

Dallas Urban Forest Advisory Committee

Great Trinity River Forest Management Plan Recommendations

The Trinity River corridor contains complex ecosystems that have been impacted by many changes over the years. The Great Trinity Forest is the largest urban hardwood forest in America and it is a crown jewel as far as natural assets. Bottomland hardwood forest contains the most diverse habitat in Texas, which, unfortunately, is also the most endangered. As a result, the proper care and management of the Trinity Forest is of critical importance. A properly managed forest will increase populations of wildlife and their habitat; improve air, water and soil quality; increase aesthetic appeal; plus offer recreational opportunities. Proactive management of this precious resource will help to produce a world class park as a treasured and highly valued asset. A healthy and sustainable forest is indeed a worthy gift for present and future generations to enjoy.

Forest management is the practical application of scientific, social, and economic principals to the administration, operation, and maintenance of a forest. Proper forest management includes the proper care and control of a forested ecosystem to maintain and improve the health, vigor, flow of resources including wildlife and its habitat, recreational opportunities, air and water quality as well as aesthetic enhancement. The primary goal of a management plan for the Great Trinity Forest is to protect and enhance the ecosystems and to restore, manage, and preserve the forest, as well as to increase its value to society. The plan is an administrative document that offers guidance for all future management related affairs.

Regarding the future management of the Great Trinity Forest, the Dallas Urban Forest Advisory Committee offers the following recommendations:

General:

- Ensure that surrounding neighborhoods as well as all potential stakeholders are included as a part of the development process. Encourage input from all public and private entities interested in the various aspects of the project.
- Due to the limited access to the forest, carefully plan ideal access points and coordinate the planning with affected neighborhood groups. Access points can generate business development associated with the influx of people. Accurate access maps should be provided to the public that also specify significant features in the area, including local business locations.
- Produce a sound marketing campaign to promote the many recreational opportunities and encourage the public to experience the forest.
- Hold city functions and encourage other functions that bring the public into the forest.
- Urge transit authorities to include stops at or near access points for buses or the rail system. Continue to develop the area trail system to route as many trails as possible to access points for the forest. This will allow access without the need for a vehicle and encourage more usage of the available facilities.

- Any of the concepts expressed in these recommendations need to be conveyed to the public by utilizing educational graphics in various locations that are suitable. The addition of graphics that explain the ecological value of snags, brush piles or leaf litter, helps the public to understand why they are important. Graphics can be placed at specific locations that contain components of importance that allow for an illustration. “Edge Effect” is a concept in ecology which states that wildlife diversity will be greatest where various types of habitat meet and should be included in the theme for educational signage development. In the interior of the forest, we find only forest dwellers. In the interior of the grassland, we find only grassland dwellers. Where the habitat types meet, we find both types *plus* species which can use either.
- Consider calculating the amount of carbon sequestration by the forest as well as any other potential environmental benefits provided by the forest that may be quantified by sound science or research.

Forest Management:

- Carefully consider all aspects of forest ecosystem protection, management and usage, as well as the short and long term impacts of each action. The Trinity forest of the future should contain many different types of natural areas consisting of a wide diversity of plant and animal habitat.
- Work toward a healthy, future climax forest ecosystem with a very diverse number of shade and ornamental trees, shrubs, as well as understory plants. One of the goals should be to produce a forest containing trees of many various ages which allows for some resistance to pests or pathogens and produces better habitat, which ultimately creates a more sustainable forest.
- We highly recommend that the City of Dallas establish a Department of Urban Forestry to ensure that adequate resources and expertise are provided for the Trinity Forest. At present, there are at least five (5) separate city departments that deal with tree issues but no one authority that has the proper training, skills and education to adequately manage the forest. Most all progressive communities have a Department of Urban Forestry which provides one authority that is responsible for most, if not all, tree/forest related affairs. Since the Park Department manages the recreation within the forest there is no need to establish another authority to manage activities in the forest.
- Conserve pockets of species diversity. Where the forest ecosystem appears to be recovering and able to re-establish on its own accord, leave these areas alone and avoid upsetting the balance of nature.
- It is important that the removal, cutting, transplanting or pruning of trees require an approval from the city Urban Forester.
- Formulate specific objectives and plans for each year covered by the forest management plan, including each of the various intended uses.
- Manage each forest stand as its own ecosystem. Consider a more detailed analysis of all plants in each forest stand to include flora and fauna or what types of understory plants exist, such as any herbs, forbs, prairie plants or noxious weeds.
- As all aspects of the forest ecosystem are connected, we recommend that forest management plans also be integrated with management plans for soil, water and wildlife, but not cause a loss of floodplain storage capacity or topsoil.
- We highly recommend that the forest management plan encompass the entire Great Trinity Forest, including property inside and outside of the flood plain. Forested areas outside the flood plain are often a higher quality forest that will require some degree of

maintenance in order to increase the health of the forest stand and to minimize the effect of invasive or problematic plants, insects and pathogens.

- Take into account the potential risk of flood damage or drought to the management plan goals and objectives in any given year.
- Consider studying and mapping any landmark or historic resource that may exist to support future planning efforts. Identify any natural resources that warrant protection.
- Explore the possibility of marketing any resource that must be removed from the forested areas.
- Carefully consider access to the forest. Access equals ownership. Diverse groups need to be able to benefit from the forest, thereby building support for management objectives. Trails, trailheads, sufficient parking, roads, boat ramps and other access points should be carefully planned with public input as well as adequately budgeted. Wheelchair accessibility should also be considered.
- It should be required that the removal or planting of trees as well as any landscaping or public improvement projects within the Trinity Forest fully comply with city codes governing these affairs such as the Dallas tree ordinance, landscape ordinance, escarpment ordinance or any other applicable local, state or federal regulations.

Forest Regeneration:

- Due to a lack of species diversity in certain areas, consider the removal of all trees in small plots (or blocks) and replanting with species from the Dallas Urban Forest Advisory Committee's recommended species list for the Trinity Forest. The plots should be planted with a diversity of species that support the objectives of the forest management plan. Replanting in areas less prone to flooding and higher in elevation should include mast, as well as fruit and seed producing species to encourage the spread of future populations of ideal species. Planting large numbers of small seedlings (500-1000 per acre) will take into account expected future losses. Larger plant material may also be required in some plots. Some plots may also require the judicious use of chemicals to allow for some plants to establish. Sources for saplings may limit species availability and diversity; therefore, resources may include all western gulf region states. Due to the potential for flooding, consider planting trees in higher elevations first. Specific areas should be planted each year until management objectives are complete for species regeneration.
- Tree plots and rows being planted should contain a diversity of species and include some understory species as well.
- Seeding of some areas may also be an option.
- Consider establishing a city greenhouse/nursery that grows plants and trees from a local seed source or negotiate a contract with a local grower or nonprofit such as the Texas Trees Foundation, to produce plant stock from local plant seed that is grown specifically for the Trinity forest.
- Species being utilized should have some tolerance for drought or flooding.

Wildlife:

- Consider establishing a comprehensive wildlife management plan that surveys for threatened or endangered animals or plants (HEP standards) and includes habitat stabilization/improvement.

- Complete an inventory of all existing wildlife species (and throughout the year) as well as their life cycle, habitat requirements and travel corridors.
- All due consideration should be provided for the hundreds of species of birds that reside or migrate through the forest. As one example, there is currently a Black-capped Vireo habitat restoration project underway in the Cedar Ridge Preserve.
- Wetlands will encourage waterfowl but must be properly established and maintained in perpetuity to effectively provide a benefit.
- One main objective is to increase the diversity of food producing plants in the area. Berries, seeds, nuts, nectar and vegetation are all important food sources for wildlife. It is also important to have these food sources available throughout all seasons of the year.
- Another main objective is to increase the structural diversity of the area or restore and supplement any layers of vegetation that are sparse or missing altogether. Wildlife habitat supports the greatest number of species when all the vegetation layers are present. The canopy layer (tall, mature shade trees) is needed to support canopy-dwelling birds and mammals such as the Tufted Titmouse, Northern Cardinal, woodpeckers, nuthatches, and squirrels. The midstory layer (smaller ornamental trees such as Texas Redbud and Mexican Plum) is important for those animals that spend significant amounts of time in the midstory such as Mourning Doves and Indigo Buntings. This layer also provides protection when animals move vertically between the canopy and the ground. The understory (shrubs, grasses, etc.) is important because it provides food and shelter for ground-dwelling and ground-feeding animals such as Northern Flickers, Kentucky Warblers, roadrunners, rabbits, and other small mammals.
- Specific suggestions for vegetative layers include the following (A complete recommended species list is attached):

Short understory plants

Inland Sea oats (*Chasmathium latifolium*), Virginia Wildrye (*Elymus virginicus*), Sideoats Grama (*Bouteloua curtipendula*), Wild Columbine (*Aquilegia canadensis*), Butterfly Weed (*Asclepias tuberosa*), Winecup (*Callirhoe involucrata*), Purple Coneflower (*Echinacea purpurea*), Mealy Blue Sage (*Salvia farinacea*), Scarlet Sage (*Salvia coccinea*), Brown-Eyed Susan (*Rudbeckia hirta*).

Understory shrubs

Turk's Cap (*Malvaviscus arboreus* var. *drummondii*), Coralberry (*Symphoricarpos orbiculata*), American Beautyberry (*Callicarpa americana*), Texas Elbow-bush (*Forestiera pubescens*).

Small Trees

Mexican Plum (*Prunus mexicana*), Rusty Blackhaw Viburnum (*Viburnum rufidulum*), Redbud (*Cercis canadensis*), Aromatic Sumac (*Rhus aromatica*), Carolina Buckthorn (*Rhamnus caroliniana*), Red Buckeye (*Aesculus pavia*).

Vines

Passionflower (*Passiflora incarnata*)

- Open and sunny area should be enhanced by introducing many of our native bunch grasses and wildflowers. Wildlife species that are attracted to open, grassy areas are different than those attracted to wooded areas. Grassland plots can attract flycatchers and kingbirds.
- Recommended species for attracting Butterflies include many open and sunny area plants such as:
Brown-Eyed Susan (*Rudbeckia hirta*), Butterfly Weed (*Asclepias tuberosa*), Purple Coneflower (*Echinacea purpurea*), Mealy Blue Sage (*Salvia farinacea*), Scarlet Sage (*Salvia coccinea*), Plains Coreopsis (*Coreopsis tinctoria*), Lemon Mint (*Monarda citriodora*), and Indian Blanket (*Gaillardia pulchella*).
- Snags are usually cut down and hauled off because they are considered useless. However, this is not the case. Snags are as valuable to wildlife as living trees. Snags are often hollow which provides homes for squirrels, raccoons, opossums, and even bats. Woodpeckers often excavate their homes in snags. Once the woodpeckers have excavated a cavity and moved on, other species such as chickadees, bluebirds, and the tufted titmouse will move in and continue to use the cavity for seasons to come. Leave dead trees in areas of limited public use for animal habitat, when appropriate.
- When limbs or trees fall to the ground, they are called “downed wood”. Downed wood is often removed because it too is considered useless. Once again, this is not the case. Downed wood provides homes for ground dwelling animals. Small mammals will use hollow logs to escape predators and inclement weather. Lizards, toads, and all types of invertebrates rely on the cool, moist microhabitat beneath the downed wood to survive. In addition to the wildlife benefits of downed wood, it also benefits the soil and surrounding vegetation. As the wood decays, nutrients locked inside are released into the soil and made available once again to the living vegetation. Removing the downed wood would remove a great source of nutrients critical to the continued health of the remaining vegetation.
- Brushpiles are similar to downed wood in their value to wildlife, except they serve slightly different clientele. Downed wood serves small mammals, reptiles, amphibians, and invertebrates. Brushpiles serve small mammals and reptiles to some extent, but they are especially valuable to songbirds. Songbirds will use the cover of brushpiles frequently while feeding. This is especially true in winter.
- Management plans should consider establishing habitat for any species of indigenous wildlife that is considered to be threatened or endangered currently or at any point in the future.
- It is important that management plans include protecting forest trees and plants as well as restoration project work sites from wildlife that may cause damage such as feral hogs, deer, beaver or others. Plans should fully address future threats to the ecological balance by the existence and or over population of damaging wildlife species. In some cases, managing populations of wildlife is preferred as opposed to eradication of a species.
- Leaf litter (the ground layer of fallen leaves) is much like downed wood in that it provides habitat for invertebrates and small lizards. The insects that are found in this layer are food for other animals and thus form much of the foundation of the food web. Skinks, for example, are specialized lizards that live their entire life cycle in the layer of leaves on the forest floor. They rummage beneath the leaves searching for the invertebrates that thrive there. Skinks, in turn, are food for roadrunners. Roadrunners could then be eaten by bobcats, and so on. In addition to its wildlife value, as leaf litter decays, it returns valuable nutrients to the soil. It also acts as a mulch which insulates the

soil keeping it cooler in the summer and warmer in the winter. Having a layer of leaf litter on the ground helps the soil hold moisture and shields it from the erosive effects of the rain and wind. Because of these benefits, we recommend that leaf litter be allowed to accumulate wherever possible.

- Encourage and plan for areas with thick, dense cover or “Edge Habitat”.

Significant Trees:

- Consider a registry of significant trees listing G.P.S. coordinates, as well as other details, and consider adding the information to the Texas Tree Trails website (www.texastreetrails.org) to encourage ecotourism. Develop tree trail maps to significant trees that include GPS coordinates, similar to the Arboretum or Fort Worth Botanic Garden trails noted on the Texas Tree Trails website.

Recreation:

- Due to the fact that any recreational activity that occurs in the forest has the potential to affect the health of existing trees and forest stands, the Dallas Urban Forester and the Dallas Urban Forest Advisory Committee, should play a role in the planning of activities or development of any type that could affect trees.
- In general, the objective should be a balanced and inclusive approach to planning recreation related development and activities that include something for all possible interested parties. As a result, a plan for future activity and development must enjoy public support.
- Low impact trails and observation points should be a part of the future plans and any concrete required should be permeable to allow water absorption and reduce the heat island effect. Any concrete trails should be located on the exterior of the flood plain due to the potential for frequent flooding and high maintenance costs, if at all possible.
- It is important that management plans clearly state all future goals regarding the recreational use of the forest. Lower impact uses of the forest such as hike and bike trails, interpretive trails or birding trails are ideal due to the minimal impact on the existing ecosystems. River trails can be low impact if they do not involve the installation of a hard surface. However, access would need to be regulated as well as the type of traffic allowed on all trails. More active uses such as motorized vehicle trails or equestrian trails should be located outside the forested areas or important habitat areas as much as possible. These types of activities that are required within any important ecosystem should be carefully planned, executed, managed and policed, in an effort to minimize the impacts. There are areas that should have limited human intervention in order to conserve relatively undisturbed habitat or unique ecosystems.
- It is important that any development for recreation carefully consider the natural features of specific areas and every effort should be made to minimize the impacts of any development or activity on the natural features.

Public Safety:

- Consider public safety and security in the development of forest management and development plans. Security can become a concern due to the potential size of the park. Preventing crime could be a problem. Locating or rescuing an injured person may also become a concern.

- Note to the public that there is safety in numbers and going alone into the forest involves some inherent risk.

Hazard Trees:

- Consider public safety by encouraging the establishment of a hazard tree policy for areas open to the general public. Although this will require funds to remove hazardous trees, the potential liability to the public more than warrants the expense in planning future budgets.

Fire:

- Consider the potential for fire to affect the property and develop potential plans/methods of prevention, control, and management, including associated expenditures. Any plans should be developed in coordination with the Dallas Fire and Rescue Department.
- In order to suppress invasive plant species and encourage native plant regeneration, expert supervised and controlled burning could be considered.

Illegal Activities:

- All due consideration should be provided for any physical damage to trees, including the illicit removal of trees, plants, timber or important components of any existing ecosystem. Any planning should address the current problem with illegal dumping. Prevention is one part of the equation but clean up costs should also be calculated and considered as a part of the management plan.

Invasives:

- Consider establishing a sound management plan to fight invasive plants and sometimes non-native plants due to the potential to suppress beneficial plant species and alter wildlife habitat. The list of invasive plants may change over time but must include Chinese Privet (*Ligustrum sinense*), Japanese Ligustrum (*Ligustrum japonicum*) and Chinese Tallow (*Sapium sebiferum*).
- Ragweed, Johnsongrass, Bamboo, and Poison Ivy are also undesirable species for one reason or another. Ragweed is a native annual species that is to blame for the seasonal allergies that many of us have. Its presence is indicative of some type of disturbance to the soil. Anywhere the soil is plowed, scraped, or tilled, will soon become home to ragweed. Although ragweed is beneficial to wildlife (doves, northern Cardinals, Red Wing Blackbirds, finches, sparrows, etc. feed on the seeds), we recommend controlling it because of its affects on humans when it is possible. Because of its annual habits, ragweed can be knocked back by selectively cutting it in late August before it has a chance to flower and set seed. Cutting it sooner will allow it time to recover. Doing this for several seasons should significantly reduce the population (provided no future areas are disturbed). The judicious use of herbicide should only be considered as a last resort and many factors should be carefully considered.
- Poison ivy is also a native species that is valuable to wildlife (chickadees, Northern Mockingbirds, thrushes, woodpeckers, etc. feed on the seeds). However, we recommend keeping it cut away from any trail because of its affect on some people. The ideal method of control is cutting it back to the ground and digging out the roots. Due to the

value to wildlife, the objective should be to manage poison ivy as opposed to the complete eradication of it.

- Any bamboo that is found on city property has little value to wildlife other than providing dense cover, plus it is an exotic plant. We recommend controlling or removing bamboo by cutting back the top growth and physical removal of the root system, where it is practical and not damaging to nearby trees. Chemical control has not been effective and management of the problem can be an ongoing effort.
- Johnsongrass is an exotic grass that was originally introduced in the U.S. from Africa as a pasture grass. It has since become a tremendous problem for those of us who prefer our native grasses. Johnsongrass will eventually take over an area and out-compete the natives. Although we prefer not to use herbicides, we have no cost effective method as an alternative. As a result selective use of glyphosphate (Roundup) may be required as a control measure. However, Roundup and other herbicides will also kill desirable plants; therefore, we recommend that herbicides be used carefully and as a last resort.

Financial:

- It is very important that the city provide adequate funding that is commensurate with the task of managing the largest urban hardwood forest in America. Any and all outside sources of potential funding should be pursued. Consider offering the ability to “adopt” a particular feature such as a stand of trees, a campground or others in lieu of a substantial donation that provides for the future care and maintenance of the feature or the forest as a whole. A management plan for the forest without a substantial financial commitment from the city is of little use.
- Calculate a financial analysis and annual budget for each action proposed in the plan, along with a detailed annual time line.
- It is important that future budgets take into consideration potential inflation and changes regarding labor/material costs.
- Consider listing options for funding future management objectives, including the establishment of an endowment. Without a significant financial commitment from the public and the city, the benefits of the plan will be compromised.
- Establish a substantial budget specifically for a marketing campaign which promotes the forest as an international habitat center. Without exposing the public to the significant opportunities and resources that exist in the forest, public acceptance and support for future initiatives will be difficult. Public ownership of the forest will be required to advance many future goals and objectives.

Respectfully submitted on behalf of the City of Dallas Urban Forest Advisory Committee,

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