



Mesquite Manifesto



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INTRODUCTION

THE RECENT ACRIMONIOUS DEBATES about further fortifying barriers all across the 2000 mile US/Mexico boundary line beg larger questions: *Just what might make communities more stable, secure and prosperous, while providing more livelihoods as well as wildlife habitat on both sides of the border? What particular natural resources and cultural assets in the region can be utilized to offer better long-term solutions to problems perceived to be border-related?*

Within the United States, southern border counties have twice the level of poverty and food insecurity as the national average. *How do we deal with the irony that some of these same counties harbor the highest levels of **biodiversity** anywhere in North America?* In other words, they have an abundance of underutilized natural resources that may help lift residents out of poverty--if properly managed. The Mesquite tree (*Prosopis* spp.) is one of those resources. **A mesquite-based restoration economy** may help keep in place those who do not wish to leave their homes, to cross the border seeking refuge in cities for lack of economic opportunity.

Disparities in income and access to resources are already triggers of social conflict and immigration issues. Such disparities clearly affect citizens in both Mexico and the United States, as well as political and climate refugees emigrating from other countries to this region. Many members of communities along both sides of the border feel they lack sufficient economic capital to resolve a range of economic and social problems. Increasingly, they also have under-utilized natural and social capital—an example being mesquite trees *and* the local knowledge and skills to utilize them economically.

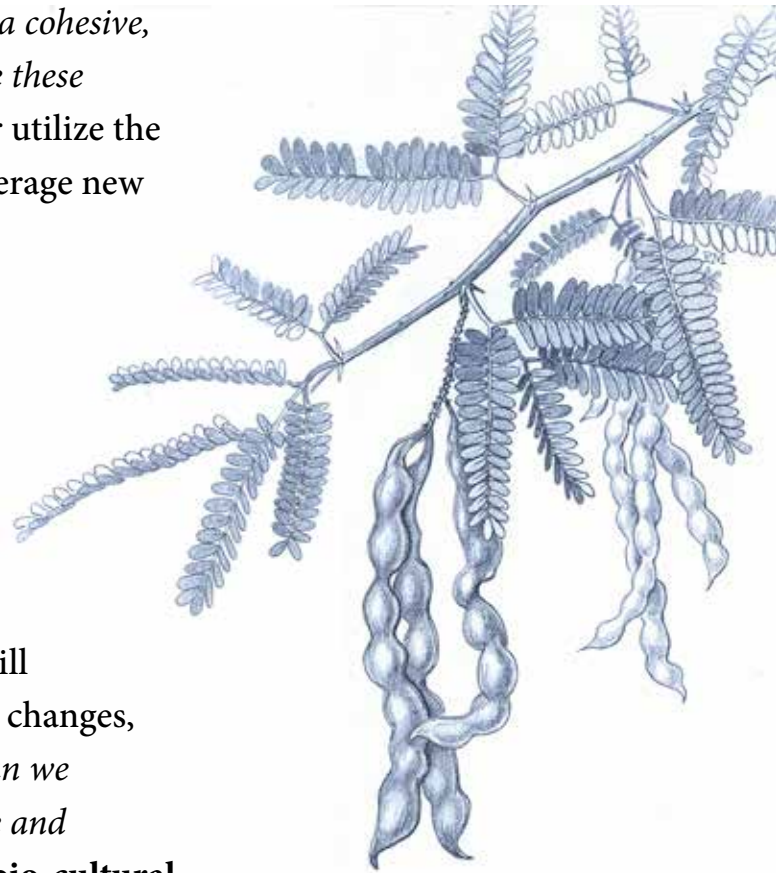
WE NEED A collaborative initiative— involving communities, Native/ indigenous tradition-bearers, governments, foundations, impact investors, and other stakeholders—that will heal our degraded landscapes, anticipate climatic changes, create new sources of food, fuel and fiber.

As global temperatures continue to rise, as groundwater levels plummet, and as rivers and reservoirs dry up, social conflicts and poverty will inevitably worsen in the US/Mexico borderlands. *How might we move toward a cohesive, bi-national plan with tangible solutions to alleviate these problems?* We feel that a concerted effort to better utilize the many **arid adaptations of mesquite** trees can leverage new solutions.

BUILDING SOLUTIONS

WE NEED A COLLABORATIVE INITIATIVE— involving communities, Native/indigenous tradition-bearers, governments, foundations, impact investors, and other stakeholders—that will heal our degraded landscapes, anticipate climatic changes, create new sources of food, fuel and fiber. *How can we do so in a manner that generates a truly restorative and sustainable economy?* Such an economy based in **bio-cultural restoration** could provide residents on both sides of the international boundary with jobs that offer them dignity, live-able wages, and safe, healthy working conditions.

Many have called for “disruptive innovations” with the potential to restore the integrity and productivity of both our landscapes and our communities in ways that heal deep historic wounds. *What innovation or technology could enhance rather than deplete the natural and cultural capital of our region?* Mesquite, together with its pollinators and its microbial allies, have served as one such “bio-technology



Velvet mesquite pods. Illustration by Paul Mirocha

system” in the region for over 8000 years, enabling production of foods and fermented beverages, sweets, shelter, medicine, fuel, tools and habitable environments. We believe that more knowledge transfer, use, and innovative management of mesquite and its many products could generate multiple revenue streams while enhancing key natural resources.

We are calling for greater investment in innovations that will move us toward managing mesquites, restoring natural bosque habitats and “nurse plant guilds.” *How could such investments help us to better utilize the borderland habitats now dominated by the several species of woody legumes in the genus Prosopis?* These investments must be focused on assisting economically-impooverished communities of indigenous and immigrant populations so that they do not become “climate or economic refugees.”

There is scientific consensus that mesquites are “under-managed” on nearly 200 million acres of arid and semi-arid lands in Mexico and the US. *Can targeted investments change that dynamic?* We believe they can, because mesquite resources could become —dollar for dollar and peso for peso—the most cost-effective natural and cultural resource investment ever made in the future of arid America.

Such an investment cannot come too soon, because our metro areas are suffering from urban heat-island effects on top of global climatic changes. *How exactly will such exacerbated heat conditions affect us?* Degraded watersheds and foodsheds surrounding those who work outdoors make our cities increasingly vulnerable to fires and floods, and make workers prone to heat stroke, heat exhaustion, thirst and lost work time.



FORECASTING TRENDS

THE BEST PREDICTIONS of what vegetation changes will occur in the borderlands over the next century suggest that mesquite woodlands might become more extensive and dense. *Does that suggest that they could also become more economically important?* Indeed they could, provided that their habitats are properly restored and managed, to increase their rates of woody growth, pod production, and carbon sequestration.

Mesquite root systems can fix nitrogen and sequester carbon more effectively than most arid-adapted trees and shrubs. In addition, the shade and forage they provide for wildlife and livestock on rangelands is significant. At the same time, they provide much-needed shade and foodstuffs for metro residents dwelling in urban heat-islands.

Many ranchers of cattle, bison, goats and sheep acknowledge that mesquite foliage and pods provide forage essential to the survival of their herds and flocks. Increasingly, ranchers are acknowledging that mesquite is their best, most reliable, most cost-efficient livestock feed on Western rangelands below 5000 feet, from April to late June. They are using “mesquite-and-perennial-grass banks” during particularly critical times when prolonged droughts make annual forages scarce. Such scarcity will become more severe and frequent with climate change.

Many stockmen are managing their ranches for wildlife as well as for livestock. *Would it be much of a stretch for them to also manage their land for mesquite honey and fuel-wood production as well?* We propose more research dollars to expand on what many ranchers are already doing.

Left: Hand-crafted mesquite crosses at Art Flores' Tumacacori Mesquite sawmill. Photo by Gary Nabhan

Most ranchers would readily welcome public investment that would help them generate multiple revenue streams, gaining more income from their mesquite resources, e.g. food, fuel, wood, hunting, hiking and birding.

REQUISITES

SUCH INTENSIVE LAND MANAGEMENT requires a stable rural labor force, one that northern Mexico and the US have largely lost since the signing of NAFTA in 1992. We need to grapple with recent changes in immigration and trade policies that have further reduced and debilitated the trans-boundary work force. For starters, we must promote training for those who wish to participate in a well-managed guest worker program that complements, rather than competes with, the working citizens already living in the region.

We advocate for an expanded guest worker program that guarantees Mexican citizens wishing to work as professionals in the US greater legal safety, health benefits, job training and upward mobility. Such programs historically focused on harvesters of agricultural crops—not on the managers, harvesters and processors of wild trees. Guest worker programs have included opportunities for ranch hands, woodcutters and artisans in rural communities.

We propose greater public and private investment in infrastructure to harvest, mill, dry, store and elaborate value-added products from both mesquite wood and edible mesquite pods. Such investments should be made





Pulque and maguey syrup producer Juan Olmedo stands with a mesquite on the rim of the Barranca de Metztitlan in Hidalgo. Photo by Gary Nabhan

principally in counties and *municipios* along the border where mesquite is abundant but other jobs have been lost. They should particularly focus on those Native American communities that have long-standing uses of, and traditional ecological knowledge of, mesquite resources.

We also propose the establishment of capacity-building centers in every watershed crossing the border. These centers could easily provide bilingual (even tri-lingual) rather than English-only training in a variety of skills related to arid lands agro-forestry and non-timber forest product development. There are many bilingual teachers and trainers who already have the capacity to mentor others in range management, ecological restoration, permaculture, hardwood craftsmanship and furniture making, honeybee management, mesquite pod milling, brewing and baking, medicine-making, and marketing.

CURRENT USES & OPPORTUNITIES

THERE IS ENORMOUS VALUE—in terms of carbon bonds and ecological sustainability—of atmospheric carbon sequestration that results from proper forest management. There is potential here for significant carbon tax credits in the borderlands region.

A \$200-400 million US dollar/year “mesquite barbecue” industry now uses trees harvested from rangelands in the US Southwest. *But is this market saturated?* The industry already provides firewood, briquettes and chunk charcoal to over 8000 barbecue restaurants and retail outlets located in all 50 American states. Actually, as other woody trees

are impacted by climate change, mesquite's proportion of the market is predicted to grow.

The retail value of custom-designed mesquite furniture, flooring, paneling, musical instruments and fencing for larger pieces of wood is many times more than that of the same wood burned as charcoal or kindling. We must train woodcutters in selecting and sustainably harvesting their mesquite for higher value markets. Straight mesquite lumber will soon be selling for \$5-10 US dollars per board-foot. Sustainable source-to-market systems should be established for the sake of habitat health as well as economic justice.

Forest management and cutting practices for mesquite wood are critical. When cut, most mesquite trees retain some re-sprouting capacity that generates multi-stemmed trees with lower-value wood. As with any other forestry resource, we need to explicitly train harvesters in the selection, coppicing and pruning practices needed to shift the industry toward prime pieces of lumber for elaboration of value-added products.

There is already expanding use of mesquite pod flour in baking, in brewing and in the elaboration of low-glycemic-index (anti-diabetic) food products. *How could we ensure that demand for mesquite flour—which is currently sold for \$22-24 US dollar/pound—continue to expand beyond niche markets on both sides of the border?* We need to better promote food safety and the unique nutritional qualities and flavors of the dozens of new foods and beverages that are trying to get a foothold in the global marketplace as so-called “super foods” or nutraceuticals. In addition, we need to be producing this important food in quantities that reduce costs, making them accessible to a far broader purchasing public.

Giant shade-producing velvet mesquite in a city park in Tucson, Arizona. Photo by Gary Nabhan



Harvesting, processing, and storage of mesquite pods remain time-intensive, potentially hazardous, and costly. *How do we encourage agricultural engineers to develop more scale-appropriate milling equipment, cold storage protocols for mesquite flour, and rapid food-safety monitoring techniques needed today?* What other natural resources could mitigate and adapt to climate changes rather than becoming devastated by them? We need to lobby the deans and department chairs of agricultural land grant universities to think of mesquite as something other than a rangeland nuisance, and to earmark funds for mesquite research and development positions in several disciplines.

Mesquite honey is already a multi-million dollar industry in most states along the border. The arrival of Africanized honeybees and the greater frequency of severe droughts have created problems for beekeepers. Over the last two decades, however, beekeepers have found ways to competently manage and tame “hybridized Africanized” bees to utilize their skills as efficient foragers and clean producers of honey. We need to revisit local laws that ban the keeping of bees in urban areas and near rural schools.

Honeybees are not the only pollinating insects attracted to mesquite flowers. Dense clusters of mesquite trees nourish as many as seventy-five species of native bees in rural desert landscapes. Especially important is the gnat-sized native bee genus *Perdita* with about 600 species in the U.S./Mexico borderlands. These, along with *Centris*, *Megachile* and other native bees and wasps, are efficient pollinators of mesquite flowers. In fact, mesquite inflorescences are a resource magnet for many insects including beetles, butterflies, wasps and flies. Thus, wider

mesquite cultivation and management can enhance this underappreciated yet much-needed pollinator diversity.

There already exist economic incentives for planting windbreaks and “pollinator-attracting” hedgerows on farms and orchards in the border-states, through both governmental agencies and philanthropic foundations. We need to help farmers and ranchers apply for such funding, and measure the return-on-investment from mesquite plantings.

Biofuels, bio-char, gums, propolis, meads, distillates, nutraceuticals and medicinal products are derived from mesquites. *How might we publicize the economic potential and sustainability of such products so they may be fully explored and valued by today’s impact investors?* We need to bring mesquite’s promise into discussion with the growing number of entrepreneurs involved in “slow money” strategies that could enhance environmental stability and solve border poverty issues while producing healthy foods for the marketplace.

Bison foraging and using honey mesquite as shade on Hugh Fitzsimons’ Shape Ranch in south Texas not far from Carrizo Springs. Photo by Gary Nabhan.



CONCLUSIONS

There are many economic uses and intangible values provided by mesquite and the habitats they help to shape. We therefore urge regional planners, natural resource agencies and investors to assess comprehensively the societal value of the many “ecosystem services” that mesquite habitats provide.

Mesquite’s natural services to humanity include wildlife habitat for beneficial insects, birds and bats involved in pollination and pest control; flood control; heat amelioration in urban settings; air cleansing, oxygen production, carbon sequestration; soil enrichment; recreational pursuits such as bird-watching, and the hunting of game-birds like quail and doves.

It is time to make significant investments in holistically managing, conserving, restoring or reconfiguring extensive corridors of mesquite habitats. The level of investment should become commensurate with the overall economic value of mesquite. Economic and environmental benefits could accrue well beyond face values of mesquite production itself.

We call for an **All-Border-States Congress on Mesquite** to reach consensus on a shared vision and action plan to lay out the next steps for re-valuing mesquites and their habitats, with the goal of establishing in the US/Mexico borderlands a just and environmentally rich **Mesquite-based Restoration Economy**.

Right: *Velvet mesquite pods in Tohono O’odham basket. Photo by M. A. Burgess*

Back cover: *Circular stairway of giant hand-hewn velvet mesquite logs in Spanish mission in Ures, central Sonora. Photo by Gary Nabhan*



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