Wildlife Management Guidelines for Participation in the Lost Pines Habitat Conservation Plan

1.0 Introduction

These Wildlife Management Guidelines were prepared for private landowners engaging in wildlife management activities in the Lost Pines Habitat Conservation Plan (LPHCP) permit area (the Plan Area) in Bastrop County[1]. While some incidental take of the endangered Houston toad (*Bufo houstonensis*) may occur as a result of implementing these guidelines, the implementation of these guidelines is generally considered to have an overall net benefit (self-mitigating) for the Houston toad, even if the intent of the landowner is to implement these guidelines for wildlife other than the Houston toad.

1.1 Long Term Benefits To The Houston Toad

The Houston toad depends on healthy and mature forest ecosystems with mixed species composition, moderate canopy cover, an open understory layer with a herbaceous component, and shaded breeding pools. Unmanaged forests and forests that sustain other types of land uses, such as residential, recreational, or agricultural activities, can become less suitable as Houston toad habitat over time. Without active management, forests can become too dense and shaded, accumulate dangerous levels of burnable duff and debris, and be negatively impacted by cattle, pollutants, and vehicles. These and other changes may reduce the ability of forest ecosystems to provide quality Houston toad habitat by altering the toad's food base and competitive environment, increasing the risk of catastrophic fires that could destroy large blocks of habitat, and reducing Houston toad reproductive success. Active management of existing forests and reducing negative impacts from various types of land uses within, and adjacent to, forested areas is essential to the long-term sustainability of Houston toad habitat in the Plan Area.

The LPHCP identifies the characteristics of suitable Houston toad habitat and provides the guidance, the mechanism, and the incentive for individual property owners to develop and sustain healthy and mature forests on their property.

However, many common land management activities have the potential to negatively impact Houston toads in the short-term, such as using equipment to remove brush or thin

[1] Technical terms are identified in bold at the first use of the term and are defined in Section 11.0 (Definitions).

forest stands, implementing prescribed burns to manipulate forest vegetation and prevent large forest fires, and using chemicals to help control non-native or invasive wildlife or plants. The guidelines presented in the LPHCP provide specific guidance for avoiding and minimizing short-term negative impacts to Houston toads resulting from common management practices in, and adjacent to, forest habitat.

The guidelines prepared under the LPHCP are the primary focus of the LPHCP conservation program. The guidelines are voluntary and designed to be compatible with local attitudes and views towards land management and property ownership, regardless of whether a landowner is seeking authorization for incidental take. This approach seeks to remove as many barriers as possible to long-term planning and management with regard to forest habitat. The development, distribution, and promotion of these guidelines throughout the community is the County's maximum practicable effort to avoid and minimize negative impacts to the Houston toad from management activities, while still being able to realize the long-term benefits of managing for healthy and mature forests.

2.0 Management Planning

Management practices covered for incidental take by the LPHCP must be performed under one of the following management plan options:

1. Landowner is a member of a Wildlife Management Association with a Texas Parks and Wildlife Department (TPWD) Wildlife Management Plan that incorporates these guidelines;
2. Landowner receives the 1-D-1 open-space agricultural property tax appraisal for wildlife management use on their property, and at least one of the three required activities in the required wildlife management plan specifically addresses the Houston toad; or,
3. Landowner has any other type of agreement with TPW or other conservation organization, agency, or professional wildlife management consultant that incorporates these guidelines.

Water Management Zones[2] (WMZ) must be designated around all identified water features, including, ponds, creeks, streams (with three feet or more scoured width), wetlands, seeps, and springs that are immediately adjacent to a forested area. However, minor

[2] The term Water Management Zone is used instead Streamside Management Zone in order to clarify that wetlands, water and ponding areas other than streams are also to be protected. The term Water Management Zone has the same meaning as Streamside Management Zone.

depressions and mud holes that hold water only for a short period after a rain are not included and will not require an WMZ. WMZs must extend at least 50 feet from the edges of each water feature adjacent to a forested area or evolving forested areas (more than 40 percent canopy cover). Water features that are not adjacent to a forested area or an evolving forested area but are located within a pasture or crop land are not considered toad habitat. The buffering provided by a WMZ will lessen the disturbance of wildlife management practices on these important habitat sites that might be used by Houston toads for breeding or dispersal.

2.1 Obtaining Incidental Take Coverage

To receive incidental take authorization under the LPHCP for wildlife management activities, the landowner must receive a Notice of Receipt from the LPHCP Administrator stating that a Notice of Intent to be covered by the LPHCP has been filed with the LPHCP Administrator. A landowner must submit to the LPHCP Administrator a signed Notice of Intent to be covered by the LPHCP along with a copy of the landowner's land management plan that meets the criteria described in Section 2.0 above. The Notice of Intent will include a statement that the landowner authorizes the County of Bastrop to enter the property for purposes of monitoring compliance with this guideline and biological monitoring. Additionally, the land management plan must include a map of the property showing the location of all water features and WMZs. The LPHCP Administrator does not approve land management plans. It is the obligation of the landowner to ensure that the landowner's land management plan complies with applicable governmental requirements and accurately incorporates the requirements of this guideline. Failure to properly incorporate the requirements of this guideline into the land management plan or the failure to properly implement the requirements of this guideline may result in no incidental take coverage under the LPHCP.

3.0 Brush Management

Brush control in forestlands is recommended to landowners to create additional openings or clearings within post oak (*Quercus stellata*) and pine forests (*Pinus taeda*) to create more edge effect for wildlife. The idea is to allow additional sunlight to reach the soil surface and increase grass, forb, and browse production. Cedar trees (Juniperous spp.) and yaupon (*Ilex vomitoria*) are typically the targeted vegetation, but other trees within the forest may be included.

The guidelines below represent means for avoiding or minimizing the take of individual toads during brush management activities. Brush management will mitigate any

short-term negative impacts to the Houston toad by increasing the quality and quantity of land that can provide habitat for the Houston toad.

The guidelines for brush management within the Plan Area include:

1. Removal of trees and brush with heavy mechanical equipment (e.g., bulldozers or tractors) must be conducted outside of the breeding season and emergence period of the Houston toad (January 1 through June 30). Hand clearing (e.g., chainsaws, clippers, axes, etc.) for the selective removal of trees and branches may be used at any time. However, no hand clearing is allowed within WMZs during the breeding season and emergence period of the Houston toad;

2. Brush removal practices using heavy mechanical equipment are prohibited within WMZs. Hand clearing and manually stacking slash and brush is allowed within WMZs outside of the Houston toad breeding season and emergence period, but a minimum fifty percent canopy must remain within the WMZ. The guidelines (when available) for constructing toad friendly ponds (see Section 8.2) should be consulted for determining recommended vegetation layout adjacent to water features. For example, the deep end of a pond should receive more sunlight than the shallow end of a pond;

3. The application of herbicides for brush management is prohibited within WMZs;

4. Herbicides may be used outside of the Houston toad breeding season and emergence period (January 1 through June 30) according to the product label, as necessary, outside of WMZs, but application is limited to individual plant treatment or ground application only; and,

5. Whether using heavy mechanical equipment, hand clearing, or herbicides to remove trees and brush, landowners must use the single-tree selection or group selection techniques listed below, and not exceed the allowable amount of tree removal listed under each technique.

    A. Single-tree selection is an allowed method of thinning/harvest in occupied Houston toad habitat. The residual stand (trees remaining following the timber operation) must contain no less than 80 square feet per acre (18.4 square meters per hectare) basal area which simultaneously maintains toad habitat; or

    B. Group selection is allowable within occupied Houston toad habitat if implemented using the following criteria:

- Group selection is not allowed within WMZs;
- Maximum group size is not to exceed five acres regardless of tract size but cannot exceed 20 percent of the tract;
- Maximum width of any group is not to exceed 100 feet (30.5 meters);
- Harvest cycles for group cuts are set at intervals of 7 years or more;
- Consecutive (by harvest cycle), adjacent group harvests are not allowed. Harvests should cycle in a mosaic pattern on each parcel;

Brush control techniques within tame pasture or native pasture are not restricted because these areas are not considered to be Houston toad habitat. However, landowners are encouraged to maintain trees and brush within pastures to provide cover for wildlife. Brush found in tame or native pastures within 50 feet (15 meters) of a water feature without any adjacent forested area should be removed by hand clearing. Landowners are encouraged to maintain brush piles, where practicable, to supply cover for wildlife.

4.0 Reforestation

Reforestation for wildlife management traditionally takes place within tame or native pastures where woody cover or browse is lacking for wildlife. However, if planting is occurring within forestlands, landowners must follow the recommendations of the Forest Management Guidelines (Appendix E).

The guidelines below represent a means for avoiding or minimizing take of individual toads during reforestation activities within previously unforested areas including tame pastures, native pastures, old fields, or cropland. Reforestation will mitigate any short term negative impacts to the Houston toad by increasing the quality and quantity of land that can provide habitat for the Houston toad.

1. Machine planting within a WMZ is not allowed at any time; and
2. Hand planting native tree and shrub seedlings is an acceptable practice at any time of the year within WMZs.

5.0 Prescribed Burning

5.1 Forestlands

Prescribed burning is a wildlife management tool practiced within forestlands to remove excess tree litter and understory vegetation, such as cedar and yaupon, to prevent the understory from becoming too thick and shading out desirable grasses, forbs, and browse. Prescribed burns in post oak-dominated forestlands are most successful just after leaf drop and prior to the onset of winter rains in November or December. For guidelines regarding prescribed burning within forested stands see the Forest Management Guidelines of the LPHCP. The prescribed burning in forestlands guidelines represent a means for avoiding or minimizing the take of individual toads during prescribed burns. The removal of excess tree litter and understory vegetation will mitigate any short term negative impacts to the Houston toad by increasing the quality and quantity of land that can provide habitat for the Houston toad.

5.2 Native Pastures

Prescribed burning is used to maintain oak savannah and native grassland communities, where native grasslands are interspersed with forest mottes. Prescribed burning will remove old grass litter and any young, invasive woody plants (e.g., cedar, locust (*Gleditsia triacanthos*), or elm (Ulmus spp.) within the native pastures. The removal of the grass litter will increase bare ground area, thus promoting forb growth that will provide browse for deer, seeds for birds, and insects for many wildlife species, including the Houston toad. Late summer (e.g., August and September) burns are very effective in killing unwanted woody growth within pastures, but the combination of low humidity and high temperatures make these fires more difficult to manage. Safer conditions exist just after the first frost between November and December when humidity levels are higher and temperatures are lower.

The guidelines for prescribed burning in native pastures represent a means for avoiding or minimizing the take of individual toads during prescribed burns. The removal of excess tree litter and understory vegetation will mitigate any short term negative impacts to the Houston toad by increasing the quality and quantity of land that can provide habitat for the Houston toad.

1. Prescribed burning within native pastures is allowed at any time, but all water features must be avoided;

2. The burn must be conducted in accordance with Texas Commission on Environmental Quality (TCEQ) rules (Texas Administrative Code Title 30 - Part 1 - SubChapter B Chapter 111.211 and 111.219, as amended);

3. Prescribed burning should be conducted on approximately one-third of native pasture acreage each year; and,

4. Disked firebreaks and firelines will be 10 to 20 feet (3.0 to 6.1 meters) wide and will not be constructed during the breeding season and emergence period of the Houston toad (January 1 through June 30). Firebreaks will not be constructed within WMZs.

6.0 Supplemental Food

6.1 Strip Disking

Strip disking is a method of soil disturbance that encourages the growth of forbs and other annual plants. Common seed producing forbs enhanced through disking include doveweed (*Croton* sp.), sunflower (*Helianthus annuus)*, and ragweed (*Ambrosia artemisiifolia*). The forbs produced with disking provide supplemental forage, seeds, and insects for wildlife.

The guidelines below represent a means for avoiding or minimizing the long-term impacts of disking on the Houston toad within tame or native pastures.

1. Disking is discouraged in areas where erosion may occur;

2. Disking is not allowed within WMZs;

3. Disked strips should be 15 to 30 feet (4.6 to 8.2 meters) wide, with strips being disked on a three-year rotating basis. Landowners should disk a strip 15 to 30 feet wide and then skip an area twice as wide (e.g., 30 to 60 feet (8.2 to 16.4 meters) wide) before disking another strip. During the second year, landowners should disk a strip 15 to 30 feet wide adjacent to the first year's strip. The practice should be repeated annually with the first year's strips being re-disked during the fourth year; and

4. Disking must be conducted at a depth of six inches or less.

5. Disking is not allowed within forestlands during the breeding season and emergence period of the Houston Toad (January 1 through June 30).

6.2 Food Plots

Planting food plots can be an effective method to supplement well-managed native habitats. Food plots are traditionally planted to supplement the diets of white-tailed deer (*Odocoileus virginianus*), turkey (*Meleagris gallapavo intermedia*, quail (*Colinus virginianus)*, and doves (*Zenaida spp*.), but other wildlife species also benefit. There is no minimum or maximum acreage size for food plots, but one to five percent of the total acreage is recommended. One-half of the plots should be planted in cool season species (planted in September or October with forage available during winter stress periods) and one-half in warm season species (planted April through June with forage available during the summer stress period). Typical cool season food plots consist of one or two cereal grains (e.g., wheat, oats, or rye) and an addition of a cool season legume (e.g., clover, Austrian winter pea, or vetch) to increase protein content. Perennials or reseeding annuals such as Illinois bundleflower, bush sunflower, Engelmann daisy, or maximillian sunflower can be used to create permanent food plots.

Food plots are typically planted within native or tame pastures where sunlight is optimum, but some landowners with extensive forestlands may plant along fence lines, interior roadways, forest clearings where trees have been removed, existing or created senderos, or firebreaks.

The guidelines below represent a means for avoiding or minimizing the long-term impacts of planting food plots on the Houston toad.

1. Disking must be conducted at a depth of 6 inches (15 centimeters) or less when preparing food plots;

2. Disking for food plot preparation is not allowed within forestlands during the breeding season and emergence period of the Houston Toad (January 1 through June 30). Landowners are encouraged to utilize perennial and reseeding annuals within forestlands for warm season food plots, as these can be planted during the fall to avoid disking during the Houston toad breeding season and emergence period;

3. Disking, grain drills, broadcast spreaders, drags, and rollers can be used to establish cool and warm season food plots within native and tame pastures. However, food plot construction is not allowed within WMZs;

4. Herbicides may be used to control invasive grass and weeds, but they must be used in strict accordance with the product label. Within forestlands, chemicals may only be used outside of the Houston toad breeding season and emergence period (January 1 through June 30); and

5. Fencing around food plots is allowed to control livestock and deer access to the supplemental food. Fence construction within forestlands is discouraged during the breeding season and emergence period of the Houston toad (January 1 through June 30).

6.3 Overseeding Tame Pastures

Overseeding tame pastures with oats, rye, Austrian winter peas, or clover is allowed to provide additional forage for wildlife during winter months. Pastures can be overseeded using grain drills or by broadcasting. If a grain drill is used, a 50-foot (15.2 meters) buffer must be placed around WMZs. Because tame pastures are not considered to be Houston toad habitat, no further restrictions apply.

7.0 Native Grassland Restoration

The planting of native grasses and forbs within tame pastures is considered to be self-mitigating due to the fact that these areas are not considered to be Houston toad habitat. Seed mixtures used to reseed tame pastures should include species of native perennial forbs in addition to native grasses to increase the food supply for wildlife. Herbicide application to control the improved grasses and weeds is allowed, but they must be used in strict accordance with the manufacturer's directions. Traditional planting techniques including disking, broadcasting, and drilling are allowed, but a 50-foot buffer must be maintained around WMZs. Native grasses and forbs may be broadcast by hand within WMZs.

8.0 Houston Toad Breeding Ponds

8.1 Protecting Pond Habitat

Within Houston toad habitat, avoid modification or disturbance of temporary wet-weather ponds and other small natural ponds located within 50 feet of a forested area or evolving forested area. These small ephemeral wetlands are a breeding habitat for the Houston toad. Isolated ephemeral ponds located more than 50 feet from a forested area may support breeding activity but are not likely to support a successful emergence of toadlets. Isolated ephemeral ponds may operate as breeding sinks and provide no long term benefit to the Houston toad. Extensive clearing of native vegetation and alteration of drainage patterns should be avoided in and around these ponds.

8.2 Creating Breeding Ponds

Ponds can be constructed within Houston toad habitat using current, approved methodology to increase potential breeding sites. The guidelines below represent an approximate means for avoiding or minimizing the negative long-term impacts of constructing breeding ponds on the Houston toad.

1. Pond construction is prohibited during the Houston toad breeding season and emergence period (January 1 through June 30);
2. Ponds should be located within 0.5 mile (0.8 kilometer) of deep sands and adjacent or within woodlands with 50 percent or more canopy cover (Forstner 2002);
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. During pond construction, equipment operators must avoid as many trees as practicable;
5. Landowners and/or equipment operators may clear up to 0.25 acre (0.1 hectare) to stack and burn trees and brush removed during pond construction;
6. Pond edges must be revegetated with native perennial bunch grasses. However, annual grasses (e.g., ryegrass, oats, wheat, or rye) should be planted to provide cover for emerging toadlets during the first year after pond construction;
7. In the event that the 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; and
8. Consultation with a TPWD or U. S. Fish and Wildlife Service biologist or the LPHCP Administrator is recommended.

9.0 Fire Ant Control

Although the full impact of red imported fire ants (*Solenopsis invicta*) (fire ants) on the Houston toad is not known, fire ants are believed to be a serious and increasingly important threat (Campbell 1995). Controlling heavy fire ant infestations in Houston toad habitat may help minimize their impact. The guidelines below represent a means for avoiding or minimizing any negative long-term impacts of red imported fire ant control on the Houston toad.

1. Landowners can help to control red imported fire ant infestations by limiting soil disturbance, inspecting imported soil and nursery products thoroughly for fire ants, and properly disposing of trash; and

2. Individual mound treatment - Individual fire ant mounds can be treated with commercial fire ant bait or by environmentally sensitive means (e.g., boiling water, diatomaceous earth, etc.). Baits containing the active ingredients hydramethylnon or fenoxycarb, such as Amdro, Award, or Logic, are recommended for areas other than pastures or cropland. Baits 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. To avoid adverse effects on non-target species, the bait should only be applied when ants are actively foraging to prevent accumulations of excess bait.

3. Treatment in larger areas – Individual mound treatment may not be practical in larger areas. Where fire ant control is needed in pastures or other large areas, use a product that is labeled for pasture use (e.g., Extinguish or Justice), and follow the label directions.

10.0 Census Counts

Landowners are encouraged to actively participate in conducting Houston toad census counts. Information and assistance can be obtained from the LPHCP Administrator.

11.0 Definitions

Basal area – The total cross-sectional area (in square feet) of tree stems at breast height (approximately 4.5 feet (1.4 meters) from ground level), inclusive of the bark. Basal area is a measure of the degree of crowding or density of trees in a stand.

Cropland – Land used for the production of cultivated crops or land where some sort of tillage or cultivation is performed each year.

Firebreak – A naturally occurring or man-made barrier that helps reduce or eliminate the spread of fire. Firebreaks can include mechanically or hand cleared fire lines.

Forbs – Wildflowers and other weeds.

Forestland – Land upon which the climax vegetation is composed principally of trees and understory shrubs with various quantities of grasses, grasslike plants, and forbs occupying the intervening, unoccupied ground area. Typical forested areas include pine forests, pine and hardwood forests, and bottomland hardwood forests along major streams.

Group selection – A timber harvest system in which one or more "groups" are cut. All the trees in the designated area or group are harvested; likened to a small-scale clear-cut.

The maximum harvest width for a group is sometimes set at approximately twice the height of mature trees.

Hand clearing – Brush removal technique involving the use of motorized and non-motorized hand tools, including, but not limited to, chainsaws, handsaws, axes, and clippers. Walk behind mowers and trimmers are also considered to be hand-clearing tools.

Hand planting – Planting tree and shrub seedlings with the use of dibble bars, shovels, pick-mattocks, etc. Vehicles can be used to transport seedlings, equipment, and personnel.

Machine planting – Planting tree and shrub seedlings with motorized equipment that mechanically plants seedlings or creates an opening in the soil to facilitate tree planting.

Native pasture – Land on which the native vegetation (climax or natural potential plant community) is forest, but which is used primarily for production of native grasses for forage. Native pasture includes cutover forestland and forested areas that were cleared and used in the past for cropland.

Old field – Cropland or pastures that are reverting naturally to native woodlands.

Prescribed burning – The controlled application of fire under certain conditions of weather and fuel moisture, which allow the fire to be confined to a predetermined area and produce the intensity of heat and rate of spread needed to accomplish certain planned objectives, such as stand improvement, wildlife habitat management, grazing, fire hazard reduction, etc.

Primary Habitat – High-quality Houston toad habitat is characterized by treed cover (either continuous, closed-canopy forest or open woodlands with an understory of native bunch grasses) adjacent to potential breeding sites (particularly ephemeral ponds and drainages with a treed edge).

Self-mitigating – Practices that initially may have short-term negative impacts on the Houston toad, but are considered to result in positive benefits to the species in the long-term.

Senderos – Straight or meandering, long, linear clearings within the forest created to allow sunlight to reach the soil and encourage the production of beneficial grasses, forbs, and shrubs for wildlife.

Single-tree selection – A timber harvest system in which individual trees are removed from a stand.

Tame pasture – Pasture land in which the dominant grass species are introduced turf forming grasses such as bermudagrass, coastal bermudagrass, bahiagrass, or any of their related varieties. Tame pasture and improved pasture are terms that can be use interchangeably and are generally not considered habitat for the Houston toad.

12.0 References

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Campbell, L. 1995. Endangered and threatened animals of Texas: Management guidelines for the Houston toad. Texas Parks and Wildlife Department, Endangered Resources Branch. Texas Parks and Wildlife Press, Austin, Texas. 109 – 110 p.

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This document was prepared under the direction of the Bastrop County Stakeholder Workgroup. Special assistance was provided by Len Polasek (TPW), Brent Ortego (TPW), Bill McPherson (NRCS, retired), Randy Givens (independent) and Kariann Sokulsky (KES Consulting). Edited by Clifton Ladd and Amanda Hunter (Loomis Austin, Inc.).