SEAHORSE POINT

A NATURAL-DYE GUIDE & GROUP ACTIVITY

Colours of Seahorse Point

Four plants, four colours — dyeing with the living palette of the reserve, from the mango by the lab to the jagua in the food forest.

Isla Bastimentos · Bocas del Toro · Panama | Seahorse Point botanical collection, 2026

WELCOME

A rainbow that grows here

Almost every colour a small group could want to dye with is already growing at Seahorse Point. This little guide gathers four of them — a soft yellow, a bright gold, an earthy brown and a deep blue — and shows how to turn leaf, bark, rhizome and fruit into colour on cloth.

It is written for a hands-on session with a small group: children, students or visitors. Each plant has a page of its own with where to find it on the reserve, the chemistry of why it gives the colour it does, the best mordants to fix it, and a simple step-by-step activity. At the back you'll find a map of where every plant grows and a one-glance table to help you plan a session.

Why dye with what grows here?

Natural dyeing is a doorway into botany, chemistry and culture at once. A pot of mango leaves is a lesson in tannins; a painted line of jagua is a lesson in oxidation you can watch happen; a handful of annatto seeds is the same pigment that colours the food on your plate. And every colour ties a visitor back to a living plant they can then go and find on the walk.

A note of respect

Much of this plant knowledge is held by the Ngäbe-Buglé people of this region, who have used jagua, annatto and other plants for colour and medicine for generations. We share it here with gratitude and credit, for teaching and appreciation — not commerce.

BEFORE YOU BEGIN

Dyeing basics, mordants & safety

Two kinds of cloth

Protein fibres — wool and silk — grab natural colour readily. **Cellulose fibres** — cotton and linen — are more reluctant and need a little help to hold colour. Most of the plants here work on both, but cotton usually wants preparing first.

Mordants — the "bite" that fixes colour

A mordant (from Latin *mordere*, to bite) helps dye bond to fibre and can shift its colour:

- **Tannin** — from the plants themselves (mango, mangrove). Gives tans and browns, and helps cotton grab colour. A natural, gentle mordant.
- **Alum** (potassium aluminium sulphate) — the everyday mordant; brightens and fixes; relatively safe to handle.
- **Iron** (a rusty-nail "iron water": rusty nails + vinegar + water, left a week) — "saddens" colours to greys, olives and near-black. A tiny amount does a lot; too much weakens cloth.

Soy milk — the gentle binder (great for groups)

Soy milk isn't a true mordant but a **protein binder**: it coats cotton with plant protein so it behaves more like silk and holds colour far better. It is food-safe and child-friendly — ideal for a class.

1. Soak a cup of dried soybeans overnight; blend with ~1.5 L water.
2. Strain through a cloth or nut-milk bag; dilute with an equal amount of water.
3. Soak clean fabric 15–30 min, wring gently, hang to dry (don't rinse).
4. Repeat 2–3 times for a stronger bond.
5. Let it **cure** — rest the dry cloth a week if you can — then dye.

Safety & care. An adult minds the hot pots. Wear gloves. Keep any pot used with iron or alum for dyeing only, not for food. Work in a ventilated spot. And note: **jagua stains skin** a blue-black that lasts about two weeks — a fun temporary "tattoo," but warn everyone first.

PLANT ONE · A SOFT YELLOW

Mango

Anacardiaceae

Mangifera indica · Anacardiaceae

Where at Seahorse Point: Two great heritage trees — one by the Laboratorio (accession 2026-0191), one at the north dock beside the yellow house (2026-0192).



One of the two heritage mangos — leaves and windfall give the dye.

The colour & its chemistry

Mango leaves and bark are rich in **tannins** and the yellow flavonoid **mangiferin**. The tannin is a bonus: it acts as its own mordant, so cotton needs little extra help. Iron reacts with the tannin to swing the colour all the way to grey and near-black.

Colours you can coax from it

pale yellow + alum	olive + iron	grey-green ++ iron	tan bark

Best with: its own tannin (no mordant needed on cotton) · alum to brighten · iron to darken to grey/black.

Dye it — small-group activity

1. Gather a big handful of **fallen** leaves — windfall is plenty, no need to strip the tree.
2. Tear them up and simmer in water about 1 hour; strain out the leaves.
3. Add your soy-treated cotton or your wool; simmer gently 45 minutes.
4. For grey or olive, lift the cloth and dip briefly in iron water, then rinse.
5. Rinse in cool water and dry in the shade.

PLANT TWO · BRILLIANT GOLD

Turmeric

Zingiberaceae

Curcuma longa · Zingiberaceae

Where at Seahorse Point: In the garden beds (location to be added to the map). A ginger relative — the colour is in the orange rhizome.

The colour & its chemistry

The rhizome pigment is **curcumin**, a rare **direct (substantive) dye** that bonds to cloth with no mordant at all — instant sunshine. Two great teaching points: curcumin is **fugitive** (it fades in strong sun — a live lesson in lightfastness), and it is **pH-sensitive**, turning orange-red when you add a pinch of washing soda.

Colours you can coax from it



gold	bright	mustard	orange
as-is	+ alum	+ iron	+ soda

Best with: nothing at all (it's direct) · alum to brighten · a pinch of washing soda to push it orange · keep finished pieces out of direct sun.

Curcumin fades faster than the others in sunlight — perfect for teaching lightfastness, but not for pieces that will live in the sun.

Dye it — small-group activity

1. Grate 2–3 tbsp fresh (or 1 tbsp dried) turmeric per litre of water.
2. Simmer 15 minutes; strain through a cloth.
3. Immerse damp fabric 20–30 minutes — no mordant needed. Stir for even colour.
4. For an experiment, add a pinch of washing soda to half the bath and watch it turn orange.
5. Rinse and dry in the shade; store finished pieces away from bright sunlight.

PLANT THREE · EARTH & RUST

Red mangrove

Rhizophoraceae

Rhizophora mangle · Rhizophoraceae

Where at Seahorse Point: The shoreline fringe at the east dock and boundary (accession 2026-0053), with white and black mangrove alongside.



The mangrove fringe at the water's edge — use only fallen or pruned bark.

The colour & its chemistry

Mangrove bark is **extraordinarily rich in condensed tannins** — so much so it was used around the world to tan leather and dye sails and nets a deep brown. The tannin is both dye and mordant, which makes it superb on cotton. Iron turns it to chocolate and black.

Colours you can coax from it

tan	red-brown + alum	deep brown	near-black + iron

Best with: its own tannin (no mordant needed on cotton) · alum for warmth · iron for the darkest browns and black.

Never cut or strip a living mangrove. They are legally protected, hold the shoreline together and shelter young fish. A small amount of fallen bark gives a lot of colour.

Dye it — small-group activity

1. Use only **fallen bark, prunings or storm-downed wood** — see the note. Break into small chips.
2. Simmer the chips 1–2 hours until the water is deep tea-brown; strain.
3. Add pre-wetted cotton; keep it in the warm bath 45 minutes or longer for depth.
4. For dark brown to black, dip in iron water at the end.
5. Rinse well and dry.

PLANT FOUR · A TRUE BLUE

Jagua

Rubiaceae

Genipa americana · Rubiaceae

Where at Seahorse Point: The food-forest tree (accession 2026-0037) — “the blue-tattoo tree.”



A fallen jagua fruit — the dark pulp is the dye itself.

The colour & its chemistry

The unripe fruit's juice is nearly colourless, but it carries **genipin**, which reacts with the amino acids in **protein** and oxidises in air to a deep blue-black over hours. Because it bonds to protein, it is wonderful on wool and silk — and on cotton pre-soaked in **soy milk**, which gives the cotton the protein genipin needs.

Colours you can coax from it

grey-blue	blue	indigo	blue-black
early	hours		oxidised

Best on: wool, silk, or soy-treated cotton · no metal mordant needed · the colour deepens in air over 24–48 hours.

Jagua is a traditional body-paint dye of this region's peoples. Handle that heritage with respect and credit; and expect stained fingers if you skip the gloves!

Dye it — small-group activity

1. Mash unripe (green) fruit and strain the juice. **Wear gloves** — it stains skin for ~2 weeks.
2. Paint patterns onto, or immerse, soy-treated cotton, wool or silk.
3. Leave it in the air — watch the colour rise from grey to deep blue over a day or two.
4. Rinse when the colour has set. Lovely for hand-painting and tie-patterns.

FIND THEM ON THE RESERVE

The dye-plant map



Approximate positions from the reserve's geotagged records. ***** Turmeric grows in the garden beds — its exact spot will be added. Each pin is coloured with the dye its plant makes.

Plan your session at a glance

Plant	Colour	Part used	Mordant	Lightfastness	On site
Mango	Soft yellow → grey	Fallen leaves, bark	Its own tannin; iron to darken	Good	By the lab & north dock
Turmeric	Brilliant gold	Rhizome	None (direct)	Poor — fades in sun	Garden beds
Red mangrove	Tan → brown → black	Fallen bark only	Its own tannin; iron to darken	Very good	East dock fringe
Jagua	Blue → blue-black	Unripe fruit	None (bonds to protein/soy)	Good	Food Forest

Credits & sources

Compiled for Seahorse Point Reserve, Isla Bastimentos, Bocas del Toro, 2026. Inspired by Felicity Hall's *6 Common Tropical Dye Plants*. Plant locations drawn from the reserve's BGCI plant collection (accession numbers shown). Traditional dye knowledge is credited to the Ngäbe-Buglé people of the region. Dye chemistry and mordant guidance compiled from natural-dye practice; always test on a small swatch first.