other species (listed and non-listed) of wildlife may occur on the property, but will not be covered for incidental take under the terms and conditions of EDF's Permit.

3. **Access to Enrolled Property.** The Cooperator agrees to allow EDF and the Service, or their representatives, reasonable access to the enrolled property for the purposes of (a) assessing the habitat value and baseline conditions of the property; (b) verifying the presence of Houston toads on the property; (c) capturing and/or translocating any Houston toads that could potentially be affected by the removal or alteration of an enrolled aquatic site or any other significant change in land-use activity at an enrolled site that would be expected to result in take (e.g., death, injury, or other harm) of Houston toads; (d) ensuring compliance with the commitments described in section 6 "*Neighboring Landowners*" of the Safe Harbor Agreement.

   EDF and the Service will coordinate with each other and with the Cooperator so as to schedule and conduct visits to the property at times that avoid inconvenience to the Cooperator or disruption to the Cooperator's use of the property. EDF shall give the Cooperator at least one week's advance notice when requesting to enter the property for any of the above purposes, and the Cooperator shall not unreasonably withhold permission for such entry.

4. **Liability.** The Cooperator assumes no liability for injury to any employee or representative of EDF or the Service in the course of any visit to the property under this Cooperative Agreement. EDF, the Service, and their representatives shall not be liable for any damage to the property of the Cooperator arising from any visit to the property pursuant to this Cooperative Agreement. None of the parties waive their rights under Federal law including,

but not limited to, claims filed pursuant to the Federal Torts Claims Act (FTCA) or the Federal Employees Compensation Act (FECA).

5. **Baseline Determination.** Pursuant to this Cooperative Agreement, the Cooperator agrees to carry out or allow EDF's authorized representatives to carry out, the specific habitat baseline determination, as described below.

Based upon site surveys conducted on the Cooperator's property on (*insert dates*) the following has been determined:

A. Baseline determination for the Safe Harbor Agreement – This determination shall include a description of baseline conditions and how they were measured. Baseline conditions should be described on any part of the property where incidental take is likely to occur due to the conservation activities on an adjacent or nearby property enrolled in the Safe Harbor Agreement.

1. Habitat conditions – *Baseline vegetation conditions shall be surveyed across the ranch sufficient to characterize the structure, composition, and extent (in acreage) of all vegetation types present. Other baseline habitat conditions shall be described. This description will include the following characteristics*:

- *Known history, presence, and reproductive activity of the Houston toad on the property including survey reports with positive and negative results, if available*
- *Potential breeding pond characteristics including size, depth, slope, vegetation conditions and distance to nearby forest or woodland*
- *Aquatic species present in ponds including the presence of predatory fish, insect, and amphibian species*
- *Water quality status including eutrophication or other water quality conditions that could be detrimental to the development of Houston toad tadpoles*
- *Current vegetation conditions characterizing the structure, composition, and extent of all vegetation types present including canopy cover, density, and ground layer conditions with an explanation of the sampling methods used to determine suitability in different habitat areas on the property*
- *Soil conditions characterizing the structure, texture, and consistency of soil types present on the property (e.g., deep sandy soils that are loose or friable or soils that contain more clay particles than sand)*

2. Land management practices – *Land management practices will be considered part of the baseline and shall be described. This description will include the following practices*:

- *Livestock management activities including size of herd, grazing regime, and cattle water source locations*
- *Hunting activities*
- *Silviculture (forestry) activities*
- *Fence line, road, and facilities maintenance activities*
- *Pesticide/herbicide use and treatment regimes*

- *Water management including pond maintenance, dam maintenance, and water level management*
- *Prescribed burning activities*
- *Locations of buildings, other permanent structures, and paved surfaces*

3. Amount of acreage to be enrolled (should include areas where incidental take could occur due to conservation activities on adjacent or nearby properties covered under a Safe Harbor Agreement) – *Cooperator's enrolled property will be delineated on a map and attached to the Cooperative Agreement*.

   Incidental take of Houston toads is not covered or authorized by this Permit or Cooperative Agreement on any areas that are not specifically designated as "enrolled" property.

B. Other federally listed species or habitat – No incidental take of these or other species is authorized or permitted under the Safe Harbor Agreement or this Cooperative Agreement.

6. <u>Terms and Conditions.</u> The Cooperative Agreement is subject to the following additional terms and conditions:

A. Length of Cooperative Agreement – This Cooperative Agreement will be valid until the date that EDF's Permit expires.

B. Cooperator Responsibilities –

1. Under no circumstances will a landowner be authorized to purposefully take (e.g., intentionally kill, injure, capture, or transport) a Houston toad in an effort to return the property to baseline conditions or for any other purpose.

2. Informing EDF and the Service whenever the neighboring landowner has reason to believe that Houston toads have or may have colonized any site enrolled under the Safe Harbor Agreement (if such site was not known at the time of enrollment);

3. Providing a minimum of 60 days notice to EDF and Service's Austin Ecological Services Field Office, 10711 Burnet Road, Suite 200, Austin, Texas, 78758, phone (512) 490-0057; fax (512) 490-0974 prior to the following:
   a. The removal or alteration of an enrolled aquatic site supporting Houston toads or any other significant change in land-use activity at an enrolled site that would be expected to result in take (e.g., death, injury, or other harm) of Houston toads. Neighboring landowners must provide the Service (and/or other designated representatives, as appropriate) access to such properties to capture and/or translocate any potentially affected Houston toads.

   b. The sale or transfer of ownership of the enrolled property, so that EDF or the Service can attempt to contact the new owner, explain the responsibilities of the previous property owner under the Safe Harbor Agreement, and seek to

interest the new owner in signing the existing Safe Harbor Agreement or a new one to benefit the Houston toad on the enrolled property.

D. Monitoring – Neighboring landowners must provide EDF and the Service (or other designated representatives, as appropriate) access to enrolled properties to ensure they are in compliance with the commitments described above. Specific compliance monitoring requirements include a maximum of one visit every year (and a minimum of one visit every three years) to each property enrolled in this Safe Harbor Agreement. EDF or Service monitoring personnel, or their representatives, will notify the neighboring landowner at least one week prior to such visits and arrange the visits in a manner that is compatible with the landowner's schedule.

E. Reporting requirements – The Cooperator understands that to fulfill the responsibilities of the Safe Harbor Agreement, EDF must report all implementation and monitoring activities conducted in accordance with the Safe Harbor Agreement to the Service. Therefore, Cooperators must provide EDF with information related to the presence and take of the species that has occurred on the property.

F. Early termination – The Cooperator may terminate this Cooperative Agreement at any time because of circumstances beyond his or her control, upon written notification to EDF and the Service's Austin Ecological Services Field Office. Such termination shall not affect the Cooperator's authorization under EDF's Permit to incidentally take any Houston toad, at the time of termination, that is not part of the landowner's baseline.

The Cooperator may terminate this Cooperative Agreement for any other reason, upon written notification to EDF and the Service's Austin Ecological Services Field Office. However, such termination shall extinguish the Cooperator's incidental take coverage under EDF's Permit, as specified in section 10 of the Safe Harbor Agreement.

G. Unforeseen Circumstances – If, prior to the expiration of EDF's Permit, EDF should cease to exist or cease to continue administering the Safe Harbor Agreement, and no other entity satisfactory to the Service is willing to assume EDF's responsibilities as administrator of this Safe Harbor Agreement, EDF will relinquish its Permit to the Service. In the event of the foregoing, the Service shall convert the Certificates of Inclusion that have been previously issued by EDF to enrolled landowners into freestanding permits. Such permits will provide incidental take coverage for the same activities as had been authorized by the Certificates of Inclusion. This action is contingent upon the landowners' agreement to fulfill the activities for each of their properties, as well as the administration, monitoring, and reporting requirements of the Safe Harbor Agreement, as outlined in this Cooperative Agreement and the Safe Harbor Agreement.

AGREED TO BY:

_____	_____
Cooperator	Environmental Defense Fund, Inc.
_____	_____
Date	Date
(*insert address*)	EDF Suite 100 44 East Avenue Austin, Texas 78701

Concurrence with Baseline Condition:

_____
Field Supervisor, Austin ESFO