FORESTLAND STEWARDSHIP PLAN

City of Palestine
Community Forest

Prepared By:

TEXAS FOREST SERVICE

The Texas A&M University System

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MARCH 27, 2006
BACKGROUND INFORMATION

Tract Location

The approximately 714-acre tract is mostly located on the northwest side of the city of Palestine at and around the intersection of north loop 256 and Hwy 19/287 north. It occupies both sides of the road north of the loop and the west side only south of the loop. Another portion of the tract is located at Wolf Creek Lake, adjacent to the Palestine airport, and may be accessed at the end of ACR 4201.

Management Objectives

Primary: Principal concerns of the city include the sustainable management of all land within the forest through a multi-use approach to satisfy recreational, aesthetic, timber, and wildlife management goals.

General Resource Description

Timber: The property contains approximately 414 acres of unrestricted use management areas currently devoted to timber / wildlife concerns. The timber types in these areas very among very young pine plantation; mature and semi-mature mixed pine-hardwood; mixed hardwood-pine; and abandoned cutover. Timber types are delineated by area and will thus far be referred to as management "units."

Soils*:* Soils on the Community Forest are highly variable, belonging to several soil series including Darco, Elrose, Eustis, Fuquay, Hanahatchee, Kirvin, LaRue, Robinsonville, Sacul, and Tarawick. These soils all show characteristics suitable to timber management, as evidenced by available soil data and current land use. Site indices for these soils range from 60 on the low end for shortleaf pine, to a high of 110 for loblolly pine. Site index is the measure of how tall an average tree will grow on a given site in 50 years time, given standard growing conditions.

Water*:* The tract has several significant creek channels and four small lakes. These areas should be considered during management activities to avoid siltation of streams and lakes, and to maintain desired aesthetic and recreational quality. These objectives can be met through the use of water quality best management practices, outlined later in this plan, and the careful planning of aesthetic management zones in sensitive viewsheds.

Wildlife: The acreage is not of sufficient size or continuity to support a resident wildlife population, however, the varying habitat and water resources on the property will serve to attract and hold a variety of species. The Texas Parks and Wildlife Department can provide additional assistance if the city would like more information on wildlife than this plan can provide. There were no threatened or endangered species found during a brief visit to the property.

RESOURCE RECOMMENDATIONS

The overall strategy of this stewardship plan is to manage the tract in five broad management "units" based on current property boundaries. Smaller areas of opposing timber types located adjacent to these large units will be treated as separate units until such time as management activities may fall in line with the main unit, as to conserve management effort and maximize returns. Consideration for proximity to recreation areas and highly visible thoroughfares is given in assigning management strategies in these areas.

This plan is not absolute in that many activities will undoubtedly have to be postponed from their originally assigned time frame due to weather or other mitigating factors. However, approval of this document by the city council shall be considered authorization for all activities and conditions outlined herein. Any future changes to this document's recommendations, other than timeline changes resulting from weather, fire, or other natural phenomenon must meet with the approval of the serving forester. In addition, the serving forester may advance the timeline on any timber stand improvement practices (prescribed burning, etc.), short of harvesting and planting operations, without further council action.

Unit A – 72 Acres

This management unit, located on the east side of Hwy 19/287 north, and north of Upper Lake road, is comprised primarily of semi-mature to mature mixed pine-hardwood. The pine component is mostly slash and shortleaf pine with loblolly scattered throughout. Hardwoods are upland oaks and hickories, and are becoming increasingly dominant in this unit, given its current, unmanaged state.

This unit has considerable frontage along Hwy 19/287, and will therefore, has been assigned "aesthetic management zones" (AMZs) in which no total harvest (clear-cutting), or other aesthetically displeasing management activities, will be permitted. In addition, two major drainages are present and require the designation of "streamside management zones" (SMZs), in which all water quality best management practices (BMPs), will be observed and followed.

Timber stand improvement measures are currently needed in this unit. Prescribed fire will be applied to this unit periodically at the discretion of the forester, taking into account aesthetic considerations and any associated hazards (smoke, public awareness, etc). This treatment is necessary to reduce the amount of fuel on-site and limit the potential for catastrophic wildfire in the area. This treatment also serves as an aesthetic measure in the long-term. Forest stands, regularly burned, develop an open and park-like appearance in the understory allowing for greater visibility and access. Regular burning also promotes the production of succulent understory browse for species like white-tailed deer, as well as managing pests such as mosquitoes and ticks.

In addition, a selective thinning cut should be performed to reduce basal area and undesirable competition, and re-invigorate unit growth. This may be accomplished by removing overtopped, forked, and deformed trees; and trees of undesirable species (hardwoods, slash pine, etc.), to allow the most desirable trees to continue growing and populate the site.

Heavy selection of hardwoods and slash pine will undoubtedly help to develop a more desirable species mix. However, given the current condition of the stand, this may lead to small openings being created in the forest, which will need to be re-stocked, either through planting of pine seedlings or the management of natural seed-fall where possible. For this reason, consideration will be given, and funding set aside, for reforestation efforts in harvested areas. Areas of concern will be evaluated prior to, and following thinning and harvest operations in order to provide some estimate of required reforestation expenses and procedures.

This unit also rests adjacent to the Texas Forest Service, Palestine District office. Recent fire activities have shown office facilities to be lacking in the face of a large-scale fire siege situation. Ideally, the Palestine District office needs a secure parking area and shop facility for fire suppression equipment. To that end, the Texas Forest Service would like to ask the council to donate two acres of Unit A, located directly across Upper Lake Road from the Palestine District office. This area is primarily stocked in hardwood and would make a good location for a logging set during thinning operations, after which time the Texas Forest Service could take possession of the cleared property. Obtaining this one acre would also free up space to construct a green house for the production of dogwoods for city and county projects. This construction and program mission has already been approved by Texas Forest Service headquarters, pending funding of the construction and a memorandum of understanding between the City of Palestine and the Texas Forest Service outlining program parameters.

Unit A1 – 4 Acres

This unit is 4 acre block north of Unit A and south of N. Jackson Street. Timber type in this block is a loblolly pine plantation, established in 2001. This 5 year old plantation will require a thinning in 7-10 years, at which time a second thinning may be performed on Unit A, bringing management timelines together.

Unit B – 46 Acres

This management unit is located adjacent to Unit A, to the south and east of Armory Road. Timber type is similar to Unit A with a mixed pine-hardwood to mixed hardwood-pine make-up. The pine component is mostly slash and shortleaf pine with loblolly scattered throughout. Hardwoods are upland oaks and hickories, and are becoming increasingly dominant in this unit, given its current, unmanaged state.

Recommendations for this site will be similar to Unit A. This unit has some frontage along Hwy 19/287, and will therefore, has been assigned AMZs in which no clear-cutting, or other aesthetically displeasing management practices, will be permitted. In addition, two major drainages are present and require the designation of SMZs, in which all water quality BMPs will be observed and followed.

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Unit B1 – 9 Acres

This unit is 9 acre block located at the northwest corner of Unit B, adjacent to the City Athletic Complex, and south of Armory Road. Timber type in this block is a loblolly pine plantation, established in 2003. This 3 year old plantation will require a thinning in 9-12 years, at which time a second thinning may be performed on Unit B, bringing management timelines together.

Unit C – 82 Acres

This management unit is located west of Hwy 19/287 and surrounds Upper and Lower City Lakes, is comprised of mature mixed pine-hardwood timber. Slash and loblolly are the dominant pine species in this unit, with some In addition to having frontage on Hwy 19/287 this unit has established public recreation areas surrounding the lakes. All sensitive areas have been assigned as AMZs, and management activities in these areas will be as non-invasive as possible. In addition to AMZs, the unit has SMZs around lakes and creeks, in which all water quality BMPs will be observed and followed. Prescribed burning will be excluded from the east side of the AMZ to be used as a control and to avoid endangering nearby property.

Areas of the unit considered unrestricted will be managed in much the same manner as units A and B. Timber stand improvement measures are currently needed in this unit. Prescribed fire will be applied to this unit periodically at the discretion of the forester, taking into account aesthetic considerations and any associated hazards (smoke, public awareness, etc). This treatment is necessary to reduce the amount of fuel on-site and limit the potential for catastrophic wildfire in the area. This treatment also serves as an aesthetic measure in the long-term. Forest stands, regularly burned, develop an open and park-like appearance in the understory allowing for greater visibility and access. Regular burning also promotes the production of succulent

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Unit D – 39 Acres

This management unit is located west of Hwy 19/287 north, and immediately south of north loop 256. This unit encompasses land between the National Guard Armory and the current City Composting Site, and surrounding Blue Lake Park. Timber type for this unit is variable, ranging from mature pine-hardwood near the roads, to pure hardwood in the interior.

This unit does have considerable frontage along major thoroughfares. AMZs have been designated where this is the case. AMZs have also been established around Blue Lake Park. In addition to AMZs, the unit has SMZs around lakes and creeks, in which all water quality BMPs will be observed and followed.

Areas of the unit considered unrestricted will be managed in much the same manner as units A, B, and C. Timber stand improvement measures are currently needed in this unit. Prescribed fire will be applied to this unit periodically at the discretion of the forester, taking into account aesthetic considerations and any associated hazards (smoke, public awareness, etc). This treatment is necessary to reduce the amount of fuel on-site and limit the potential for catastrophic wildfire in the area. This treatment also serves as an aesthetic measure in the long-term. Forest stands, regularly burned, develop an open and park-like appearance in the understory allowing for greater visibility and access. Regular burning also promotes the production of succulent understory browse for species like white-tailed deer, as well as managing pests such as mosquitoes and ticks.

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Unit D1 – 32 Acres

This unit is mostly located adjacent the southeast side of Unit D, and encompasses the former city landfill and Gillespie Park. This unit has the least standing timber of any unit in the forest. Preparing the unit for management will require some investment on the part of the city. However, this investment may be offset by reaping management rewards elsewhere in the forest.

Management recommendations in this area include the performance of necessary site preparation, followed by hand-planting shortleaf or loblolly pine seedlings, with the goal of establishing a merchantable forest with recreation and wildlife potential. Areas removed from the main block of Unit D1 include two open areas to the south east side of north loop 256. These areas may be readily hand planted at the same time as the rest of Unit D1. Upon stand establishment, Unit D1 will be re-evaluated and set on a management schedule to coincide with management activities in Unit D.

Unit E – 114 Acres

Unit E, also referred to as the Wolf Creek Lake Tract, is a management unit separated from the Palestine Community Forest main tract. It lies adjacent to Palestine Municipal Airport, and surrounds Wolf Creek Lake, encompassing Wolf Creek Lake Park. This unit may be accessed at the end of ACR 4201. Timber type in this unit varies from semi-mature to mature pine-hardwood, with slash and loblolly as the dominant species, to mature hardwood. Hardwoods dominate the site to the east of Wolf Creek Lake, and form majority acreage for this unit.

AMZs have been identified around the park area. Additionally, the lake and adjacent creeks and drainages are to be protected by SMZs in which all water quality BMPs will be observed and followed.

Current recommendations will be to leave this particular site in hardwood forest, as it exhibits bottomland characteristics which are very desirable for wildlife. Some stand improvement measures are needed, however, as the brushy understory component is rather thick and difficult to traverse.

Prescribed fire will be applied to this unit periodically at the discretion of the forester, taking into account aesthetic considerations and any associated hazards (smoke, public awareness, etc). This treatment is necessary to reduce the amount of fuel on-site and limit the potential for catastrophic wildfire in the area. This treatment also serves as an aesthetic measure in the long-term. Forest stands, regularly burned, develop an open and park-like appearance in the understory allowing for greater visibility and access. Regular burning also promotes the

production of succulent understory browse for species like white-tailed deer, as well as managing pests such as mosquitoes and ticks.
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Unit E1 – 22 Acres

This unit is located adjacent to the southeast side of Unit E. Timber type in this block is a loblolly pine plantation, established in 2003. This 3 year old plantation will require a thinning in 9-12 years, at which time a second thinning may be performed on Unit E, if necessary, bringing management timelines together.

MANAGEMENT ACTIVITIES

Management recommendations are explained in this section. The council should consider these actions in relation with management goals. Timelines for these actions are outlined in Appendix A.

Activity #1 – Harvesting Existing Cover
Given the aesthetically sensitive nature of the forest in general, and given its many uses. Harvesting will be restricted to "selective thinning" wherever possible. This will necessitate the use of natural regeneration methods in most areas. Initial cutting will be performed with the goal of developing a more native mix and natural condition. Past removal of pine from the forest with no impact to hardwood species has allowed hardwood to become the dominant species in many areas. Also, a great portion of the forest was planted in slash pine, which is not native to Texas and tends to develop disease problems. Historically, Anderson County was populated in shortleaf pine over uplands, with loblolly in the lowlands. Hardwood always has and always will develop in the understory of pine forests, and adds a great deal of habitat for wildlife. Management activities will be aimed at restoring this condition to a mixed pine-hardwood forest dominated by native species.

Activity #2 – Planting Pine Seedlings
Revenues from the aforementioned timber sales should cover the cost of re-stocking stands in pine for most areas. Required site preparation will depend on the condition of the site following the harvest and will greatly affect the price of the overall planting project. Hand planting,

however, may be achieved in fairly rough conditions, and it is unlikely that additional site prep will be required. It may be necessary, following planting, to use an approved herbicide to control hardwood competition on these converted sites. This may be accomplished by hand or equipment sprayer application, under the supervision of a licensed applicator. Seedlings for these projects are available from the Texas Forest Service Indian Mound Nursery at 936/858-4202 or online at http://tfsstore.tamu.edu/onlinestore/ during the fall.

Activity #3 – Mid-Rotation Management Activities

A: Prescribed Burning

Prescribed burning can be extremely effective in improving forest health and increasing wildlife forage. It has two main windows of opportunity each year with one being in the fall after the first hard freeze and the second in the spring prior to green up of vegetation. This activity is the most difficult to plan on as so many weather, fuel conditions and planning activities must match up perfectly to get it accomplished. I would suggest aiming for the fall burning window in any areas managed for wild turkey habitat, as they will be nesting in forest undergrowth during the spring.

Prescribed burning, in which a fire is run through the forest in a very controlled setting will reduce much of the underbrush in the forest. It will also knock back the vegetation into a more useable form for wildlife. This activity is a wonderful management tool for use in pine production. Stands generally should not be burned before the first thinning, however, as fire can kill very young trees.

Prescribed burning should only be attempted with good firebreaks in place, exposing bare mineral soil to prevent the fire from getting outside the area designated to burn. These will be put in using a bulldozer wherever necessary. All prescribed burning on this tract will be performed under the supervision of the Texas Forest Service, and will consider smoke management and issues of aesthetic quality.

B: Thinning

In a well managed pine plantation, the first commercial thinning (the first salable thinning resulting in a profit) will take place at 12 to 15 years of age. Trees removed at this time will usually be sold for pulpwood, the lowest value product class. Four to six years after that, another thinning will be conducted for pulp, chip and saw, and sometimes saw timber. These high-value product classes will greatly increase revenues from thinning. If practical, another thinning will be conducted before the final harvest.

C: Harvesting and Regeneration of Pine Plantation

Several options exist for harvesting and regenerating southern yellow pine and there are advantages and disadvantages to all. Regeneration should always be planned prior to a final harvest cut.

Clear-cutting: The first and simplest method of forest regeneration is to clear-cut the stand and remove all timber outside of SMZ's. This is followed by necessary site prep and planting of new stock. Benefits to this method include maximizing revenue from the harvest and re-stocking the stand with diverse and improved genetics. Clear-cuts also provide habitat for very diverse species of wildlife. Drawbacks to this method are, obviously, poor aesthetics for the first few years after harvesting, and the costs involved in re-planting.

Seed Tree/ Shelter wood: These two similar regeneration methods involve removing all but a few choice, superior trees during the final harvest. More trees are left in a shelter wood situation than in seed tree regeneration. These remaining trees act as a seed source to restock the stand. Advantages to these methods include better aesthetics and having a natural seed source, and thus, no out of pocket planting expenses. However site prep, such as fall burning, may be necessary to insure bare mineral soil is exposed prior to seed fall. Harvesting in the fall will provide the best chances for natural regeneration without additional site prep. Natural seeding is very unpredictable and relies on many outside factors as to seeding success, including the presence of an adequate seed crop, and the absence of plant competition, and seed predation. Trees that are left standing, which should be some of the best trees in the stand, should be removed once the new stand has adequate stocking and survival, as these remaining valuable trees will be susceptible to mortality from wind throw.

Recommendations For The Entire Tract

Aesthetic Management Zone (AMZ)

If conducting management activities in high visibility areas is a concern (such as parks or roadsides), aesthetic management can be achieved through the use of aesthetic management zones (AMZs). These are simply strips of vegetation left in place to screen the view, usually along roads or otherwise sensitive areas. These zones may be employed in any viewshed that concerns you. There is no minimum width requirement for an AMZ.

Best Management Practices

Streamside Management Zones (SMZ) (Approximately 58 acres):

All intermittent (those flowing at least four months during a typical year) and perennial streams should protected by a delineated Streamside Management Zone (SMZ), or buffer strip of trees, a minimum of 50 feet wide, although these zones will be 150 feet wide in the upland hardwood conversion area, which is being managed for wildlife habitat. Since these are "management" zones, they can be managed through thinning and removal of higher value trees, as long as a minimum of 50 square feet of basal area per acre is maintained. Basal area is the amount of surface area in square feet of a tree at four and one-half feet above the ground. SMZs will stabilize streambanks, provide shade to the water in the stream, provide wildlife habitat and vital "corridors", filter runoff that may be washing down towards the stream, and will be aesthetically pleasing. Various oaks, sweetgum, pines, hickories, shrubs, brush as well as elms were found throughout the tract's hardwood and pine community. Several areas of the tract have flowing water present for several months out of the year. Management will need to follow the guidelines and suggested management treatments as outlined in the enclosed "blue book" to assist you in managing these acres. These management zones need to have restricted harvesting methods

applied to them to prevent erosion and damage to the existing natural filtering processes that these areas provide. Always plan on keeping as much forest canopy in this area as possible. By leaving as many wildlife benefiting tree species in this area as possible you will enhance this area to benefit wildlife while protecting the water quality.

Forest Swamps:
Forest swamps are defined as forested areas that have water at or above the soil surface for at least four months of the typical year, usually during the winter. These areas will have water flowing during and immediately after rainfall, but it is normally just standing. Forest swamps are the result of ponding or groundwater saturation.

While there are no areas on the tract labeled as forest swamps, areas upstream of some of the lakes may qualify and will be treated as such to avoid siltation of ponds resulting from overly-aggressive management activity. All operations in forest swamps should be conducted as if they were within an SMZ, including thinning using recommended guidelines. Group selection or properly spaced patch clear cuts may be prudent in forest swamps. Group selection and patch clear-cutting may be conducted (while adhering to all other BMP guidelines) only when the site is dry enough to prevent rutting to the extent that natural water flow and drainage are not disrupted. A forester or other qualified individual must ensure that the harvest intensity in forest swamps maintains the protection of water quality. Forest swamps are not necessarily jurisdictional wetlands. Common forest swamp species include willow oak, water oak, black willow, green ash, overcup oak, baldcypress, and black tupelo.

Road System:
Water diversion structures such as water bars and/or wing ditches can divert the runoff water from the road into the vegetated areas outside of the road. Any sediment transported by this runoff will be filtered out through the vegetated areas, rather than the sedimentation reaching the stream. Rolling and broad-based dips can allow easy access to the property and at the same time minimize the impact to water quality. These structures along with revegetating logging roads will prevent further erosion.

APPENDIX

Schedule of Activities

Area	Acres	Practice Description	Implementation Date
Unit A	72 (excluding SMZs and AMZs)	Install firebreaks using existing boundaries where possible. Breaks should divide the unit into manageable "burn units".	Spring 2006
		Apply prescribed fire to "burn unit 1" to reduce fuel loading, open understory, and provide a demonstration area.	Spring 2006
		Mark SMZs, AMZs and habitat trees in advance of thinning operations.	2007
		Mark designated areas for sale to remove overtopped and malformed trees, excessive hardwood competition and slash pine.	2007
		Thin designated areas to remove overtopped and malformed trees, excessive hardwood competition and slash pine. Identify areas that will need re-planting.	2008
		Evaluate and perform necessary site preparation for planting areas	2008
		Hand-plant designated areas with shortleaf pine seedlings.	2009
Unit D1	32	Evaluate and perform necessary site preparation for planting areas	2008
		Hand-plant designated areas with shortleaf pine seedlings.	2009
Unit B	46	Mark SMZs, AMZs and habitat trees in advance of thinning operations.	2009
		Mark designated areas for sale to remove overtopped and malformed trees, excessive hardwood competition and slash pine.	2009
		Thin designated areas to remove overtopped and malformed trees, excessive hardwood competition and slash pine. Identify areas that	2010

		will need re-planting.	
		Evaluate and perform necessary site preparation for planting areas.	2010
		Hand-plant designated areas with shortleaf pine seedlings.	2011
Unit C	82	Mark SMZs, AMZs and habitat trees in advance of thinning operations.	2013
		Mark designated areas for sale to remove overtopped and malformed trees, excessive hardwood competition and slash pine.	2013
		Thin designated areas to remove overtopped and malformed trees, excessive hardwood competition and slash pine. Identify areas that will need re-planting.	2014
		Evaluate and perform necessary site preparation for planting areas.	2014
		Hand-plant designated areas with shortleaf pine seedlings.	2015
Unit D	39	Mark SMZs, AMZs and habitat trees in advance of thinning operations.	2015
		Mark designated areas for sale to remove overtopped and malformed trees, excessive hardwood competition and slash pine.	2015
		Thin designated areas to remove overtopped and malformed trees, excessive hardwood competition and slash pine. Identify areas that will need re-planting.	2016
		Evaluate and perform necessary site preparation for planting areas.	2016
		Hand-plant designated areas with shortleaf pine seedlings.	2017

Unit A1 Unit B1 Unit E1	4 9 22	Thin plantations to reduce basal area and remove overtopped and malformed trees, leaving well formed trees to flourish.	2016
Unit A Unit A1	72 4	Thin units to reduce basal area in planted / seeded areas and improve stand make-up and quality.	2022
Aesthetic Management Zones	126	Perform management operations in AMZs corresponding to the adjacent management unit, leaving a minimum of 50 square feet of basal area throughout. Apply appropriate management activity as required to comply with the aesthetic management goals for the site.	Always
Streamside Management Zones	102	Manage in compliance with water quality Best Management Practices to excessive runoff and siltation of streams and ponds.	Always
Road System		Maintain waterbars, wing ditches, culverts, etc. to avoid excessive runoff in compliance with water quality Best Management Practices where necessary.	Always
Entire Property	714	Apply prescribed fire to designated areas as weather permits. Manageable burning units should be burned on a 3-6 year cycle wherever possible	As Possible
		Contact Texas Forest Service for an update to this plan.	2021 or with any questions or concerns at any time

I hope this plan will help in the management of the property. Any questions dealing with any part of this plan should be referred to my office.

Sincerely,

Buster Robinson
Palestine District Forester / Certified Arborist
(903) 729-7738

Enclosures

ADDITIONAL INFORMATION

GUIDELINES FOR PREVENTION AND CONTROL OF FOREST PESTS AFFECTING PINE TREES IN EAST TEXAS

A tree or forest is exposed to many dangers during the 30 to 50 years or more of its life. During this long time period, destructive agents such as fires, storms, insects, diseases, droughts, floods and animals may damage, weaken or kill trees. Obviously no one can control the ravages of weather, but in the case of insect and disease problems, economic losses can be greatly reduced through an effective protection and prevention program. For anyone concerned about insect and disease pests affecting trees, the first step is to be knowledgeable about common pests that may be encountered. Second, trees and forests should be examined periodically for presence of these pests. Since pine is the most common and economically valuable tree in East Texas, the more important forest insect and disease pests are associated with pine trees. In general, hardwood tree species in East Texas do not tend to have serious insect and disease pests that cause widespread tree mortality. Hardwood tree pests most commonly affect the tree by causing defoliation, reduced growth, dieback or decline. In many cases, hardwood trees are most impacted by man's activities and weather.

GENERAL PROCEDURES

Survey trees or forest stands periodically to look for the presence of pests or pest damage.

If damage is noted or a pest is present, correctly identify the causal agent if possible.

Consult with a forest pest control specialist if the pest's identity is unknown and to learn treatment options.

Become familiar with common forest pests, their damage and their habits; apply preventative measures to avoid major pest problems.

Practice good forest management as the preferred method to minimize most pest problems.

MAJOR PINE PESTS

Trees less than 10 years old:	Texas leaf-cutting ant (town ant)
	Fusiform rust
	Reproduction weevils
	Red-headed pine sawfly
	Tip moth
Trees greater than 10 years old:	Southern pine beetle
	Engraver beetles (*Ips* spp.)
	Black turpentine beetle
	Annosum root disease
	Black-headed pine sawfly

MANAGING FOR PINE PESTS

PEST	PREVENTION	DIRECT CONTROL
Texas leaf-cutting ant (town ant)	Inspect for ant colonies before planting; ant colonies are most common in sandy soils; apply control before planting.	Apply Volcano® Leafcutter Ant Bait, preferably 4-6 weeks BEFORE the trees are planted.
Reproduction weevils (Pales weevil, pitch-eating weevil)	For sites logged after June 1, delay planting one year.	If planting within 6 months of harvest, consider purchasing seedlings treated with the insecticide Pounce®.
Pine tip moths (Nantucket and sub-tropical pine tip moth)	Maintain healthy, vigorous growing trees; consider seed tree or shelterwood harvests.	Spray high value trees with an insecticide such as Pounce®; control in forest plantations usually is not needed.
Pine sawflies (red-headed and black-headed pine sawfly)	Maintain healthy, vigorous growing trees.	Spray high value trees with an insecticide such as Sevin or Diazinon; control in forests or young plantations usually is not needed.
Southern pine beetle	Maintain healthy, vigorous stands using good forest management practices; harvest and regenerate mature stands; expect lightening-struck trees to be attacked; hazard rate stands for susceptibility.	For active, expanding infestations, control using cut-and-remove, cut-and-leave or the inhibitor verbenone; spray high value trees with an approved insecticide; pile and burn infested material.
Black turpentine beetle	Maintain healthy, vigorous stands using good forest management practices; avoid damage to residual trees when harvesting; expect lightening-struck or damaged trees to be attacked.	Remove infested trees; spray high value trees with an approved insecticide; pile and burn infested material.
Engraver beetles (*Ips* spp.)	Maintain healthy, vigorous stands using good forest management practices; avoid damage to residual trees when harvesting; expect lightening-struck or drought-stressed trees to be attacked.	Remove infested trees; spray high value trees with an approved insecticide; pile and burn infested material.
Fusiform rust	Cull rust-infected seedlings before planting; avoid planting slash pine; plant rust-resistant pines in high hazard areas; avoid fertilization and prescribed burns until after age 10.	Treat seedlings in nurseries with an approved fungicide; remove rust-infected trees when thinning; if annual mortality volume exceeds annual growth volume, harvest and regenerate the stand.
Annosum root disease (also attacks eastern red cedar)	Thin forest stands during summer months; delay thinning on high hazard sites (deep, sandy soils); conduct controlled burn twice before and once after thinning; plant high hazard sites at wide spacing to delay thinning.	When thinning stands on high hazard sites, treat fresh stumps with borax (Sporax); if annual mortality volume exceeds annual growth volume, harvest and regenerate the stand.

SUPPLEMENTAL FOOD PLOTS

Supplemental food plots provide a highly nutritious food source that can be beneficial to many species of wildlife. The establishment of locally adapted annual (spring and fall) or perennial forages on suitable soils provide supplemental foods and cover during critical periods of the year. During the dry summer months, as plant growth slows nutrient levels in native vegetation is much lower than when the plants are actively growing in the spring. For this reason, summer is often the most stressful time of the year for wildlife, especially for white-tailed deer. High protein supplemental forage can help increase fawn survival, increase body weights, and improve antler development.

The shape, size, location, and percentage of the total land area should be based on the requirements for the target species (e.g. 2-5% of area for white-tailed deer) and should meet the goals of a comprehensive wildlife management plan. A minimum of 1% of the acreage should be planted in both winter and summer food plots. It is always best to establish a variety of species to provide more diversity and to insure against the failure of one type of planting. Livestock should always be excluded from small plots.

Forage quality native vegetation can be greatly improved by fertilizing preferred browse plants such as honeysuckle, greenbriar and blackberry. Fertilization extends the growing season of most plants longer into the summer. By maintaining this growth, the plants stay palatable and have higher nutrient levels, and protein content, longer into the summer than the surrounding vegetation. By applying a balanced fertilizer in the spring and then applying ammonium nitrate or a high nitrogen fertilizer at 60-day intervals during the growing season, palatability and protein levels can be increased.

Managing the habitat for proper nutrition should be the primary management goal. Food plots should not be considered a cure-all to correct habitat deficiencies. Plantings should be considered as supplements to well managed natural habitats. Supplemental feeding should always be combined with population management, or the resulting artificially higher numbers of animals will have a negative impact on native plants. Consult with the NRCS, TAEX, TPWD, and local seed dealers for food plot mixtures suitable for your area, as well as local conditions. Plant according to soil tests and fertilize as necessary.