



New Mexico Dye Plants
 Casa San Ysidro: Gutierrez / Minge House
[973 Old Church Road, Corrales, NM 87048](https://www.casasanysidro.com/973-Old-Church-Road-Corrales-NM-87048)

June 12th, 2021
 1:00 - 3:00 P.M.

Virtual 2nd Saturday: New Mexico Dye Plants

Event Order

Event: New Mexico Dye Plants

Date: Saturday, 6/12/2021

Contacts: Cameron Weber

Site Manager: Aaron Gardner

Phone / Email: agardner@cabq.gov

Zoom Link: <https://us02web.zoom.us/j/83285777166>

Event Type: Virtual 2nd Saturday

Time: 1:00 - 3:00 P.M.

Email: cameron@riograndereturn.com

Guests: Registration

Rental: No

Partners

Cameron Weber, Conservation Director at Rio Grande Return

Myra Chang Thompson, Textile Artist and Educator



Event Summary

For centuries, people have culturally used native plant dyes to decorate fabrics, crafts, hair, and more. In New Mexico, Native American and Spanish weavers have used native plants to dye wool with an array of colors to create one of a kind textiles and clothing. A traditional weaver's expertise not only required the skill and dexterity necessary to create intricate designs and patterns but also the knowledge of where to find plants that yielded desired colors.

Join us June 12th as Rio Grande Return Conservation Director, Cameron Weber and textile artist, Myra Chang Thompson, describe native dye plants, their uses, and the local practices that people have used in New Mexico for generations.

In the effort to restore native plant species to New Mexico, Rio Grande Return has partnered with Casa San Ysidro to grow indigenous dye plants. Rio Grande Return is a non-profit organization that provides protection and support to New Mexico's rivers, streams, springs and the habitats they sustain. Their partnership with Casa San Ysidro entails utilizing the museum's historic agricultural field to grow a variety of native plant species for habitat restoration along the Rio Grande.

Free

1:00 – 3:00 PM

Schedule

1:00 Lecture

1:30 Demonstrations

3:00 Q & A



New Mexico Dye Plants



Myra Chang Thompson

Myra Chang Thompson received a B.A. and M.A. in Special Education from the University of Northern Colorado. Her post graduate studies include a Certificate in Educational Technology from the University of California, Davis and a Certificate of Advanced Graduate Studies in Special Education from Lesley University in Cambridge, Massachusetts. Myra taught in public schools around the country serving a range of students from preschool to graduate students. Myra has been a hand weaver for 45 years studying on both coasts from many experts in the field.

Myra is a descendant of the original Spanish Colonial settlers who settled in northern New Mexico. She has had a great interest in traditional Spanish Colonial textiles and all of the processes that constitute textiles. Myra is a textile artist and teacher who maintain a working studio in Belen, New Mexico. Myra offers classes in all forms of hand weaving, dyeing-both natural and fiber reactive dyes and in kumihimo, an ancient form of Japanese braiding. Her work is in collections around the country. Myra teaches at local, regional and international weaving conferences. She is a member of Handweavers Guild of America, Las Arañas Spinners and Weavers Guild and president of Fiber to Finish Fiber Arts Guild in Valencia County.



Cameron Weber

Cameron Weber holds a B.A in philosophy from Texas A&M University and a Master of Community and Regional Planning from the University of New Mexico where she focused her thesis research on the use of long term ecological monitoring data for Middle Rio Grande bosque restoration planning and evaluation. Following an early career in organic farm and nursery management, Cameron has remained focused on work that reconnects human and natural systems. As Conservation Director for Rio Grande Return, she draws on her experience as a project manager for a watershed restoration firm, as a program coordinator for a nonprofit dedicated to native plant conservation, and as a consultant specializing in species conservation. Cameron serves on the boards of the Albuquerque Wildlife Federation and the Southwest Chapter of the Society for Ecological Restoration.



New Mexico Dye Plants



Rio Grande Return

Rio Grande Return is a 501(c)3 non-profit organization that was started in 2007 to help protect New Mexico's rivers, streams, springs, seeps, and the unique habitats and diverse wildlife they support. Our mission is based upon the recognition that our rivers and springs are not only necessary, but that they are sacred – the life-source upon which all human and biotic communities depend. This sensibility is recognized by the Puebloan people whose stewardship of these waters, in all their various cycles and meandering forms, is cultivated as a relationship with Avanyu, the Puebloan life-giving spirit of water. Rio Grande Return joins in this spirit of stewardship. We are committed to better understanding, and to actively working to protect and restore our watersheds, waters, and the native plants and wildlife that have evolved over millions of years in relationship to the sacred waters of the arid Southwest.



Handout #1 Scouring Fibers

Scouring – Scouring is to clean fibers prior to mordanting and dyeing. It does not refer to “machine washing.”

To scour **wool** follow the following instructions:

- Use a pH neutral detergent such as Eucalan, unscented laundry detergent (Tide, Orvus paste) to scour fiber or fabric. Wet the materials thoroughly using tap water.
- Amount of detergent is determined by:
 - for raw wool use 1 to 3 % of the Weight of the Goods (WOG fiber, yarn or fabric)
 - for commercially prepared wool use 0.5 to 1% (up to 1 gm detergent for 100 gm of fiber, yarn or .) exceptionally greasy/dirty use up to 5% of WOG
- Mix detergent with 1 c. boiling hot water. Add to a large pot of room temperature water. Place the pot on a heat source. Still well to dissolve detergent. Add fiber.
- Slowly raise the temperature to 180 degrees F. Rotate the fiber gently to avoid felting. Hold at 180 degrees for 30 minutes.
- Remove fiber and rinse in hot water to avoid a temperature shift. Rinse twice if scouring water is dark or dirty repeat the scouring bath.
- Gently squeeze excess water out using rubber gloves—it’s hot! Proceed to mordanting.

To scour **cellulose (plant) fibers** follow the following instructions:

- Calculate amount of scour needed. 1 to 2 % of Weight of Goods or $\frac{1}{4}$ to $\frac{1}{2}$ teaspoon Soda Ash for 100 grams or 4 ounces of fiber. For dirty, unbleached or greasy fiber use 2% of WOG.
- Wet out Soda Ash in a little cold water and add to a small amount of hot water to dissolve.
- Fill a large pot with room temperature water so that the fiber can move around easily. Place on a heat source and add Soda Ash mixture. Stir until dissolved.
- Slowly bring the pot to 180 degrees F and hold for 30 minutes.
- Carefully remove fibers from the HOT pot. Rinse in cool water, squeeze out excess water.
- Proceed to mordanting. IF fibers are still dirty, repeat the scouring process.



Handout #2 Mordanting for cellulose (plant) fibers

Mordanting is important in getting fibers ready to accept color. Mordants ensure that your fiber will have more durable and longer lasting color.

- Recommended mordant is Aluminum Acetate in a range of 5 to 18% WOG (weight of goods),
- Wheat bran is recommended to neutralize the goods in 5% of WOG (or 1 rounded teaspoon per 4 oz/100 gm. Encase in cheesecloth or a nylon stocking and secure.

To mordant cellulose fibers use a mask when mixing aluminum acetate:

- Wet out aluminum acetate in a small amount of cool water. Dissolve this in boiling hot water in a small pot or vessel
- Fill a dye pot with HOT tap water. Add the aluminum acetate mixture to the pot and stir to dissolve. Place on heat source.
- Add fiber to pot and press out air bubbles (if using cold tap water heat to 110 degrees)

- Rotate fiber occasionally and hold at temperature for 45 minutes.
- Remove fiber from pot. Squeeze out excess water. Do not rinse.

- Place wheat bran in a cheesecloth or nylon stocking, secure. Soak bran in a container with HOT water. The mixture will be milky looking. Solution lasts for 1 to 3 days.
- Fill a bucket or pot with HOT tap water. Add the bran bundle and bran solution. Squeeze the bundle to extract more bran.

- Place mordanted fiber in bran solution for 30 minutes. Stir occasionally. Remove from bran solution and squeeze out excess solution.
- Do not rinse! Fibers are ready to dye.



Handout #3 Mordanting Wool and Animal Fibers Using Aluminum Sulfate and Cream of Tartar

Mordanting is important in getting fibers ready to accept color. Mordants ensure that your fiber will have more durable and longer lasting color. Cream of tartar helps the alum to bond with the wool and keeps the wool fibers soft.

Aluminum Sulfate will be use at 12% to 20% WOG or 1 $\frac{1}{4}$ teaspoon per 100 gm/4 oz. 1 Tablespoon per 100 gm/4 oz. Deepens shades especially reds. When used together, the chemicals brighten many colors. Cream of tartar will be used at 6% WOG or 1 $\frac{1}{4}$ teaspoons per 100gr/4 oz.

- Wear a dust mask, gloves and apron as Aluminum Sulfate is considered non-toxic but may irritate nose, throat or skin.
- Pour Aluminum Sulfate into a container, add 1 cup of hot water. Stir until dissolved. Dissolve Cream of Tartar separate in the same fashion.
- Fill dye pot with tap water at room temperature and place on a heat source.
- Add dissolved Aluminum Sulfate and Cream of Tartar. Stir well.
- Add fiber to pot. Rotate gently and press out air bubbles. Slowly bring the temperature up to 180 degrees and hold for 45 minutes. Stir occasionally.
- Allow to cool briefly and remove from pot. (You may leave overnight to cool.) Remove excess moisture. Proceed to dyeing.

NOTE: Mordant can be reused two times. After that, you can add 25% Aluminum Sulfate and 1 teaspoon/100 gm of Cream of tartar to recharge the mordant bath.

Discard the mordant when it becomes cloudy or when large flakes appear. Mordanted fibers (both cellulose and protein) may be stored for 3 to 5 days in a sealed plastic bag; this may result in deeper color results but it is also apt to mold.

Air dry mordanted fibers, (both cellulose and protein), label and store for future use.

Mordanted protein fibers hold their mordant for 5+ years.

Botanicalcolors.com



Handout #4 Creating a Dye bath from Flowers (fresh or dried) or dyestuff

This applies to Cota, cottonwood catkins, chamisa, holly hocks, madder roots, walnut husks, and pomegranate skins as well.

Amounts: for fresh flowers: 100% weight of goods (WOG) for dried flowers 20 to 100% WOG. More dye material will result in darker colors.

- Weigh the dye plants as a percentage of the dry weight of the items to be dyed.
- Put flowers or plant material in a pot with tap water to cover. Place on a burner. Slowly bring to 160 degrees F and hold for 30 to 45 minutes.
- Strain dyestuff with a strainer. Reserve dye and dyestuff.
- Repeat the cooking process to get as much color from the dyestuff. The extraction is complete when the dye stuff stop giving off color. Combine all extracted baths.
- The extracted dyestuff may be dried to use for eco dyeing or composted
- Place a clean dye pot on a heat source. Add the entire dye bath and any additional water needed for the fiber to move easily in the pot. Add fiber or fabric
- Bring the dye bath gradually to 160 degrees F for 30 to 45 minutes. Do not boil.
- Cool in the dye bath overnight for a deeper shade of color.
- Remove fiber/fabric from dye bath. Rinse one or two times and air dry away from direct light. Wash gently in a neutral liquid soap and dry away from direct light.



Handout #5 Creating a Walnut Dye Bath

Walnut powder creates shades from silvery beige to a near black. An aluminum sulfate mordant will yield a more golden tone to dyed fiber.

Amount: For the darkest shades use 100% Weight of Goods (WOG) for medium shades use 50% WOG and for lighter shades use 10 to 40% WOG.

- Cover walnut powder with water in a stockpot. Simmer for 2 hours. Add more water if needed and stir occasionally.
- Carefully pour off brown liquid using a fine strainer. This is your dye bath,
- Save the walnut grounds as they may be used several times.
- In a larger depot, add enough water to the dye bath to allow fiber/fabric to move easily in the depot. Stir to mix thoroughly,
- Add the fibers to the cold depot. Place on a heat source. Slowly heat the pot to 90 degrees F. Rotate the fiber gently and hold for 30 to 45 minutes. Poke fibers down into the dye bath with a wooden rod or spoon.
- Remove the fiber/fabric from the dye bath. Rinse in water of the same temperature as the dye bath one or two times. Hang to dry out of direct sunlight.
- Wash gently in a neutral liquid soap, hang to dry away from direct sunlight.



Handout #6 Creating a Cochineal Dye bath

Cochineal insects are the basis of this truly remarkable dye. It is the only natural red color approved by the FDA for use in cosmetics and food. When dyeing with cochineal, protein fibers mordanted with aluminum sulfate alone create reddish purple shades, and protein fibers mordanted with alum and cream of tartar yield fuchsia to red shades. After your initial dye bath, there is still color left so don't throw it out. It is helpful to have small bundles of mordanted fiber, yarn or cloth to add to this dye bath which will be a lighter shade. The addition of a tiny amount of iron will shift the dye to purple!!

Amount: For a dark shade use (3 to 5 Tablespoons whole raw insects) 6 to 10% of WOG with $\frac{1}{2}$ teaspoon Cream of Tartar, for a medium shade use (1-2 Tablespoons whole raw insects) 3 to 5% of WOG with $\frac{1}{4}$ teaspoon Cream of Tartar and for light shades use (1 - 2 teaspoons of whole raw insects) 1 to 2% WOG with $\frac{1}{8}$ teaspoon Cream of Tartar

- To extract the dye: measure the insects and grind in a coffee grinder or mortar and pestle to a fine powder.
- Place the ground cochineal powder with $\frac{1}{2}$ to 1 quart of distilled water in a stainless steel or enamel saucepan. Place on burner.
- Bring to a boil and add Cream of Tartar and boil for 10 to 15 minutes.
- Using a cheesecloth and strainer, strain the dye solution into a non-reactive bucket and reserve the bug pulp.
- Place the pulp in the saucepan with fresh water and repeat the cooking and straining steps. Repeat the cooking and straining steps until little color is yielded from the dye bath. Usually about 3 to 4 extractions.
- The bright red liquid is your dye bath. Pour into a pot and proceed to dyeing.
- Put adequate water in the dye pot so the fibers/fabric will move easily. Add dye bath and mix well. Add the mordanted material to the cold depot and begin heating to 90 degrees. Hold at this temperature for 30 minutes, then gradually raise the temperature to 180 degrees rotating the material. Hold this temperature for 30 to 45 minutes. Rinse and dry away from direct light. Wash with neutral soap, rinse and hang to dry out of the sunlight.



Handout #7 Creating an Indigo dye bath

Creating an indigo dyebath is an art and science. We are using an indigo dye pot that has been loaned to us for this occasion. The detailed description of creating an indigo dye pot is best found in Chapter 6 of [The Art and Science of Natural Dyes Principles, Experiments and Results](#) by Joy Boutrup and Catharine Ellis. It was published in 2018 by Schiffer Publishing Company in Atglen, Pennsylvania.

Additional information on creating an Indigo dye bath may be found at botanicalcolors.com



Handout #7 Creating an Indigo dye bath

Indigo is one of the oldest dyes used for coloring fabrics and fibers. Indigo dye comes from a plant. The dye is made from the leaves of the plant through a process of fermentation. Indigo is typically grown in subtropical climates all over the world including the southern United States. Indigo is the dye used to color jeans blue.

Dyeing with indigo is vastly different than other dyes. In its natural state, it is insoluble in water. It must go through a process of "reduction" and put into a liquid state with the oxygen removed. In the "reduced" state the indigo dye liquid is a yellow-green color and will be able to penetrate the fibers of the fabric. When the fabric or fiber is removed from the dye vat, it is initially the same yellow-green color, however, it begins to turn blue as the oxygen in the air reacts to the indigo. So as the indigo oxidizes it is trapped within the fibers and makes the dye permanent. Too much dye, inadequately trapped in the fibers or fabric causes "crocking," the rubbing off of the blue dyestuff.

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Colours from Nature, A Dyer's Handbook by Jenny Dean. It was published in 2009 by Search Press, Tunbridge Wells, Kent UK.

Additional information on creating an Indigo dye bath may be found at botanicalcolors.com



Handout #8 Materials needed

NOTE: Label each item as a “dyeing utensil or tool” and never use the same equipment for cooking or for preparing food.

- At least 2 pots with lids, able to hold at least 3 to 4 gallons of liquid. One pot should be designated the mordant pot. Stainless steel or glass is best but enameled or aluminum pots will also work.
- 3 or 4 smaller saucepans with lids. Stainless steel and/or glass are preferred
- Several plastic bowls or buckets some with lids for soaking dyestuffs and fibers, for rinsing and storing liquids. A large lidded bucket for dyes that don't require heating. Large glass jars and plastic containers with lids for storing liquids,
- Stainless steel tongs, long handled spoons, plastic or wooden rods for stirring and to remove goods from the dye pot.

- Heatproof glass measuring cup with metric measurements.
- A set of measuring spoons.

- Digital weighting scales which can be calibrated in grams.
- A fine mesh strainer for straining off fine dyestuffs.

- Muslin, cheesecloth or coffee filter paper to strain off very fine dyes in powder form.
- A large plastic strainer or colander for straining off other dyestuff that will allow your hands to be free.

- A digital thermometer is helpful in determining the temperature of the liquids.
 - Rubber gloves.
 - Oven gloves or hot pads
 - Dust mask
- A heat source that can easily change temperatures.
- Water source
- PH papers to check pH values of water and dye baths.

- Cleaning materials
- Waterproof labels and marking pen for identifying mordants
- Cotton or linen yarn or cloth strips to use for skein ties. Not wool as they may disintegrate in hot alkaline solutions.



Freshly picked cottonwood catkins harvested in the Rio Grande Bosque in Los Lunas. This is approximately 1 pound and 13 ounces. Add water and crush to release plant juices.

#1



Cottonwood catkins after simmering for an hour.
The dye bath is in the enamel pot below the strainer.



Cottonwood catkin dye bath with aluminum sulfate mordant added. Three baches of dyeing handspun wool yarn were cooked.

#3



Yarn in dye bath for 45 minutes at a simmer. Yarn will be rinsed, dried and then washed with a mild Soap.

#4



Three successive dyes for increasingly longer periods of time in the same dye bath. The skein on the far right was dyed first, the middle skein was dyed second and the far left skein was dyed last. The dye bath created a range of colors as the dye bath exhausted. #5



Colors

Dyed colors top right indigo, walnut, madder, hollyhock, cottonwood catkins, chamisa



Shades of Chamisa

Shades of Chamisa Heavy rug wool and fine knitting wool (local Cormo), background historic replica of Jerga woven in Churro wool with chamisa dyed yellow.



Shades of Indigo

Shades of Indigo all samples are dyed with indigo background Shibori dyed rayon cloth, right top silk, mercerized cotton, next left, Churro wool top left linen single and wool single. The depth of color varies due to strength of dye, length of time it is submerged and the type of fiber.



New Mexico Dye Plants



Zoom Link

Albuquerque Museum is inviting you to a scheduled Zoom meeting.

Topic: 2nd Saturday - New Mexico Dye Plants

Time: Jun 12, 2021 01:00 PM Mountain Time (US and Canada)

Join Zoom Meeting

<https://us02web.zoom.us/j/83285777166>

Meeting ID: 832 8577 7166

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