

The Importance of Mesquite to the 21st Century

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The Importance of Associations in the Mesquite Industry

Let me begin my remarks by encouraging us to make this *Prosopis* conference a regular event. Those of us who work with mesquite are probably thought of as odd ducks by many of our peers. We need to be reassured occasionally that what we are doing is meaningful and beneficial to mankind, as indeed it is. Thus, I propose that we here begin the process of forming an international association of those who are involved the study, development, and utilization of *Prosopis*. Here are a few reasons why I believe we should do that.

Associations, which can be formal or informal, are necessary to promote and encourage the dissemination of information and techniques. Formal associations give a better service and clearer purpose to their constituents. There are elements of special information that some may not want to disclose, believing that the information is exclusive to them. Generally, these individuals do not participate in associations. But, for the majority of people in the mesquite industry, associations are an essential element that allows us to become better informed about new ideas and technology and will help us reach our goals.

Benefits

There are many benefits to having a mesquite association at any level. Five areas of benefit that accrue to an organization dealing with the special interests of mesquite are outlined in the following paragraphs.

The first objective of a mesquite organization is being able to *identify*:

- Common interests
- Problems
- Solutions

Coming together in one location is necessary for that to happen. Thus, some schedule of regular meetings is needed. An organization devoted to the study and utilization of mesquite gives us the opportunity to explore these three areas and can benefit everyone.

The second objective is to *exchange*:

- Ideas
- Goals
- Needs

This will allow us to encourage and enable communication and widen the sphere of information to include others who might be influential in helping us accomplish our goals.

The third objective is to *promote* our common goals.

This allows us to build a stronger base and achieve a greater good. The result is that we can publicize our objectives and obtain funds to further the work with mesquite.

The fourth objective is to *share* both triumphs and defeats, our victories and failures.

We learn most from our failures, if we don't quit. Others learn from our victories.

The fifth objective is to *encourage* one another.

We need to be able to recognize and reward those who have made significant achievements in our field. There is pride in achievement, both our own and others.

An association allows us to have fellowship with others about our common interests. One of life's most rewarding pleasures is be able to give something of ourselves that benefits another. An association can create an important type of family that benefits everyone involved.

Now, let me share a few thoughts and facts about my involvement in the fledgling mesquite industry in Texas.

Overview of the Mesquite Lumber Industry in Texas

My perspectives of the mesquite lumber industry in Texas have been developed by being president of one of the largest mesquite lumber sawmills in Texas, located in Bastrop, Texas. It has also been my great pleasure to have served for two years as the President of Los Amigos del Mesquite. This organization represents sawyers, wood workers, barbecue-chunk manufacturers, and nurserymen who sell mesquite, as well as scientists interested in applied aspects of mesquite.

Los Amigos del Mesquite hosts an annual convention in Texas to promote all aspects of mesquite. The evening before the convention we have an invitation-only wine-and-cheese reception for architects and furniture designers to provide an opportunity to see the very best furniture, flooring, carvings, and accessories that mesquite has to offer. We have one full day of technical presentations on wide-ranging subjects. In the past, we have had presentations on stand management, furniture finishing, demonstrations of new sawmill techniques, demonstrations of turning and furniture manufacture, marketing of furniture products, and ecological aspects of nitrogen fixation by mesquite. Competition for the best furniture, sculpture, and flooring products—with cash prizes—has also been a regular feature of our mesquite conventions.

Following the technical sessions we have a weekend-long exhibition and sale of mesquite products. In the past few years we have held this in conjunction with a major festival in Corpus Christi, Texas, so that many people become exposed to all the products of mesquite. This is a good opportunity for architects, builders, and homeowners to see mesquite products and consider their value. This past year, a mesquite flooring manufacturer met an interior designer who decided to specify a mesquite floor for the new offices of one of the oldest and largest law firms in Corpus Christi. These annual conventions also offer an excellent opportunity for new and old mesquite sawyers, landowners, and furniture manufacturers to meet each other to develop collaborative business opportunities.

The following remarks, while primarily about Texas mesquite (*Prosopis glandulosa*), are equally applicable to mesquite as it grows anywhere in the world. Some properties of Texas mesquite, such as excellent stability, are similar to other *Prosopis*, for example, *Prosopis alba* in Argentina. We know very little about the wood technological properties of most *Prosopis*. However, most of the facts and principles outlined here can be applied to both developing and developed countries.

There are approximately 55,000,000 acres (about 22,258,000 hectares or 222,740 square kilometers) of mesquite in Texas. At the current estimated rate of usage of approximately 5000 acres (2024 hectares) per year and, assuming no regrowth from trees cut, there is only an 11,000-year supply of mesquite left in Texas! We know, of course, that mesquite proliferates by various means. At present, 97 companies indicate that they have a full-time business that mills or processes mesquite wood. Of the 97 companies, only about 20 are really sawmills. All of these are very small mills. No single mill can produce more than 1000 to 2000 board feet of lumber per day and most of them produce much less. There are also 84 companies that identify themselves as part-time users of mesquite wood and 86 companies and individuals that classify themselves as hobbyists for commercial wood-processing

purposes. These wood processors are producing mostly ungraded lumber, some graded lumber, flooring, furniture and furniture parts, doors, and small items.

At the retail level there are craft items, flooring, furniture, and lumber. The groups that are obviously missing are brokers, distributors, wholesalers, and concentration yards.

The suppliers of mesquite logs are the least identifiable and least unified of all those that work with mesquite. Many of these loggers are part time or seasonal workers.

The cooking-wood and charcoal segment of Texas' mesquite industry is the most efficient, is the most successful, and has had the greatest impact economically.

Outlook for Mesquite Lumber Products

As more pressure is exerted on common woods, mesquite will become more acceptable as an alternative. Mesquite's outstanding stability and hardness are the chief reasons for this acceptance.

Mesquite is a trendy wood at present. Its very scarcity as a lumber and furniture product makes it all the more desirable for upscale use.

There needs to be developed more efficient means of harvesting and processing mesquite to lower the cost of finished products and to allow it to flow through the normal channels of commerce: manufacturers to distributors to brokers to wholesalers to dealers to consumers. The distributors, brokers, wholesalers, and dealers are largely absent in the sales of mesquite lumber products. This is primarily due to the high cost of these products and the inefficient production methods used by the mesquite industry. This creates a "catch 22" scenario of the product being too expensive for the consumer if the middle distribution players are included. On the other hand, manufacturers cannot afford to advertise and market their product effectively because of the low sales volume. The solution, of course, is to generate a much greater volume of sales using the proven channels of marketing. There has to be sufficient room for mark up of the product for the middlemen to get it to the consumer at an affordable and desirable pricing. This calls for much greater efficiency from the producers, and the opportunity for the supply channel to make a profit and still entice consumers to use mesquite products.

Another great problem for the established wood industry in trying to obtain mesquite products is the lack of any inventory of mesquite lumber. This is where concentration yards and distributors will play a major role if there is to be a viable, significant mesquite-wood industry in Texas. Because they cannot obtain mesquite-wood products in a timely manner, most of these middle supply channels have chosen to not offer mesquite because of unreliable delivery times and uncertain quality.

Hopefully, we can address this problem by establishing the first mesquite concentration and distribution yard. My plan is to buy mesquite lumber and flooring, grade it, and create a sufficient inventory to give the wood-using industry confidence in the quality and inventory of mesquite-wood products. The creation of a regular, consistent buyer will enable most of the small producers to purchase or lease better and more efficient equipment, stabilize and standardize their overhead, and become part of the established wood-producing industry in Texas.

As the United States wood-producing industry is enabled to obtain and use mesquite wood products, international sales also become a possibility.

Mesquite's good growth characteristics will enable sustained production of this outstanding wood. Since the early 1950s, the USDA has had a "Mesquite Eradication Program" in place and billions of dollars have been spent trying to destroy and get rid of mesquite. When this program was started there was an estimated 41,000,000 acres of mesquite in Texas. After more than 40 years of effort and billions of dollars spent, we have only 55,000,000 acres left! Obviously, mesquite is not in any danger of becoming an endangered species. *Prosopis glandulosa* is the species of mesquite that grows in Texas.

Studies by Texas A&M University have shown that with very minimal silviculture practices mesquite will grow in diameter at the rate of ½ inch, or more, per year. This rate is comparable to other hardwood lumber species.

Development and Marketing of Mesquite Flooring and Furniture

At the present stage of development of the mesquite industry, we need to optimize how and where mesquite is used. One of the methods of multiplying a limited supply is to use *veneers*. Veneer allows the supply to stretch further. Any mesquite-lumber piece is, at present, more expensive than its common-wood counterpart. The use of veneers can narrow the gap between common woods and an exotic such as mesquite.

For instance, the wholesale price for select-grade mesquite *lumber* varies from about \$6.00 to \$8.00 per board foot. The same grade of oak would be about \$1.20 to \$1.50 or a ratio of about 5:1. The price difference between mesquite veneers and oak veneers is only about 2:1 to 3:1.

There are some other limiting factors in producing and using mesquite lumber.

There is a very limited quantity of clear boards. Almost every mesquite log has a radial crack or wind shake crack in it. The tree does not grow straight up and thus produces logs that must be “straightened” by cutting out the bends and crooks. The resulting logs are short, usually less than six feet long. We must develop lumber sized to meeting the need of the flooring and furniture industry based on what the logs can produce. Fortunately, both of these industries use pieces that are less than 4 inches wide and less than 36 inches long for approximately 80% of their parts. Mesquite lumber can accommodate those dimensions.

As indicated, there is a very limited market for mesquite-wood products. This is primarily due to the high cost and very limited availability. In order to overcome this fact we must be very diligent in reaching the number of affluent people who can afford to buy mesquite-wood products or reduce the cost and increase the availability of mesquite-wood products.

The technology and machinery to do this are already available and in constant use in the wood-producing industry. Short-log sawmills can produce 30,000 to 40,000 board feet of lumber a day using as few as seven workers. This is more than twice as much as all the mills in the mesquite industry can produce in a month, at present. This is technology and equipment that is directly transferable to the mesquite industry. Utilizing this equipment alone would probably increase the efficiency of mesquite production and decrease the cost by 50% to 70%. The log supply would also have to increase greatly and efficiency measures taken to increase quantity and reduce cost to the mills. Again, the equipment and proven technology are already being used in harvesting other species. Other ways to increase the availability of mesquite is to utilize and perfect finger-jointing techniques that will be acceptable for a high-end product, reeducate consumers to appreciate the natural character of mesquite, and incorporate these normal mesquite characteristics into the finished products. There is an enormous amount of room to increase the efficiency of the processing of mesquite-wood products. The mesquite-wood barbeque industry is far more developed than the mesquite-wood-products industry. The mesquite barbeque industry is using whole logs, many of which could be used for fine lumber and wood products. They do this out of necessity, because there are not nearly enough by-products to meet their needs as there are in the other species in the wood using industry. If the mesquite-wood-products industry were producing even nominal amounts of lumber, the barbeque industry's supply would be met with by-products as it is in other wood species.

As mentioned earlier, the supplier chain needs to be completed in order to increase availability and, as a result, increase availability and decrease the ultimate consumer price.

Technical Facts About *Prosopis glandulosa* (Texas Mesquite)

Mesquite is a most unusual plant. It belongs to the legume family. The legume family has the ability to fix nitrogen in the soil. This ability in mesquite is not readily seen unless the tree is allowed to

mature in semi-open savannahs. This also happens to be the very type of growing condition that allows mesquite to mature into fine-lumber trees. When thinned to 20-foot to 40-foot spacings, mesquite grows quite rapidly. Tests by Texas A&M University-Kingsville have recorded average growth rates of ½ inch in diameter per year and more. This compares very favorably with other fine-hardwood species. The current price for green mesquite logs averages nearly \$1000 per thousand board feet. This is more than most kiln-dried lumber sells for. It is far more than oak, walnut, cherry, or maple logs sell for. Thus, there is ample incentive for landowners to take care of and cultivate their good mesquite trees. Assuming a mesquite thicket with no log-size trees, the recommended practice needed to produce mesquite trees of lumber size include removing all mesquite leaders except one healthy trunk to a spacing of 20 feet to 40 feet. The resulting wood recovered will pay for the labor of this process and return an immediate profit to the landowner. This wood is sold for firewood at the prevailing prices of \$60.00 to \$80.00 per cord. This immediately allows this land to be used as an improved pasture with the added bonus of having the nitrogen boost from the mesquite trees in just a few years. Few people would believe it a wise move to cut down healthy young walnut trees to improve a pasture. Yet, that is exactly what has been occurring for decades. Of course, until recently, there was not a market for mesquite lumber. However, there now is a market and we hope to expand that market to the point of sustained equilibrium for mesquite trees.

Texas mesquite, *Prosopis glandulosa*, is the most stable of all natural woods for which we have technical data. The volumetric shrinkage from green to 6% moisture is only about 4%. More importantly the tangential to radial ratio is 1:1. Thus, the wood moves uniformly in all planes. This give mesquite incredible stability and allows its use in products that need the stability that cannot be achieved in any other wood. Texas mesquite is very hard, averaging more than 2340 PSI. Southern red oak, considered to be a very hard wood, is about 1060 PSI. Texas mesquite is highly figured in an unusually high percentage of the surface of its boards. Texas mesquite has a rich, unique auburn color. In all, it is a wonderful resource.

I would like to share a personal story that I believe has an application to our present situation with mesquite. One morning in October 1977, my wife, Suzanne, and I were discussing our financial situation. I was the minister of a church in the central Texas town of Weimar. We did not have a very large salary, and our expenses seemed to be exceeding our income for that month. After discussing several options which did not appear to be the needed solution, we decided we would pray together at the kitchen table. First we each prayed out loud, then began to pray silently, asking God to please show us a way to pay all our bills. As I prayed, I became annoyed by noises that seemed to interrupt my thoughts and made it difficult to concentrate on “hearing from the Lord.” Finally, in desperation, I got up and told my wife I was going to go outside and see what all the commotion was about. When I stepped out the back door to see what it was that was falling on my roof and making all the noise, I was amazed to see a virtual rainstorm of pecans. They were falling everywhere from a brisk wind that buffeted the large pecan trees in our back yard. It then struck me that those pecans were the very answer to our prayers! We got some sacks and began to pick up the noisy intruders. In a few hours we gathered several large sacks full that we sold at the local feed store for more than \$120. We had money to pay all our bills and about \$40 left over! The noteworthy lesson we learned was that we had a resource available to us all along that we had failed to see. God opened our eyes to it, and we had our needs met. I believe the present situation with mesquite is much like that. We need more jobs, economic growth, and trade. We have a bothersome thing that we have spent much effort to rid our land of, thinking of it as only an aggravation. In reality, it is a blessing and a potential source of great benefit to the people of Texas and the world.

Conservationists, environmentalists, consumer advocates, entrepreneurs, capitalists, and government agencies could work together to achieve a truly remarkable result. A result that each of these diverse groups might rightfully claim as a victory, while helping everyone involved.

For just a moment, let's pretend that this is the early 1900s. Someone comes to you and tells you about a black gooey substance that they have discovered under the ground. However, you have the great fortune to know beforehand all the benefits and potential of this substance called oil. You would

be in the position of taking advantage of one of the greatest discoveries in this century. And of course, you would immediately invest all that you could afford, even taking risks to obtain the benefits this wonderful substance would provide.

I believe that mesquite could be the “discovery” of the 21st century. We have a super abundant supply of it; it defies eradication; it has amazing stability that is superior to all other woods; it has unusual figuring, color, and hardness; and it is has an immediate, well developed by-product market. Of course, it has to be developed and refined to be properly utilized. We have the knowledge and technology to turn this “pest wood” into an economic and ecological bonanza. Just think of the chemicals that would *not* be sprayed, the millions of gallons of fuel that would *not* be expended to bulldoze, and the millions of man hours that could go from being an economic negative to producing a big positive for everyone from the farmer and rancher to the hired laborers who could be employed in the many businesses that would all benefit in creating a cleaner environment and utilizing something we already have and turning it into fine and useful products for our society and the world.

In summary, let me suggest that if we are willing direct our energy and resources in a very positive direction, we can achieve several remarkable things. We can help achieve a cleaner environment, reduce the consumption of endangered/threatened species of other woods, provide jobs for ordinary people, stimulate economic growth, and develop a new source of high protein food by utilizing a plant that defies eradication.

You can do this. We can do this. Will you do your part? Together we can!

While many of my remarks have related to our Texas mesquite, there are many of the same possibilities for other mesquite species around the world. The beneficial attributes of mesquite can provide erosion control, pasturage, food products, cooking products, and lumber products wherever mesquite grows. Several other conference speakers will cover some of these areas. Mesquite is an exciting plant that can provide many of the basic, and not so basic, needs we have in the 21st century.