

# ARIDUS

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## Arizona Mesquite Company

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The Arizona Mesquite Company was founded in 2005, in Bouse, Arizona. The property was purchased with the intent to grow native plants and trees. Mesquite trees grew naturally on our property. After extensive research we learned about the many uses of these native trees including flour from the pods, firewood and even beautifully finished furniture. The more we learned about this tree, the more eager we became to try our hands at growing our own. Initially we ran into many roadblocks. There were no working mesquite nurseries to guide us and no blueprints to build on. Our ideas came from trial and error but we are now seeing healthy beautiful mesquites growing on our property.

This tree belongs here in the desert and has shown us all of its treasures. In the late 80's I was a farm manager for the largest jojoba company in the world. The jojoba industry has had a tough time but is finally holding its own and making a profit for those who persevered. We had hoped to plant jojoba, but the low freezing temperatures eliminated this crop as

an option. We began the search for some alternative low water, zero chemical, and sustainable indigenous desert crop. For the past 13 years we have been involved with the landscape nursery industry and are actively growing native desert trees for this industry. At our nursery we are growing several indigenous species such as ironwood, palo verde, desert willow, and both south American and Arizona native mesquite. We sell at sizes ranging from 5 gal all the way up to 72 inch field boxed trees. As we sat down and started looking for some alternate crop to replace the jojoba we wondered if there was any potential

to utilize what we were currently growing. I remembered that when we were clearing the land we had to remove some very old stands of mesquite that had to be several hundred years old. They had declined to a point where they no longer produced seed and were barely surviving. As we cleared these trees I unearthed several manos and matates, stones used by the Indians to grind mesquite pods into flour; these stones remain on the property. Well I guess I had a moment of clarity; it was then that I knew what we would grow. The process involved research, land development and construction of additional ger-



Large boxed mesquite at the nursery

mination and grow out facilities for mesquite. Our first planting was in the spring of 2007. We planted 200 5gal (*Prosopis glandulosa*) honey mesquite, we learned quickly that even large trees must be screened or fenced because the jack rabbits did an incredible job of pruning (unfortunately they have little arborist training). We lost 40 percent by the end of summer, which we have since replanted. Our second planting in 2008 was 200 more and we currently have 300 ready for our 2009 planting. We have an additional 800 slip size growing in the germination room for 2010 planting. Our trees are currently growing in the field but we do not project our first substantial harvest until 2012.

In order to develop the food flour side of the farm we needed to supplement our tree pod production until our own trees production increased. In 2004-2005 I worked with the Ahakave Tribal Preserve on a project to rejuvenate and replant the native bosques (Spanish word for mesquite forest). There are only a few remaining

such forests in Arizona. The tribes do not allow any harvesting of seed from the bosques. We approached the National Parks Service who manages numerous parks located on the Colorado River which encompasses several bosques. The pods were considered a nuisance and they were happy to let me have them. In the summer of 2008 we raked and loaded 5000 lbs of pods and saved them from certain compost.

The pods were then cleaned hand sorted, washed and set in the sun to dry. From my research I had learned that there are basically two processing methods. One method is for meal and the second is for flour. Meal is produced by a machine called a hammer mill. A series of hammer type arms grind the pods up into a meal, grinding only the outer portion of the pod and leaving the inner pod and seed unused. This portion contains the highest amounts of fiber and protein and can later be fed to livestock. The other processing method involves the use of a ball mill. This machine uses a series of

steel balls to grind up the pods creating true flour. 100 percent of the pod is utilized in this much slower process. We decided to utilize a ball mill and I talked to my indigenous pruners the jack rabbits but they knew of no such ball mill, I found my answer at the local pub in the unlikely local mining legend by the name of Bob Mane. For the price of 20 bales of slightly molded hay to be feed to some young cattle who don't mind the mold, he would trade me one genuine well used ball mill. Well, with several thousand dollars invested for new liners, new balls, motors, panels, etc. we produced our first mesquite flour which we happily offered for sale to the public.

The mesquite is truly an incredible tree. Not only does it provide us with food and shade, its lumber is sought the world over by fine woodworking craftsmen. Not only are we growing these trees for food but we are also growing some for lumber. I am pruning selected trees to grow in a straight upright direction to ultimately cut down and mill into lumber. I estimate that our first lumber will be ready for market in 4 years.

This one species can be sold to the landscape industry, provide us with a natural healthy food, turned into beautiful furniture, provide shade for our gardens from the intense summer sun and lastly provide a nice home and abundant flowers for the local bee population. We can then harvest and sell some healthy and high quality honey. We have learned so much over the past 5 years and have much more to discover. We have an opportunity to give something back to our society, something we lost a long time ago, the wonder and magic of the mesquite.



Matate and mano for grinding mesquite pods



Ball mill for processing pods



Arizona Mesquite Company field



## Species of Interest

### *Prosopis reptans* - Dwarf screwbean

**Matthew B. Johnson**  
Desert Legume Program

*Prosopis reptans* Bentham, in the mimosoid group of the Legume Family, is placed in Section Strombocarpa (Burkart 1976), one of five sections in the genus *Prosopis*. Taxa in this section are distinguished from others in the genus by the presence of stipular spines. Two varieties are generally recognized, with var. *reptans* occurring in Argentina and Peru, and var. *cinerascens* (A. Gray) Burkart occurring in the U.S. and Mexico. Common names used in Argentina for var. *reptans* are mastuerzo and retortuño (Burkart 1976). Variety *cinerascens* is called dwarf screwbean or tornillo. The common names refer to the distinctive coiled fruits.

*Prosopis reptans* grows as a subshrub to 45 cm (ca. 1.5') high or rarely higher when growing among taller vegetation that provides support for the stems. It spreads by underground roots and frequently forms dense, low, spiny thickets. The slender stems have paired, white spines at each node. The small leaves, with 1 pair of pinnae, may be smooth or finely pubescent. There are up to 13 pairs of leaflets per pinna. Flowers are produced in yellow, rounded inflorescences during the warm months. The pods are tightly coiled, to ca. 35 mm long, and may occur singly or in small clusters. They turn bright yellow

as they ripen and eventually fade to brown. Aside from widely separated geographic distributions, var. *cinerascens* is distinguished from var. *reptans* by its generally more pubescent herbage, slightly larger leaflets, and pods with fewer spirals (Burkart 1976).

Variety *reptans* is of sporadic distribution in areas of the Gran Chaco region of north central Argentina. It is also known from at least one population in Peru. The plants may occur in the understory of woodlands as well as in open, saline habitats. Variety *cinerascens* is found in areas of southern Texas and northeastern Mexico, where it favors saline soils at low elevations. This variety is particularly abundant in areas near the mouth of the Rio Grande, and often occurs with halophytic vegetation on the landward side of the coastal dunes.

*Prosopis reptans* might have limited use for revegetation on saline soils. The pods are eaten by wildlife. Though interesting for its diminutive size, flowers, and attractive pods, the tendency to spread widely and form thickets limits the horticultural use of dwarf screwbean. The nominate variety is restricted under the U.S. Federal Noxious Weed Act, and several states in the U.S. have classified var. *cinerascens* as a prohibited/noxious weed. Plants of var. *cinerascens* are easily grown from

scarified seeds and have survived overnight temperatures of -9° C (15° F) under cultivation in Tucson. Control of the numerous stems that arise from the roots, which are especially abundant where irrigation is available, is difficult.

#### Selected References

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Correll D.S. and M.C. Johnston. 1970. Manual of the vascular plants of Texas. Texas Research Foundation, Renner.

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# Staff and Volunteers in Action

## A Garden Grown by Volunteers, 17 Years Later

I took my annual “spring” trip to our Yuma field nursery during the last days of winter. What I observed in the plants there, was a nice contrast to that view in the record cold winter of 2007. The winters of 2008 and 2009 were warmer, and plants that appeared to have sustained any frost damage previously looked very good. Many trees were budding and some were already flowering. Only a few plants appear to have been injured by freezes of previous winters. A nice bonus this year was that I collected pods from specimens that have not previously fruited, to our knowledge. It is rewarding to add new “D” type collections to our seed bank, with hopes that these collections will grow as the parent specimens continue to flourish. A total of eight collections were made. No new plants were added to those fields during this trip but I made additional photographs of many plants.

None of our Yuma volunteers were available to help during this trip, but that was “a first” since my earliest work, there (March 4, 1992). Volunteers have logged 1100 hours in our Yuma fields, during those 17 years. This total does not include hours that volunteers have spent propagating plants for that field or time spent processing seeds collected there.

Collecting seeds in the Yuma fields has become the job that increasingly requires more time, during successive trips to Yuma. The specimens in those

fields have been remarkably successful, and *Caesalpinia cacalaco* is a good example of that. As time passes, it is becoming apparent that the climate there is less suited for some species. Plants which have slower growth habits are being overshadowed by faster growing plants in regard to competition for available resources in the field. Strongly performing trees like *Acacia sieberiana* and *Faidherbia albida* can be seen towering above the field from several miles away.

We would like volunteers from the Yuma area to help us with projects such as monitoring and photographing flowering. We also need assistance collecting ripe pods. If you think you can help us, please contact me by telephone or email.

As years pass our group gains and loses volunteers. We are saddened by the loss of William Bearly, one of our first volunteers, earlier this year. An enthusiastic participant in our first seed collections and propagations, Bill also served as our field manager during the early 1990’s. He was active in the planting of our Tucson fields as well as the early plantings at DELEP’s Yuma fields. Bill and his wife Evelyn have been dedicated workers at our monthly volunteer sessions during the past twenty years. We extend our thanks and condolences to the Bearly family during this difficult time.

The last Spring 2009 volunteer session will be on Wednesday, May 13<sup>th</sup>. Tentative fall 2009 sessions are September 9, October 14, November 11, and December 9.



Spring growth on *Acacia polyacantha* in Delep’s Yuma field. (KC)

## Note from the Director



**Mark Siegwarth**  
**Director**

I have been the Director just over six months now and the thing I love most about my new position is I learn something new every day. Actually, I learn quite a bit every day. At the Boyce Thompson Arboretum, we opened two new areas this month; the Australian Aboriginal Seep and the Australian Pavilion/Ethno-botanical Garden. I am not an authority yet, but I have picked up quite a bit of knowledge about these two subjects over the last few months. At the dedications, people were amazed at how much the Arboretum has accomplished. My response has been that we have been doing so much with so little for so long, with just a little help, we were able to do great things this year.

In reviewing the August 2008 issue of *Aridus*, I was struck by the fact that DELEP has also accomplished so much over the

last 20 years with very little. In addition, the last issue, with write ups on *Acacia papyrocarpa* and *Acacia victoriae*, is a great resource for those who will visit these new areas at the Arboretum. I wish I had reviewed that issue prior to leading some tours on the day of the dedication.

Maybe it is because I am so new to the programs, but I think *Aridus* and DELEP are doing some exciting things. For me at least, each issue of *Aridus* more than fills my daily quota of learning something new. In addition, much like Colonel Thompson, I believe what I am learning is important, not only for myself but for our society as a whole.

I encourage you to place your confidence and support in us and see what we can accomplish over the next year. With just a little support, I think we can amaze you with what we are capable of accomplishing.

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*Caesalpinia cacalaco* pods, ripening on plants in Delep's Yuma fields. (KC)

Tree  
Logo  
Here

## Opportunities for Participation

DELEP's bulletin *Aridus*, is published three times annually to stimulate interest in desert legumes, to inform our readers of DELEP's activities, and to encourage support for DELEP's programs. Manuscripts related to legumes are welcome and should be mailed to the editor for review. Subscriptions are complimentary and are available by contacting the DELEP office. *Aridus* is published by The University of Arizona on behalf of The Desert Legume Program.

Financial support for DELEP is provided by private industries, government agencies and individuals through contracts, grants, and contributions. Dedicated volunteer work is an integral component of DELEP. Our volunteers have many different backgrounds and work on various projects including wild seed collecting, seed processing, special events and office tasks. DELEP volunteers meet once a month. To volunteer call (520) 647-2460 or email [kcopola@ab.arizona.edu](mailto:kcopola@ab.arizona.edu)

To Contribute:

Call to discuss a pledge, restricted gift or estate planning

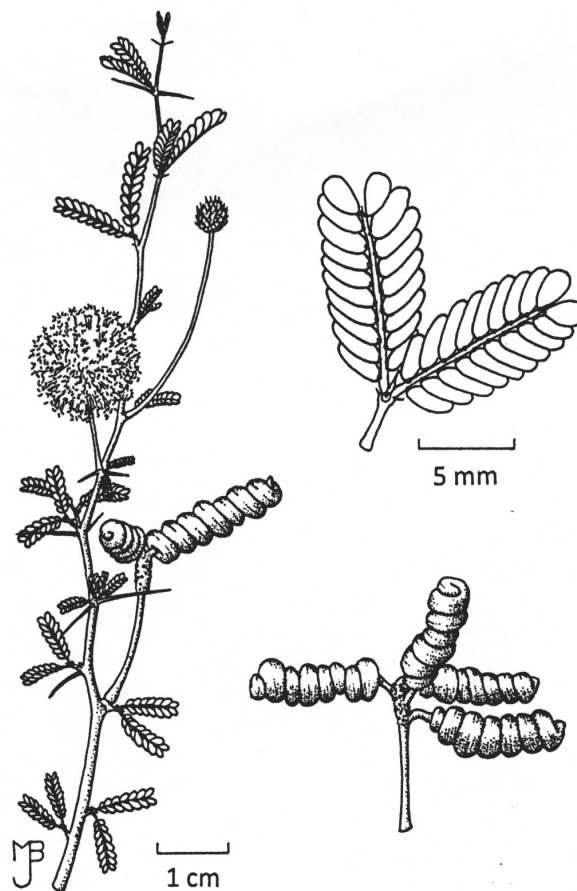
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*Prosopis reptans* var. *cinerascens* - Dwarf screwbean (MB Johnson)