

# Table of Contents

General Introduction	2
Major Events Effecting Plan Execution	2
Property Description	4
Identify Indigenous Wildlife	7
- Listing of Managed Species	8
Wildlife Management	9
- Habitat Control Implementation	9
- Capturing the Habitat	10
- Maintaining the Habitat	12
- Supplemental Food Sources	13
- Artificial Shelters	16
- Supplemental Water Sources	19
- Predator Control	21
Home Site Improvements	22
Proposed Project Schedules	24
Schedules for Maintenance	25
References	26
Area Map	27
Aerial Image	28
Habitat Usage Development Map	29
Diagram Nest Box Style 1	30
Diagram Nest Box Style 2	31
Diagram Nest Box Style 3	32
Diagram Feeder	33
Diagram Water Bowl	34

## General Introduction

This document is intended to be a record of, and an instructional guide for, implementation of a comprehensive wildlife management plan that will protect and increase the populations of three specific indigenous songbird species and the Houston Toad found on property owned by Carl Marvin and Dolores E. Groves in Bastrop County. This is revision version 6.3. At the present time almost all of this land will be used for this purpose. This land will be used recreationally for our enjoyment in a passive capacity.

For the last fourteen years, the wildlife management plan has included a private residence on the back portion of the property. Wildlife management remains the primary use of 14 acres of this property. It is our desire to maintain the land in its' virgin state. All modifications and improvements will take into consideration the effects they may have on the well being of the specific songbirds and toads the wildlife management plan has been designed to support. Implementation and administration of the elements of this plan that directly benefit these animals will be monitored for effectiveness and will always be executed just as they are described within the wildlife management plan.

If problems arise from the use of this wildlife management plan, modifications to this plan will be made as soon as possible. This wildlife management plan must reflect any major shifts in implementation or changes in targeted schedules. It should become a part of the property itself and help to make the property more desirable for us (the owners) who live there, and any people who visit.

## Major Events Effecting Plan Execution

In January of 2002 a Bastrop Appraisal District inspector reported a change in property usage based upon a water meter and utilities that **were not present** on our property. They also "removed" our 1-D-1(Open-Space) agricultural wildlife management status (converted in April 2000) and required us to reapply for agricultural appraisal. We reapplied for agricultural appraisal for wildlife management on April 19<sup>th</sup> 2002. Texas law states "**The law does not require an annual application for agricultural use once the land has qualified. Because only 1-d-1 land may qualify for wildlife management use, an owner who changes to this use need not reapply for agricultural appraisal.**"<sup>1</sup> In addition, the laws governing qualification of agricultural land in wildlife management have changed since April of 2000. There are new requirements for land converted after January 1, 2001. After waiting for nine months for our requested inspection to be scheduled, our property was finally inspected and our agricultural wildlife management status was reinstated with the same set of requirements it originally was converted under.

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<sup>1</sup> Texas Property Tax Guidelines for Qualification of Agricultural Land in Wildlife Management Use

In May of 2002, Clayton Napier representing the U.S. Department of the Interior - Fish and Wildlife Services - informed us we were not required to acquire an endangered species act Section 10(a)(1)(B) permit. He also informed us that there had never been any requirement for a permit for our property. He explained how the application for a permit in the past had been misrepresented as a requirement by local government agencies and services. Based upon the supposition that we were still interested in acquiring a permit, he emailed and read the following statement over the phone to me:

“No surveys documenting the presence of the Houston toad have been conducted specifically on the subject property. Although the Service has no direct evidence that take will occur, and we cannot say definitively whether an incidental take permit is required for this property, it is possible the species may be present. However, the Applicant desires to be fully covered under the Endangered Species Act for any incidental take of the Houston toad that may occur as a result of development activities. As such, the Applicant has voluntarily agreed to apply for a 10(a)(1)(B) permit to reduce his/her potential liability by mitigating for 0.5 acres of suitable habitat which might contain animals that may be taken. This is done solely at the Applicant’s discretion.”

We no longer have any intention of seeking a 10(a)(1)(B) permit in the future, and on July 5<sup>th</sup> 2003 we purchased our water meter for this property without one. The water meter was installed at that time. Installation of the water meter did not change our land usage because until construction of our home was complete the only usage of the water meter was to provide water for the supported songbirds and toads.

In the spring of 2008, we became associate members of Texas Wildlife Association.

Version 3.9 of this plan stated we would be changing land usage for one acre of this property before the end of the year 2008. Due to the collapse of the banking industry and economy we were delayed. We acquired septic and building permits for a single-family residence on December 1, 2009. One acre was cleared and construction began in September, 2010. Septic system was licensed and put into service on September 14, 2010. We were granted an extension for our building permit until January 21, 2011. Construction was not completed and we requested and acquired a six-month extension. We then completed construction and moved into our new home.

Version 4.8 of this plan states we have completed a water well located on the southeast corner of the cleared home site. A small pump house was constructed to protect the hardware and electronics from the elements and wildlife.

Version 5.1 of this plan states we have acquired a membership and account with Bluebonnet Electric. Without changing the usage of the fourteen acers dedicated to our wildlife plan we connected our home to the grid after living off-grid solar for eight years. This connection unfortunately required a thirty-foot right of way cut through the trees on our property. The connection and right of way were scheduled and executed September 23<sup>rd</sup> of 2018. All electricity purchased since then has been used for residential purposes. The right of way will remain a dedicated part of our wildlife plan.

Version 6.0 of this plan was provided to report changes in the development of the single acre cleared home site. In February of 2019 a twenty foot by twelve-foot metal carport was installed. In September of 2019 a twenty-seven foot by thirty-foot metal garage was installed. Both these structures are located on the one-acre home site.

Version 6.2 of this plan was provided to report Bluebonnet Electric has cleared additional right of way to connect and provide service to the property owner (Brian Entrekin – R83139) immediately behind our property. This right of way will remain a dedicated part of our wildlife plan. Additionally, an eight-foot by twenty-foot metal storage container was placed on the southwest corner of the one-acre home site.

Version 6.3 of this plan is being provided to report we are extending the indigenous animals this plan manages to include the Houston toad (*Anaxyrus houstonensis*). This will also add inclusion of a new activity, Predator Control.

## **Property Description**

The following are the important pieces of information that help identify the physical property.

### **Legal Identification Information:**

Bastrop Central Appraisal District Identification is:  
R82164 A96 BOATWRIGHT, LEVI, ACRES 15.0  
Owner ID 603904

### **Physical Location:**

Upon leaving Bastrop, Texas, traveling east on 71; go 6.7 miles past the Colorado River. Turn north onto Bastrop County Road 154. Cross State Park Road 1 and continue north (property is nestled between Lost Pines and Buescher State Parks). Approximately 3.7 miles north of Highway 71, County Road 154 (Cottletown Rd.) and County Road 146 (Gotier Trace Rd.) intersect. The property is 0.9 miles east of this intersection, with 408 feet of frontage on the south side of Bastrop County Road 146 (see “Area Map” page 28).

### **Physical Description:**

The property meets the county road at its’ lowest altitude. As the distance from the road increases, the land gradually increases an estimated 40 feet in altitude by the time you reach the south (back of property) property line. The property immediately to the east of this property (eastern property line) has a small portion of its’ northeast corner that is below the one-hundred-year flood plain, but no portion of our property is below the flood plain. Most of the soil consists of layers of sand and clay. On the higher portion near the back of the property many large rocks and gravel are found in the sand.

The property is heavily covered with many types of trees. The most common trees found are Loblolly Pine (*Pinus taeda*), Black Jack Oak (*Q. marilandica*), Post Oak (*Quercus margaretta*) and Eastern Red Cedar (*Juniperus virginiana*). Underneath the

cover of these larger trees, a few smaller trees of assorted types, shrubs and a few ferns make up a thick ground cover.

This property is in a land area typically classified ecologically as the **Post Oak Savannah** region of Texas. The northern, eastern and southern property lines are currently fenced. With the one remaining adjacent tract we will construct a five-strand barbed wire fence along the western property line. All required materials are purchased and ready to use (Photographs of each corner of the property follow.).



**IMAGE A.1      NORTHEAST CORNER OF PROPERTY FACING SOUTHWEST**



**IMAGE A.2      NORTHWEST CORNER OF PROPERTY FACING EAST**



**IMAGE A.3      SOUTHWEST CORNER OF PROPERTY FACING NORTHEAST**



**IMAGE A.4      SOUTHEAST CORNER FACING NORTHWEST**



**IMAGE A.5**                      **ENTRANCE GATE TO PROPERTY**

### **Physical Dimensions:**

Property dimensions are roughly rectangular and 408 feet across by 1650 feet deep. Total combined fence line is approximately 4050 feet. See the Habitat Usage Development Map or copy of survey for details.

### **Known History:**

This 15.0-acre tract of land and all the adjacent tracts on the south side of Bastrop County Road 146 were taken from a 1200-acre tract of land that had been owned by the same family for many years. This land had carried an agricultural exemption for many years, and had always been used to graze cattle. Some of the acreage of the original 1200-acre tract is still used to run cattle. It is assumed that for land classification the quality of the land for grazing purposes has always been described as “Native Pasture Poor”. We purchased our 15 acres on March 22, 1999.

## **Identify Indigenous Wildlife**

The native wildlife we are working with consists of three different species of bird and the Houston toad. Two of these species are very well known and loved by bird watchers across most of the United States. One of the songbird species is lesser known, but is a personal favorite of ours. Bastrop county is primary habitat for the Houston toad. After years of living on this property we have decided the Houston toad should also be protected by this plan. All three species of bird are rarely competitive with each other and live well sharing the same environment and resources. There is no competition between these birds and the toads. There is overlap between the bird species nesting periods, which may require more than the planned number of nest boxes to compensate. We

believe we have sufficient count and placement of nest boxes to satisfy all three species. Optionally, in the future we may decide not to support all three bird species and focus only on those that respond positively to the plan.

## Listing of Managed Species

**Northern Cardinal (*Cardinalis cardinalis*)** – Crested songbird with a conical beak. Male is bright red with black throat. Female is brownish with reddish hue and a lighter mask. These birds are insect and seed eaters. They prefer sunflower seeds to all other foods. They will also eat safflower, cracked corn and white proso millet. Cardinals need plenty of room for nesting. These birds are year-round residents. We see these birds quite frequently on our land. Usually they are seen only in sets of two or three birds.



Because the females are darker and draw less attention to themselves it seems like most of the Cardinals we see are males. These birds come to the feeders now with the crowds of finches, but seem resigned to wait their turn and let the finches have the first go at it.

**American Robin (*Turdus migratorius*)** – Dark gray-brown upper body with a bright orange breast. Females have a slightly paler color scheme. Robins are largely insect eaters. Robins are not cavity nesters and tend to build nest on the edge of almost anything or a fork in a tree. When we provide nest boxes for Robins, they may need to have the front side of the generic nest box removed. Nesting will be a rare event for a pair of Robins in this area of the country. These birds are wintering residents. Most of the sightings of Robins on the property have been birds on the ground digging around in the pine needles. These birds seem much more interested in insects than any of the food we offer in the feeders. Typically, a single bird is spotted at any one time. However, early last spring waves of them in the hundreds migrated through our property!



**Rufous Sided Towhee (*Pipilo erythrophthalmus*)** – Adult male is patterned with a black head and upper body with white belly and brownish orange shadows on the under wings. Two large white spots mark the sides of a long-rounded tail. These birds may have either red or white eyes. Female head and upper body colorings are brown. They feed on insects, including beetles, caterpillars, and ants, as well as snails, spiders, and millipedes. During the fall and winter, seeds and berries constitute a large part of their diet. These birds will either be wintering or year-round residents. So far, we have only



seen this bird four times on our property e hope we will see more of them now that we live there with them.

### **Houston Toad (*Anaxyrus houstonensis*)**

– One of the first amphibians added to the United States Endangered Species Act of 1973. The Houston toad was also added to the IUCN Red List of Threatened Species from 1986 to 2022. The plight of the Houston toad has worsened to "critically endangered" since then, with fewer than 250 mature individuals believed to remain in the wild as of 2021. They are threatened every day as they continue to suffer from a



loss of habitat and extreme drought. Their typical life expectancy is approximately 3 years. Females are typically larger ranging from 2 to 3 ½ inches, males 1 4/5 to 2 ½ inches. They are nocturnal and hibernate in the winter. They secrete two toxins, serotonin and alkaloids for protection from predators. Breeding period runs from February to June. Males reach adulthood in one year, females taking slightly longer.

## **Wildlife Management**

The three primary required minimum wildlife management activities managed by this plan are: Habitat Control, Supplemental Food and Shelter. Additionally, there is one other wildlife management activity we support: providing Supplemental Water.

### **Habitat Control Implementation**

In order to serve its' purpose, any wildlife management plan must encompass as many details as possible, and at the same time provide an over all "big picture". The plan is understood to be imperfect, but a continual attempt to correct and improve all elements of the wildlife management plan will eventually lead to completion of the desired goals. The best plan possible will still fail to deliver the desired goals if the plan is mismanaged or is not used as intended. With this in mind, we will work to validate or discard elements that either help or hinder this plan from reaching the targeted goals. Habitat Control is one of the three primary activities for this plan.

The first major detail of concern for any comprehensive wildlife management program will always be identifying the habitat as thoroughly as possible. This will involve many pieces of information. The plan should identify local native plant and animal life that is not wildlife the plan is designed to protect. It should help administrators understand how local exotic or domestic plant and animal life affects the local ecology; and identify the amounts and types of cover that are present. Many questions will have to be answered. What is happening to the ecology of other property in the area? Hunting will not be allowed on this property, but what about the adjacent

properties? What are the amounts and types of natural food supplies that are present at any given time of the year? Basically, there is a very fundamental need to identify and catalog all assets and deficits the current habitat is responsible for. Once these pieces of information can be processed it will begin to become clear in which direction to work to attain the goals we hope to achieve.

In the best of all situations, the habitat will be fairly healthy and only need to be captured and maintained. The details of our plans' Habitat Control are organized into these two categories (Capture and Maintenance). There is no need to make major modifications to the ecological system. In a worse cases scenario, there would be a need for many years of work just to arrive at a normal ecological system. After first hand inspection, this property proved to be much closer to a "best case". We believe the bulk of the work for this plan revolves around capture and maintenance of the environment.

We saw a need to be very gentle with the property as we made the modifications necessary to build our home on it. Other than the area that is the immediate home site, the private access road was the only proposed major change to the system. The home was built after wildlife management already had eleven years to work on the property. It is our opinion that was enough time to stabilize the songbird populations. If, for any reason, it appears we need help to responsibly administer this wildlife management plan, or we simply decide it should become part of the wildlife management plan, we will seek advice and support from the Texas Wildlife Management Association. Much of our reference material documents were from the Texas Parks and Wildlife Department for this and many other functions related to wildlife management. They should be the first source for additional information.

## **Capturing the Habitat:**

**(Not in order of priority)**

- 1) Map Property** – Document with a map, or multiple maps if needed, the features of interest, areas targeted for improvements, areas needing any attention related to songbirds. Currently we are working with a single map we have labeled "Habitat Usage Development Map" (see page 30).
- 2) Assess Plant Life Diversity** – Make a record of the collections of different plants around the property. The more diverse the natural plant life the more stable the food sources will be during each season of the year.
- 3) Locate Undesirable Plant Life** – There is some unwanted plant life in the ecological system. The types of trees and plants that are not wanted, or are not wanted in the quantities found, should be identified. Eventually, some but not all of these plants will be removed. For example, this property would benefit from a reduction in the number of cedar trees. How many and from which areas is being determined.
- 4) Study Insect Populations** – Document in as much detail as possible the insect life in the area, especially the ones that are part of the food supply of the songbirds being propagated.

- 5) Fencing** – The property of course should be fenced. A four-strand barbwire fence would be the absolute minimum. We decided a five-strand barbwire fence was required. Because the fence lines are also the property lines, the owners of the adjacent tracts have been directly involved in clearing and constructing fences. All three non-frontage property lines (East, South and West) were surveyed and cleared enough to construct fences. When the entire fence is complete, it will not be singly controllable by us. We, as owners, have put as much influence as possible into the decisions made about fence line construction and/or maintenance. We were especially aware of large or irreplaceable trees or areas of vegetation that were not directly within the path of the fence, but might have been removed anyway due to construction. Fence construction and maintenance is a never-ending process. With the number of tree falls that constantly damage the fences we will always be working on a section of fence somewhere. (Image B.1)



**IMAGE B.1**

**BUILDING EASTERN FENCE LINE**

- 6) Food Patches** – When an area that songbirds frequent for native plants, seeds or greens is identified, an effort to identify the plants of concern must be made, and if likely locations similar to the one identified are found, if more natural food patch areas are deemed desirable, they should be seeded in the future. Perhaps these areas should also be mapped. No food patches have been identified.
- 7) Natural Pools** – When a low place is identified that collects or holds rain or run off, if it is worth documenting and improving, it should be added to the property maps. At the very least, if songbirds are witnessed using a natural pool for a

source of water, care should be taken not to alter the area around it in any way that would render it barren of water. No such sources of water have been found.

- 8) Creek Bed** – As designated on the plan map there is a creek that runs through the northwest corner of this property. Most of the year it is completely dry, however during periods of extended rainfall it can become quite full and has even overflowed to cover the county road more than once. This area should be regarded as part of the property considered desirable by the Houston toad. It will be left in it's virgin state.

## **Maintaining the Habitat:**

**(Not in order of priority)**

- 1) Estimate Songbird Population** – Now that we are living on the property, we should be able to develop a realistic estimate of the number of both male and female songbirds for each species of songbird of concern. Some of these will have to be made during the right season if the particular songbird species is migratory or wintering. This information in the future will help us decide what steps to take next, or where to relocate nest boxes.
- 2) Inspections** – Regularly scheduled inspections of everything that is likely to change or need maintenance will be conducted. These things may be natural components of the ecological system, or manmade features that were added to the system: fences, the road, water lines or anything else that is required for operation. For example, multiple nest boxes were destroyed by falling trees and were taken out of service or replaced. All maps and diagrams found to be inaccurate were updated.
- 3) Protection** – Take measures to protect all the natural features originally discovered and assessed to be desirable for the songbird populations. Minimize the impact of all property improvements that are not part of the primary usage of the land. The only modifications to this property since this plan was initiated have been clearing property lines for fencing and clearing a path for the access road, the septic, the home site and a well.
- 4) Replanting Native Trees** – Plant new pines in barren areas. First area identified was the 15-foot wide right-of-way area that was completely cleared for the new water line which was installed (February 2000). This area located just inside the northern property line is a prime zone for new trees. It would help create a buffer between the rest of the land and the road, which will only see more traffic as time goes by. Approximately 85 sapling Loblolly pines were placed along this area in March and April of 2001. Due to the drought and abnormally hot summer that followed, it appears all of those trees were lost. In spite of our failed efforts, today there are many new pines growing naturally in this area.
- 5) Removal of Exotic Trees** – Reduce and control the number of any trees that are found which are not native. No exotic trees have been identified since this plan was initiated.

- 6) Removal of Exotic Animals** – The property owner to the north, across the county road, raises a number of exotic birds. These include Emus, Peacock, Guinea and domesticated chickens. If any of these animals are found wandering the property, we will contact that landowner and help them remove the offending visitors. No exotic animals have been identified since this plan was initiated.
- 7) Brush Control** – Reduce or increase the amount of underbrush and natural thickets. Clean out areas that are extremely congested and allow nature to run its course in others. Try to find the right mix of open and covered areas. Estimate this will involve approximately one-fourth to one-half acre annually. When excess dead vegetation is removed, if burning is the method of removal, all material should be hauled to a single location and burned in a pit. The area for burning unwanted debris should be as far from all feeding, watering and nest boxes as possible. This means somewhere within the bounds of the home site where a large clearing has been established. When trees are removed, the typical tool of choice will be a chainsaw. When a tree stump is removed the typical tools will be an ax and a come-a-long or a tractor. Work on the access road produced some unwanted brush piles. As time permits these brush piles will be transported and burned. To date we have burned brush on many occasions when the weather made it possible.
- 8) Herbicides** – This plan does not allow use of any herbicides on the property. If a problem is discovered that requires removing plant life, find a more natural way to do so. Birds of any kind are very susceptible to toxic substances. Whatever benefits any herbicide might have are far outweighed by the hazards to the songbirds and their future offspring. No herbicides have been used since this plan was initiated.
- 9) Insecticides** – This plan does not allow use of any insecticides on the property. Just as with herbicides, find some other way. Remember that many insects are part of the food supply or part of the food chain for that supply. To date very few fire ant colonies have been found on this property. The pine needles and heavy ground cover seem to make it hard for fire ants to get established. No insecticides have been used since this plan was initiated.

**Note:** From a resource perspective, Habitat Control is the dominating activity for this wildlife management plan. All other activities are directly dependent upon the habitat.

## **Supplemental Food Sources**

This was one of the very first scheduled activities, and will remain an activity that continues for the duration of the plan. Supplemental Food is one of the three primary activities for this plan. The initial design was a single generic feeder style intended to be used by all three species. Feeders were constructed out of five-eighth inch rough cedar (weather and bug resistant). Currently all planned feeders have been implemented.

- 1) Locations** – Most feeder locations are not visible until you are near them due to the heavy tree coverage. On the map they are designated with a small

diamond and an identifying reference from **1F** to **4F**. Reference numbers begin with 1 at the back of the property and increase as you go towards the front of the property (referenced from future home site point of view). The plan has four feeder sites. These sites are positioned in a straight line just to the east of the watering sites. They are approximately 320 feet from the western property line and 90 feet from the eastern. Feeder **1F** is approximately 250 feet distance from **2F**. The remaining feeders are approximately 250 feet distance from each other. Feeder **1F** is approximately 500 feet from the southern property line. Feeder **4F** is approximately 400 feet from the northern property line. They are positioned approximately 6 feet due east of the private access road. Feeders are placed 5 feet above the ground to help reduce occurrences of other animals using the feeders as a source of food. Bird feeders are not positioned in a permanent manner and have been repositioned recently.

- 2) Generic Design** – All feeders were built with a design that allows them to be repositioned to new locations in case future information shows they need to be moved. The design should make it easy for any of the songbird species to feed from. The food container portion of the feeder must protect the food from both direct sunlight and moisture. Drain holes are still part of the current feeder design, however, screens in the bottom of feeders had to be removed. They proved to be a problem when they became bent and trapped seed underneath the screen. Squirrels or some other animal were eating from the feeders and chewing on them causing damage, so we wrapped the feeder poles with steel flashing to prevent them from being climbable and removed any trees or branches close enough to provide access. (Image C.1)

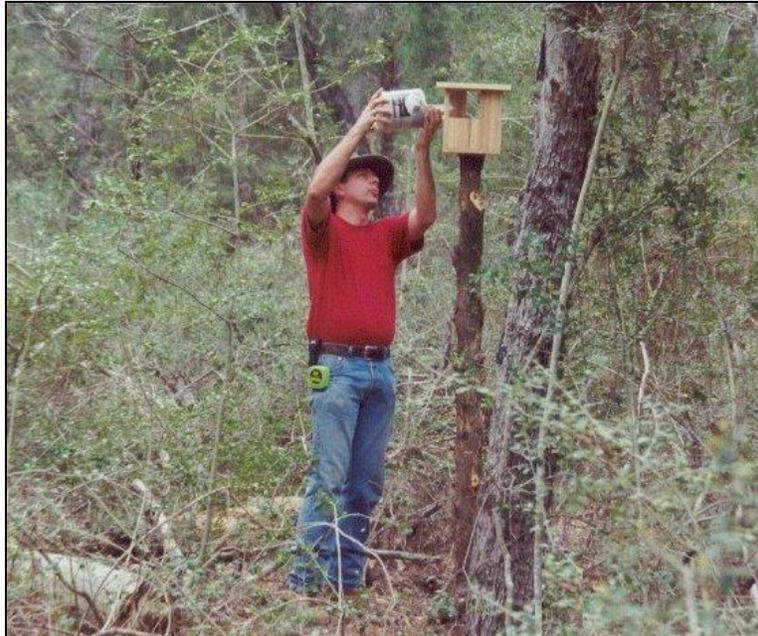


IMAGE C.1

CURRENT FEEDER DESIGN

- 3) Food Provided** – Sometimes we change the food being provided. Based upon which species is present for a given season of the year. Based upon which

species are in their breeding period, or which part of the property a given species seems to prefer. Sometimes it is important to provide different seed mixes at one or two of the feeder locations. We do not want the different species to compete for supplemental foods. Bird feed comes in a variety of choices; however, sunflower seeds appeal to many birds. Woodpeckers, nuthatches, and chickadees are especially attracted to suet. Citrus fruit, chopped apples and raisins are enjoyed by numerous species, including robins, titmouse, nuthatches, woodpeckers, and mockingbirds. The bulk of all food provided is mixed dried seeds. (Image C.2)



**IMAGE C.2 ONE GALLON OF SEEDS PER FEEDING**

- 4) Food Additives** – If samples of the targeted species are witnessed to be in need of more nutritional requirements than natural food (seeds, local plant life, local insects) the ecology is providing, research possible vitamin or mineral additives for the supplemental food supply. However, adding supplements to the water supply, rather than the food supply, is preferred. No additives have been needed since this plan was initiated because the mixed seed we purchase are already treated with multiple additives.
- 5) Feeding Schedules** – Outline guidelines for regular feeding schedules by season and bird species. Chart has been updated with current schedule.



IMAGE C.3

CARDINAL AT F1

- 6) Map and Document** – Update all maps and diagrams if the information for the current revision becomes obsolete or inaccurate. Map has been updated as of 8/31/18.

## Artificial Shelters

This was one of the first scheduled activities, and will remain an activity that continues for the duration of the plan. Providing shelters is one of the three primary activities for this plan. The initial design was a single generic nest box or birdhouse style that was intended to be used by more than one species, but that would not be unusable by any of the desired songbird species. Currently we are using three different styles and two sizes (see diagrams). The three different styles of nest boxes are placed in an overlapping pattern (see map). Nest boxes were built out of all-natural materials except for the metal screws and hinges (no paint, no plastic parts). Both styles were constructed out of five-eighth inch rough cedar (weather and bug resistant). Each nest box has a reference number on the front right bottom side corner visible from the ground. This helps to document usage and location when in the field. Currently all planned nest boxes have been implemented.

- 1) Locations** – Most of the original nest box locations were not visible until you are near them due to the heavy tree coverage. On the map they are designated with a small square or hexagon depending upon their construction style and an identifying reference from **1N** to **16N**. Reference numbers begin with 1 at the back of the property and increase as you go towards the front of the property to 14 (referenced from home site point of view). Two nest boxes, **15N** and **16N**, were added eight years ago, and are located beyond the home site to the south. The plan once included thirteen of the original nest boxes and twelve new ones added in November of 2014. However, seven of the original fourteen nest boxes have now

been taken out of service. The original sites were positioned in a pattern that evenly distances them from each other, but were within at least 150 feet of the nearest feeder or watering site (except for 15N and 16N). Six of these boxes were positioned near the private access road. None of the original nest boxes were closer than 75 feet to the eastern property line. None of the original nest boxes were closer than 100 feet from the western property line. Nest box **1N** is approximately 550 feet from southern property line and 150 feet west of the private access road. Nest box **16N** is approximately 200 feet from southern property line. The twelve new nest boxes are also numbered from **1N** to **12N** but are of a new style. The new ones are spaced down the private road just a few feet from the road on both sides. Also important is how far above the ground the nest box is located, the style and size of nest box opening, and in which direction the opening faces. This information will be recorded for each nest box by reference number. For applications that need to be fairly far above the ground level, we use a cedar tree and trim all limbs, crop the top of the tree to the wanted height and attach the nest box to the top. Nest boxes are not positioned in a permanent manner and may be repositioned. Map and diagrams were updated.

- 2) Generic Design** – All nest boxes were built with a design that allows them to be repositioned to new locations in the event future information shows they need to be relocated. Each design should make it easy for any of the songbird species to build their nest. The nest box must provide some protection from the elements. The current designs are all simply a square wooden box with a wide slit or round hole in the top front for access. The top of the nest box is a flat lid that is hinged or removable to allow access for cleaning and mounting. Different front sections (nest box style 1, section E) can provide a variety of openings for the nest box making it more desirable to different species. For example, Robins prefer an 8-inch deep cavity with one open side. Section E will be omitted for nesting Robins. Even though these three species are of approximately the same body size, their nest box requirements will vary slightly. Until new information merits a new nest box design, the three-implemented designs will suffice. (Image D.1)

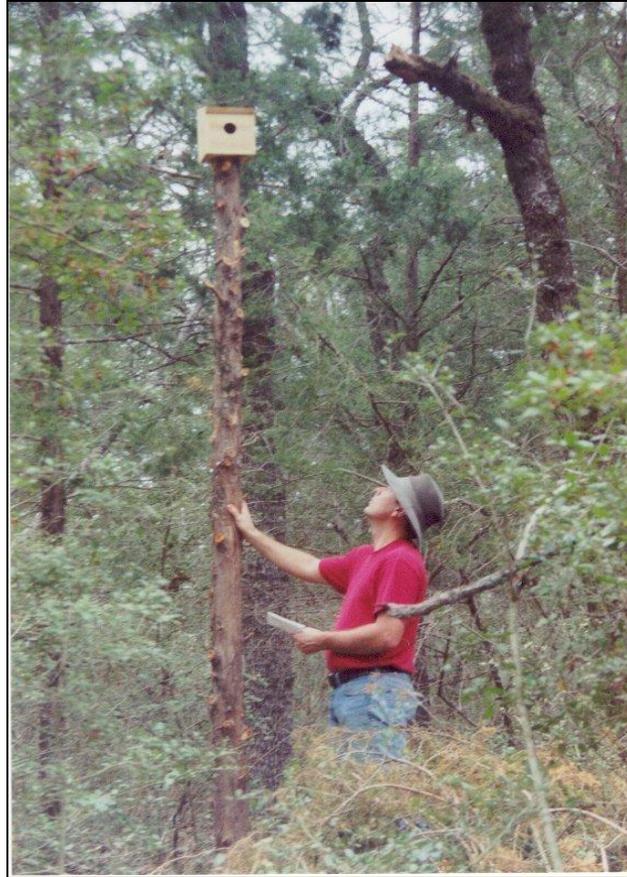


IMAGE D.1 NESTBOX 14 - STYLE 2

- 3) **Mounting** – There are two methods used to mount a nest box. The nest boxes are mounted with a single 3-inch wood screwing bolt and a large fender washer. For mounting on the end of a vertical tree trunk or post, we cut the top of the tree trunk flat and drill a guide hole in the center. For mounting on the side of a tree trunk or post, we drill a guide hole in the center of the mounting area. Then use a socket wrench to tighten the bolt and washer down against the floor or back wall of the nest box. The bigger the diameter of the tree trunk the greater the support and the more stable the nest box will be. Select a height above the ground that is within the range acceptable by all three species. For example, Robins prefer to nest between 6 and 15 feet above the ground.
- 4) **Repair & Cleaning** – Make regular inspections for damage or a need to clean out old nest (Image D.2). We have had seven of the original nest boxes destroyed by falling trees and taken out of service (N7, N9, N10, N11, N12, N13 and N14). Pay special attention to any cracks in the wood running away from the mounting bolt. If a nest box is not stable and can't be remounted to be so, remove and replace it.



IMAGE D.2 OCCUPIED NESTBOX 2 - STYLE 2

## Supplemental Water Sources

We originally expected to have a water meter in place by the fourth quarter of 2000. We discovered that at that time we were required to submit an application to acquire a permit from the U.S. Fish and Wildlife Service before we could purchase a water meter. We applied for the permit on December 31, 2001. We received an EA/HCP draft for our review dated February 27, 2002. U.S. Fish and Wildlife Service informed us approval to receive the ESAS 10(a)(1)(B) permit would take six to eight months. Before we accepted the draft and completed paperwork to acquire the permit, we were informed by U.S. Fish and Wildlife that it was no longer mandatory for us to acquire the permit. It is now completely voluntary and not required for water meters, electric utilities, septic systems or home construction for the property we own. In July of 2003 we purchased and installed our water meter without one. Supplemental water sources were and are one of the additional activities we have implementing for this plan. During the summer of 2014 we completed a well. We trenched and buried the main waterline down the center of our private access road. Originally, in order to provide supplemental water for our plan we purchased and installed UV resistant waterline that could be exposed to the elements for a few years until we were able to burry it. This allowed us to complete and start using all three planned water sites in early 2005.

- 1) Locations** – Bird watering sites were not selected based upon where the birds are. Bird watering sites are positioned in a permanent manner and cannot easily be repositioned. It is assumed the birds will find the water. On the map they are designated with a small circle and an identifying reference from **1W** to **3W**. Reference numbers begin with 1 at the back of the property and increase as you go towards the front of the property (referenced from home site point of view). The selected locations were picked based upon the expense of delivering the water to them and the maximum distance from

adjacent properties. Just as with the bird feeders, most of these locations were not visible until you were very near to them due to the heavy tree coverage. Water sites were originally approximately 180 feet from the eastern property line and 220 feet from the western property lines. We have implemented a new style and moved all three water sites to approximately 12 feet due west of the private road. Water sites are still approximately 250 feet to 325 feet distance from each other. Water site **1W** is approximately 925 feet from the southern property line. Water site **3W** is approximately 350 feet from the northern property line.

- 2) Inspection** – Make regular inspections to check for damage, water level or the need to clean.
- 3) Cleaning Water Bowls** – Regular cleaning of the container portion of the water site will be required. During the warmer parts of the year this will be more frequent. Remove any algae and debris found. We have decided the easy way to deal with cleaning is to have additional water bowls and exchange the dirty ones for fresh cleaned ones and transport the dirty ones away for cleaning. Cleaning requires soaking with bleach and takes too long to perform on location.
- 4) Additives** – If samples of the targeted species are witnessed to be in need of more nutrition than the ecology is providing, research possible vitamin or mineral additives for the supplemental water supply. As long as direct sunlight is not allowed to reach the water, many vitamin and mineral additives can be given to the songbirds via the water supply. This would be the preferred method.
- 5) Filling Water Bowls** – Water sites are now made using 8-gallon wide mouth plastic bowls. The new bowls are shallow enough not to need a brick island like the originals. The bowl is filled to the top (Image E.1). Water sites are filled manually using the valves which are buried with a covered access hole along the side of the private access road and the faucets at the bowl. In the winter, if the portion of the line that runs from the ground to faucets freeze, leave all valves closed and water using 5-gallon buckets. The portion of the watering system that is above ground may freeze. When the lines are no longer frozen, open valves and inspect system at the water site for leaking lines. Since the system is designed to fill manually (no floats or switches) most leaks will not be a concern as long as the bowl can be filled when needed. Valves to each water site are always closed after watering.



IMAGE E.1 WATER SITE 1W

## **Predator Control (Predator Management)**

Predator management related to the Houston toad has been added to the activities for this plan as of the fall of 2024. Specifically, this activity is targeting red fire ants (*Solenopsis invicta*), a typical predator of the Houston toad. Ants can reduce or destroy the toad food supplies. Fire ants are a direct competitor and will kill and consume toads. Removal of fire ants should take place whenever they are found anywhere within the 14 acres protected by this plan.

## **Erosion Control**

For the first five years of this plan erosion control was one of the activities exercised by this wildlife management plan. Due to the fact that very little erosion ever occurs on this property because it is totally covered with plant life, we have decided to not include this activity in the plan at this time. At some future date, or if some unforeseen event like a major fire on the property occurs that makes erosion control important, this activity will again be included. Known areas will remain on the map of this property for informational purposes only. One exception is the private road; the private road suffers from erosion every time it rains and requires regular grading using our tractor. We have applied multiple loads of native clay and gravel mix from a near-by source. Eventually through the years since we live on the property we will continue to purchase and apply road base or gravel to make this road more permanent.

## Home Site Improvements

A number of changes to the environment had to happen to allow a home to be built and people to begin living on the property. In order to prevent land usage for wildlife management from becoming something less than the primary use of the land, care was taken with each new change in the ecological system.

- 1) Water Line** – The water line runs down the center of the access road. The line was ditched to a depth of at least 24 inches. The valves and lines running to the bird watering sites ‘T’ off of the main line at 90 degrees and buried at a depth of 18 to 24 inches. Access to the valves is through the hollow portion of gray cinder block bricks stacked to the needed depth with the valve centered in the cavity. A rock or another brick is used for a lid to the valve access cavity.
- 2) Private Access Road** – The private access road was completed in late 2005. The road has been improved many times by spreading and maintaining a layer of natural rock and gravel. The big concern with the development of the road and the relationship it has with the environment is any debris that might be produced while the road is being improved or maintained. Specifically, the trees that were cut down and the tree stumps that were removed. Tree stumps were burned. All wood from the oak was used as firewood. (Image F.1)



IMAGE F.1 ACCESS ROAD – VIEW FROM 1000 FEET FACING NORTH

- 3) Water Well** – A well has been established at the southeast corner of the 1 acre clearing the home sits on. Waterlines were buried to irrigate this acre for landscaping. We may also pipe water to some undecided location to provide a small natural pond for wildlife in the near future.
- 4) Electrical Service** – As of September of 2018 we are no longer completely off-grid. We are now members of the Bluebonnet Electric cooperative. We still

maintain a completely off-grid capable system, but we typically use electricity from the grid each day from 6:00 pm until 9:00 am. Our solar energy system is used to provide all required electricity from 9:00 am until 6:00 pm except on days when weather interferes with production (Image F.2).



IMAGE F.2

ELECTRICAL SERVICE

- 5) **Home Site** - The area that was cleared for the home and garage we built is almost one-acre square, approximately 200 feet on a side (see map). The main building is at the center of the square. Some native trees were left standing. All cedar trees were removed from the area. (Image F.3)



IMAGE F.3

HOME SITE – VIEW LOOKING SOUTHWEST

- 6) Solar PV System** – Solar power is still currently the primary source of electricity for our home. The best way to run the power lines from the utility company to the home site would be underground. This is actually more expensive than an entire solar powered system. Many trees had to fall to have the lines brought all the way to the back of the property. The 30-foot wide right of way for above ground poles the power company cut through the trees made an open strip that naturally filled with bird friendly vegetation. Our original plan to construct a home that produces all the electrical power needed with a solar electric system was a good plan. We had a NABCEP certified installer. A separate building was designed exclusively to house the electronics and batteries. The solar panel array is mounted on the south side of the roof of the house. There is a propane tank and a diesel generator that can use 15% bio-diesel to recharge the battery array when solar is unable to keep up with demand. The need for the grid was eventually acceptable due to aging batteries and charging for our electric vehicles.
- 7) Septic System** – A “Soil Absorption System” OSSF using perforated lateral lines running through ditched gravel field from an underground septic tank has been installed to handle sewer and waste water.
- 8) Exotic Plant Life Introduced** – Some exotic plants have been introduced into the ecological system in the area where the home is located. A few fruit trees were attempted, some grass for the lawn, rose bushes, etc. Care will be taken to not introduce plants that could run wild and invade the environment. As little fertilizer or pesticide as possible will be used in this area. We are aware that the home site is directly uphill and the watershed is northward across the property to the county road.
- 9) Exotic or Domesticated Animals** – Any farm animals would be smaller animals and contained within the home site area. Perhaps a few caged chickens. The only other outdoor animals that will have access to the property would be our dogs. In the past we have always kept a minimum of two dogs to guard our property and discourage unwanted wildlife from moving in with us. We expect if we have dogs, they will be happy to hang around the home site area with us and only venture a small distance into the woods on their own. To date no dogs have been introduced.

## Proposed Project Schedules

The following is a chart that shows each identified project and the expected time for starting and completing each. Any project that will be ongoing for the lifetime of the plan will have a completion date of “Duration” instead of a date. As each of the projects becomes completed it will be moved into the “Schedules for Maintenance” chart.

<b>Project Description</b>	<b>Anticipated Start Date</b>	<b>Estimated Completion Date</b>
Fence West Side	September 2025	January 2026
Erosion Control	N/A	Currently discontinued activity
Improve Private Road	N/A	Maintained Continuously

## Schedules for Maintenance

The following chart outlines the assorted functions that need to be performed to keep the plan on course throughout the year. Some of these activities are interdependent and must be performed simultaneously. Items with descriptions followed by an “\*” are not currently implemented portions of the plan that actively require maintenance.

Item Description	Frequency
Detect and Remove Fire Ants	Any time they are located and identified
Inspect Nest Boxes for Repair	Every 6 months (early spring and late summer)
Winter Feeding	Once a week (all three species are present)
Winter Watering	Once every 2 weeks
Winter Clean Watering Sites	Once every 2 months
Spring Feeding	Every 2 weeks (natural food more abundant)
Spring Watering	Once every 2 weeks (weather dependent)
Spring Clean Watering Sites	Once a month
Summer Feeding	Every 2 weeks (natural food most abundant)
Summer Watering	Once a week (water in highest demand)
Summer Clean Watering Sites	Once every 2 weeks (algae, insects at their peak)
Fall Feeding	Once a week (natural food less abundant)
Fall Watering	Once every 2 weeks (weather dependent)
Fall Clean Watering Sites	Once a month
Inspect Watering Sites for Repair	Maintain as needed
Clean Nest Boxes	Once a year (in early fall)
Review Erosion Sites*	No longer plan activity as of March 2004
Review Habitat Records and Update	Annually (late winter or early spring)
Review – Update – Revise Plan	Annually (late winter or early spring)
Grade Access Road	Maintain as needed
Check Main Waterline	Maintain as needed
Work on Fence Lines	Maintain as needed
Work on Brush Control	Every 6 months (late spring and early fall)
Remove Exotic or Unwanted Trees*	Maintain as needed

**Note:** Detailed information about expenses incurred, problems discovered, etc. during maintenance work listed above are no longer being compiled into a spreadsheet for future reference. Actual receipts and purchase orders for items required to support this plan will not be kept for records until it is required by law.

## References:

Management Options in Post Oak Woodlands For Wildlife by D. W. Rideout, TPWD, #PWD LF N7100-237A (10/93)

Texas Wildscapes Program. Texas Parks and Wildlife Department, 4200 Smith School Road, Austin, TX 78744

Cantle P.C. 1978. Avian population densities and species diversity on reclaimed strip-mined land in east-central Texas. M.S. Thesis, Texas A&M University. College Station. 131 pp.

Mitchnick, A.D. 1979. Avian populations of urban woodlands: comparisons, habitat requirements, and management implications. M.S. Thesis, Texas A&M University. College Station. 120 pp.

Brown, Kirby. Program Director, Private Lands and Habitat. Texas Parks and Wildlife Department. 1999.

Texas Property Tax Guidelines for Qualification of Agricultural Land in Wildlife Management Use, Comptroller of Public Accounts, Texas Parks and Wildlife Department, 4200 Smith School Road, Austin, TX 78744. 1996.