

## Preface

The Texas Department of Highways and Public Transportation hosted the combined summer meeting of the Committee on Roadside Maintenance and the Committee on Landscape and Environmental Design. The meeting was a unique symposium on Roadside Vegetation Management and Manipulation, held at the Marriott Hotel in San Antonio, Texas, with approximately 120 people in attendance.

Members of the joint committee sponsored a special award for outstanding achievement of beauty along the roadsides of highways in the United States. This award went to Mrs. Lyndon Baines Johnson. The presentation was made by Tom Taylor, Director of Travel and Information, Texas Department of Highways and Public Transportation; Roy White, architect and builder, accepted the award on behalf of Mrs. Johnson at a special luncheon.

A field trip to view urban landscape projects in the San Antonio area included the McAllister Freeway, which received special recognition for achievement in this category. The field trip extended to rural areas and included a review of a rest area.

This publication of the proceedings does not include the full manuscript of the presentations. The abstracts presented were either presented by the authors or condensed by the Committee on Roadside Maintenance for purposes of publication. More details may be obtained from the authors.

I wish to thank all of the individuals who worked hard to formulate the program and the authors for their excellent product.

Charles T. Edson, Chairman  
Committee on Roadside Maintenance

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## Abstracts

### PRESENTATION AND PROPAGATION OF NATIVE PLANT MATERIALS

Tom Allen

(Allen's presentation was not available for publication.)

### RELICT BIOMES IN TEXAS

Joseph W. Tyson, Jr.

Transportation agencies are entering areas not entered before. Although there are several different changes that have been made in the East Texas piney wood region, the major agent of change has been forestry. In the coastal zone and extending up into the prairie area, it has been urbanization. Along the Rio Grande River in Texas, agriculture has been the major change. In the Central Texas region, urbanization is the key; in the high plains area,

range use and grazing have been inhibiting factors.

However, even in these areas where man has introduced himself to the greatest degree, areas still remain where no evidence exists of man's impact on the plant and animal environment. These are called relict areas--areas that have remained substantially unchanged since before the advent of modern man. The early native inhabitants altered the environment by cutting, slashing, burning, overgrazing, or over-harvesting. There is no tractless wilderness outside of the Arctic and Antarctic. Men have always been on the move and have made well-traveled pathways from one point to another. We are still making such paths either because of safety, convenience, or other social pressures. The earliest descriptions then formed the base for a determination of whether or not an area is a relict area. There are records of several kinds on first visitors to a whole host of different kinds of areas (in the full text of this presentation, there are many examples of how individuals or groups of individuals affected the environment in Texas).

What's happening in these relict areas? There is a food chain, and the plants that are found in relict areas are the bottom of this food chain. They are the food producers on whom primary consumers first feed. Those primary consumers are in turn eaten by secondary consumers, such as meat-eating animals, and they ultimately die. The materials of which their bodies are composed are either eaten by others or they return to the soil so they combine with the soil and reenter the food chain. This same thing is happening on our rights-of-way; except now as a general rule, we exclude the grazing population. As a consequence, our mowing programs and other roadside vegetation control programs fill that biological niche and we, in effect, are the grazing community.

Without this grazing activity, the plant community changes and can no longer be considered a climax community developed under optimum conditions. When creating a transportation corridor, we preempt further encroachment into that particular area and, as a consequence, we tend to preserve what was there. It is this preservation aspect that becomes very important.

Relict areas are of scientific interest and they are of some aesthetic interest. The transportation agency, as a general rule, has preserved a great number of these areas, and it requires no new policy or no new effort by such agencies to ensure that such relict areas continue to exist.

### WILDFLOWER WORKS

Chapman Kelley

When discussing the arts, it is important to realize that, at their highest and most meaningful level, they are a language of philosophical communication through abstract means. The profundity of the idea/concept along with the uniqueness of the aesthetic eventually determines its ultimate value to future generations. Those few whose accomplishments survive their time and earn them the distinction of "artist," are those who define or substantially re-define what a work of art may be. As both Leonardo da Vinci and Robert Henri said, Art is invention.

The arts have to change from being elitist to populist in order to have relevance and meaning in today's world. We design paintings and sculptures. We also design buildings; furnishings; governmental, educational, and economic systems; assembly lines;

machinery; our time; and, in fact, our entire lives and living environments. Because man is an intelligent, inventive, acquisitive, ambitious, and--all too often--a greedy creature, by his very existence, he scratches the surface of the earth much more deeply than any other animal. It is for this reason that he should both understand and cooperate technologically and spiritually with nature.

The monotonous conformity of concrete forms combined with man's answer to nature, uniform grass, seemed to be a totally inadequate solution aesthetically and economically. This juxtaposition of concrete and grass does little to challenge the human spirit. I voiced the idea of transposing both the appearance and significance of the flat man-made areas of my paintings with similar shapes or roadway and airport runways and, in addition, planting the otherwise grass-covered areas with color: wildflowers arranged according to my design. The concept amounted to an actualization of what I had been painting only on somewhat of a grandiose scale in a three-dimensional context. The aesthetic would be the same, but the opportunities for human participation would be greatly enhanced. The contract between slabs of austere concrete designed by airport engineers for traffic pattern purposes and shapes of color defined with waving fields of wildflowers might stir individuals to consider that opposites can coexist for the benefit of both. The lyricism and beauty of wildflowers would be a challenge to our sense of design.

In working with the administration of the Dallas-Fort Worth Airport, phase one of the Dallas-Fort Worth Wildflower Works was launched. Literally tons or hundreds of millions of seeds have been planted along the International Parkway as part of this project. In endeavoring to cover thousands of acres of land, with 12- to 15-in leafy material, there are bound to be ecological and economic impacts. We are continually seeking answers to such diverse questions as, What kind of impact would wildflowers have on modifying or cushioning sound? Which plants would require less water? and How can native materials be planted with root systems at different levels, thereby better using soil nutrients, eliminating the need for costly fertilizers, and aiding soil erosion?

A big advantage of native materials is their economic saving in mowing. Through the use of chemicals applied by the ropewick system, taller competitors can be virtually eliminated without the expense of mowing. Findings indicate that it would cost from two to three times as much energy to plant and maintain the average suburban lawn as it would a comparable-sized food crop. If I could start with this aesthetic challenge, foresee ecological benefits, and wind up with a savings in the cost, how could parks, highways, transportation corridors, other airports, and public places afford not to be composed into wildflower works of art?

#### REHABILITATION OF INTERSTATE SAFETY REST AREAS IN IOWA Harold Dolling

Four pairs of safety rest areas on Iowa's Interstate Highway System were constructed and available for public use during 1966. These rest areas were built before a design guide was available. In upgrading these facilities, they had to be completely accessible to the handicapped and, in addition, were to provide additional parking, ground lighting, waste

water dump for recreational vehicles, waste water pond or lagoon improvements, sidewalks to tables, rest room upgradings, additional landscaping, and general upgrading of outdated items.

In the first contract, the design guide indicated that an additional parking facility was needed for 52 cars and 22 trucks at each site. This was not practical based on existing topography. The final design provided for 36 cars, 10 recreational vehicles, and 16 trucks at each site. The parking was less than desirable because of the topography. The high price tag of \$1 000 000 for modifications was high compared with the original \$250 000 to construct the entire complex. The lagoons needed to be improved as part of the total contract, which originally cost \$14 500 to build. Due to changes in the environmental requirements, the refurbished lagoons cost \$199 000.

In subsequent improvements, it was noted that the lagoons would require enlargement and appropriate arrangements would have to be made. An alternate solution considered was the replacement of the five conventional water closets with microphor low-water-volume toilet fixtures in each building. This was done in subsequent rest areas and water use has been reduced 45 percent or more. Rest area rehabilitation is a challenge, particularly when total costs are considered. For future rest area rehabilitation, I recommend the Federal Highway Administration Technical Advisory Publication T-5140.8 (August 10, 1979), Rest Area Design Charts, which is based on data developed by Minnesota officials. This is an excellent planning and design tool.

#### DEVELOPMENT OF THE McALLISTER FREEWAY--SAN ANTONIO Mel Steinberg

Steinberg made a presentation on the development of the McAllister Freeway as it relates to the roadside. His presentation indicated that the freeway was a showplace for roadside development.

#### INTERRELATIONS OF VEGETATIVE MANAGEMENT AND EROSION CONTROL FOR A SOUND ROADWAY ENVIRONMENT Sam Garrett

(Garrett's presentation was not available for publication.)

#### COMPARISONS OF AGRONOMIC AND ECOLOGICAL APPROACHES TO ROADSIDE MANAGEMENT L.E. Foote

Roadside management came into existence gradually over time as a scientific and administrative approach to roadside maintenance. In the 18th and 19th centuries, roadside vegetation was generally cut by hand (and later by machine) for forage. Roadsides were pastured by staked or free-roaming animals, burned, farmed, or neglected. Often, the roadsides were cut to avoid fire hazard or to provide good visibility against lurking highwaymen, to clear brush, and to provide a neat appearance.

With the scientific agriculture movement of the