



Invasive pigments as a catalyst for
environmental engagement

Elissa Callen

2024 Cal-IPC Symposium

ELISSA CALLEN

Natural pigments · Plants and fungi · CA ecology

Ecological Artist

Horticulturist / Landscape Designer

Community Educator



elissacallen.com

IG @slateandrut

ELISSA
CALLEN



Natural pigments are made by extracting the color-imparting compounds found within plants and fungi.



Natural pigments using invasive plant species

*Making pigments: the extraction of color-imparting
compounds found within plants*

Most brassica blooms yield yellow
pigment, including the more invasive
Rhaphospermum nigrum,
syn. *Brassica nigra*



Brassica rapa
Cal-IPC Rating: Limited

From: No. 1914 \$30.30 Neutral Gray - N4	From: No. 1702 \$11.12 Graphite Gray	From: No. 1912 \$30.30 Neutral Gray - N2	From: No. 1792 \$12.94 German Earth	From: No. 45 \$16.65 French Burnt Umber	From: No. 1761 \$11.12 Lamp Black	From: No. 546 \$33.38 Cadmium Orange	From: No. 41 \$12.94 French Raw Sienna	From: No. 423 \$16.65 Permanent Yellow Deep	From: No. 1464 \$20.50 Siil de Grain	From: No. 920 \$20.50 Transparent Yellow Iron Oxide	From: No. 653 \$12.94 Jaune Brilliant
From: No. 1742 \$12.94 Mars Black	From: No. 1721 \$11.12 Ivory Black	From: No. 1732 \$12.94 Cold Black	From: No. 487 \$33.38 Permanent Crimson	From: No. 1601 \$30.30 Spanish Earth	From: No. 583 \$16.65 Montserrat Orange	From: No. 24 \$16.65 Italian Raw Sienna	From: No. 422 \$12.94 Naples Yellow Reddish	From: No. 1501 \$11.12 Raw Sienna	From: No. 1541 \$11.12 Yellow Ochre Burnt	From: No. 1401 \$11.12 Yellow Ochre Domestic	From: No. 416 \$33.38 Cadmium Yellow Extra Deep
From: No. 1927 \$20.50 Pyrrole Red	From: No. 647 \$38.07 Cadmium Red Deep	From: No. 607 \$38.07 Cadmium Red Medium	From: No. 744 \$20.50 Canton Rose	From: No. 43 \$12.94 French Rouge Indien	From: No. 624 \$20.50 Fanchon Red	From: No. 51 \$12.94 French Light Sienna	From: No. 524 \$16.65 Indian Yellow	From: No. 461 \$12.94 Naples Yellow Italian	From: No. 22 \$16.65 Italian Black Roman Earth	From: No. 15 \$16.65 Italian Yellow Ochre	From: No. 1561 \$11.12 Brown Ochre
From: No. 1581 \$11.12 Red Ochre	From: No. 665 \$30.51 Quinacridone Red	From: No. 1422 \$12.94 Mars Red	From: No. 1883 \$16.65 Iridescent Copper	From: No. 1474 \$20.50 Italian Pink	From: No. 1442 \$12.94 Mars Violet	From: No. 1701 \$11.12 Dery's Gray Deep	From: No. 181 \$11.12 Unbleached Titanium	From: No. 191 \$11.12 Unbleached Titanium Pale	From: No. 514 \$20.50 Alizarin Yellow	From: No. 1512 \$16.65 Cyprus Orange	From: No. 17 \$16.65 Italian Green Ochre
From: No. 19 \$16.65 Italian Rosso Veneto	From: No. 1925 \$38.07 Pyrrole Orange	From: No. 922 \$20.50 Transparent Red Iron Oxide	From: No. 1484 \$20.50 Brown Pink	From: No. 21 \$16.65 Italian Terra Rosa	From: No. 20 \$16.65 Italian Pozzuoli Earth	<h1>Why plants?</h1>					
From: No. 563 \$16.65 Permanent Red Orange	From: No. 18 \$16.65 Italian Pompeii Red	From: No. 587 \$38.07 Cadmium Red Light	From: No. 597 \$38.07 Cadmium Red Vermilion	From: No. 46 \$12.94 French Burnt Ochre	From: No. 923 \$20.50 Transparent Brown Iron Oxide						

From: No. 1581 \$11.12 Red Ochre	From: No. 665 \$30.51 Quinacridone Red	From: No. 1422 \$12.94 Mars Red	From: No. 1883 \$16.65 Iridescent Copper	From: No. 1474 \$20.50 Italian Pink	From: No. 1442 \$12.94 Mars Violet
From: No. 19 \$16.65 Italian Rosso Veneto	From: No. 1925 \$38.07 Pyrrole Orange	From: No. 922 \$20.50 Transparent Red Iron Oxide	From: No. 1484 \$20.50 Brown Pink	From: No. 21 \$16.65 Italian Terra Rosa	From: No. 20 \$16.65 Italian Pozzuoli Earth
From: No. 563 \$16.65 Permanent Red Orange	From: No. 18 \$16.65 Italian Pompeii Red	From: No. 587 \$38.07 Cadmium Red Light	From: No. 597 \$38.07 Cadmium Red Vermilion	From: No. 46 \$12.94 French Burnt Ochre	From: No. 923 \$20.50 Transparent Brown Iron Oxide
From: No. 1402 \$12.94 Mars Red Light	From: No. 1671 \$11.12 Red Umber	From: No. 921 \$20.50 Transparent Orange Iron Oxide	From: No. 23 \$16.65 Italian Burnt Sienna	From: No. 1631 \$11.12 Brown Umber	From: No. 534 \$20.50 Alizarin Orange
From: No. 1521 \$11.12 Burnt Sienna	From: No. 44 \$12.94 French Brown Ochre	From: No. 1382 \$12.94 Mars Orange	From: No. 1494 \$20.50 Dutch Brown	From: No. 542 \$20.50 Permanent Orange	From: No. 16 \$16.65 Italian Orange Ochre
From: No. 1928 \$33.38 Nickel Asa Yellow	From: No. 1661 \$11.12 Burnt Umber	From: No. 42 \$12.94 French Ochre Havane	From: No. 1581 \$11.12 Van Dyke Brown	From: No. 47 \$12.94 French Raw Umber	From: No. 161 \$11.12 Titan Buff
From: No. 704 \$20.50 Manganese Violet	From: No. 982 \$12.94 Prussian Blue	From: No. 1024 \$20.50 Phthalo Turquoise	From: No. 13 \$16.65 Italian Terra Verte	From: No. 1342 \$12.94 Mars Yellow Light	
From: No. 1813 \$20.50 Interference Violet	From: No. 1004 \$20.50 Phthalo Blue	From: No. 823 \$16.65 Sevens Blue	From: No. 1250 \$33.38 Cobalt Green	From: No. 286 \$33.38 Cadmium Yellow Light	From: No. 1122 \$12.94 Earth Green
				From: No. 366 \$33.38 Cadmium Yellow Medium	From: No. 212 \$12.94 Brilliant Yellow Pale
				From: No. 246 \$33.38 Cadmium Lemon	From: No. 25 \$16.65 Italian Raw Umber
				From: No. 303 \$16.65 Permanent Yellow Light	From: No. 1021 \$12.94 Bohemian Green Earth
				From: No. 263 \$16.65 Permanent Lemon	

From: No. 1153 \$16.65 Cinnabar Green Light	From: No. 1323 \$16.65 Courbet Green	From: No. 1146 \$33.38 Cadmium Green Light	From: No. 1186 \$33.38 Cadmium Green	From: No. 322 \$33.38 Olive Green
From: No. 1223 \$16.65 Chromium Oxide Green	From: No. 1163 \$16.65 Permanent Green Light	From: No. 1263 \$16.65 Permanent Green	From: No. 1893 \$20.50 Interference Green	From: No. 1264 \$20.50 Phthalo Green Yellowish
From: No. 52 \$20.50 French Terre Verte	From: No. 1103 \$16.65 Veronese Green	From: No. 1284 \$20.50 Phthalo Green	From: No. 303 \$30.51 Sap Green	From: No. 863 \$16.65 Turquoise
From: No. 1245 \$30.51 Viridian Green	From: No. 786 \$38.07 Cobalt Greenish Teal	From: No. 817 \$38.07 Cobalt Teal Bluish	From: No. 887 \$38.07 Cobalt Turquoise Greenish	From: No. 848 \$52.14 Cerulean Blue
From: No. 907 \$38.07 Cobalt Turquoise Bluish	From: No. 857 \$38.07 Cerulean Blue French	From: No. 1043 \$16.65 Indigo	From: No. 1703 \$12.94 Payne's Gray	From: No. 813 \$16.65 King's Blue
From: No. 1803 \$20.50 Interference Blue	From: No. 937 \$38.07 Cobalt Blue Deep	From: No. 927 \$38.07 Cobalt Blue	From: No. 942 \$12.94 Ultramarine Blue	From: No. 985 \$38.07 Ultrathrone Blue
From: No. 1063 \$12.94 Payne's Gray Violet	From: No. 962 \$12.94 Ultramarine Blue French	From: No. 754 \$20.50 Provence Violet Bluish	From: No. 748 \$52.14 Cobalt Violet Deep	From: No. 764 \$16.65 Ultramarine Violet
From: No. 734 \$20.50 Provence Violet Reddish	From: No. 805 \$30.51 Egyptian Violet	From: No. 785 \$30.51 Quinacridone Violet	From: No. 775 \$30.51 Quinacridone Magenta	From: No. 724 \$20.50 Dianthus Pink
From: No. 657 \$38.07 Cadmium Red Purple	From: No. 658 \$52.14 Cadmium Purple	From: No. 713 \$12.94 Persian Rose	From: No. 686 \$33.38 Perylene Crimson	From: No. 685 \$30.51 Carls Crimson

Leading acrylic paint company's history and quality values: indestructibility

Liquitex

PAINT ▾ MEDIUMS ▾ SURFACES ▾ TOOLS ▾ SETS & GIFTS ▾ SPECIALS ▾ RESOURCES ▾ COMMUNITY ▾

STORE LOCATOR

SEARCH

CONTACT

EVOLVING, INNOVATING AND PUSHING BOUNDARIES SINCE 1955

Supporting and collaborating with artists, creatives, and their communities. Developing and offering the boldest range of acrylic paints, mediums and tools to help everyone take an idea, big or small, and make it real. And proudly, passionately, relentlessly doing it all since 1955.

We are Liquitex.

1955

MEET HENRY LEVISON

Our story begins with Henry Levison, a color chemist who lived, drank, slept and breathed artist's colors. Henry ran a company in Cincinnati, Ohio called Permanent Pigments which had been making artists' oil colors since 1922.

STEP 3. PACKAGING DEVELOPMENT

Once a new formulation is in process in the lab, it's time to call in our in-house packaging technologists. They're always looking to improve usability for you in the studio, so they work closely with our in-house artists to find the right format. For our Soft Body and Acrylic Gouache bottles, we asked a big group of artists to sketch out their dream packaging as our starting point, before playing with a range of shapes and materials. The technologists then commission prototypes and torture test them with artists to make sure they're fit for purpose. Functionality is king here and we're always looking to innovate. In 1980 we were the first company to change our tubes from pure metal to lightweight glamine (a technology commonly used in the cosmetic industry) to stop the problem of tubes corroding and cracking with use. Liquitex packaging needs to stand the test of time. And the reality of life in the studio.

Even a leading casein (milk) paint brand's Safety Data Sheet is labeled with high toxin warnings:

SECTION VIII - EXPOSURE CONTROLS / PERSONAL PROTECTION

RESPIRATORY PROTECTION AND SPECIAL VENTILATION REQUIREMENTS: NONE REQUIRED
OTHER PROTECTIVE EQUIPMENT (GLOVES, GOGGLES, ETC): NONE REQUIRED
WORK/HYGIENE PRACTICES: Do not spray apply. **AVOID USING IF PREGNANT OR CONTEMPLATING PREGNANCY.** Workers exposed to cadmium dusts must have routine medical monitoring (see OSHA Cadmium Regulation, 29 CFR 1910.1027).
ENGINEERING CONTROLS: Not for use by children.

SECTION XI - TOXICOLOGICAL INFORMATION

ACUTE EFFECTS ASSOCIATED WITH USE OF THIS MATERIAL: MAY BE HARMFUL IF SWALLOWED.
MAY BE HARMFUL BY BREATHING DUSTS OR MISTS.
The summated LD50 is 3912.0 mg/kg.
The summated LC50 is 22611 mg/cubic meter.
This product is considered to be a known or suspected human carcinogen by NTP, IARC or OSHA (see section III)

SECTION XII - ECOLOGICAL INFORMATION

HARMFUL EFFECTS KNOWN OTHER THAN THOSE ASSOCIATED WITH SUSPENDED INERT SOLIDS IN WATER.

Photos sourced from online creative commons

Elissa Callen



Why plants?



Isatis tinctoria
Cal-IPC Rating: Moderate



Plants lend an environmentally safer option of colorants that can be used for clothing dyes, art materials, and more.





Okay... so I can use any plants?



Okay... so can we use any...?

Why is this not common knowledge?

Native species


→ *Originates from the habitat where it is observed; beneficial to it (most often)*

Invasive species

→ *Does not originate from the habitat where it is observed; extremely successfully naturalized to it; negatively impacts it*

Naturalized species

→ *Does not originate from the habitat where it is observed; not actively threatening it*



What are ways we can connect
with communities that are typically
disparate from knowledge in
conservation and the environment?

How might community intersections
be able to support this?



Inks of California Invasive Plant Species

Stimulating a bridge between art and science

Invasive pigments as a catalyst for environmental engagement
Symposium

Elissa Callen

2024 Cal-IPC



Save the Bay
April 2023



Point Reyes National Seashore
April 2023



Theodore Payne Foundation
June 2023



KCM
10/10/2023



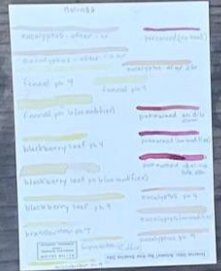
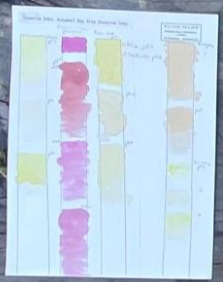
Love the Bulb
June 2023











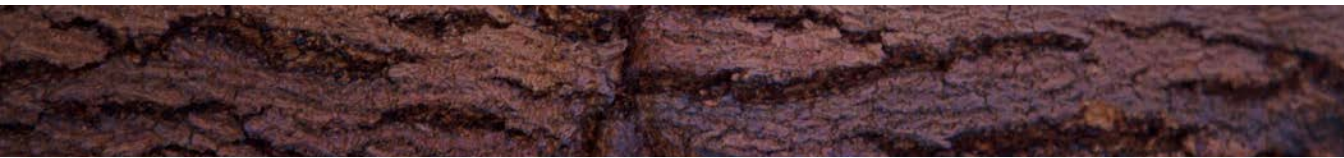
California College of the Arts
March 2024



Student: Leticia Javier



Student: Annabel Wang



© Elissa Callen



How do we foster hope for combating environmental issues?

Q: "What do you wish you could change about what you have seen in your experience as a professor in Environmental Science and in academia?"

"Hope. Hope in the students"

Dr. Timnit Kefela

Dr. Kefela says students studying environmental science begin their education with excitement, but sees them become disheartened the more they learn about the severity of our environmental issues.

She wishes to to bring students more hope to help them understand, that despite the enormity of the environmental issues we are up against, we are not powerless in making change.



Dr. Timnit Kefela

**ASSISTANT PROFESSOR IN ENVIRONMENTAL
SCIENCE
CSU CHANNEL ISLANDS**

Timnit Kefela is an environmental scientist, organizer and educator who seeks to better understand (micro)plastic pathways, fates and impacts in effort to inform and design liberatory infrastructural solutions for pollution mitigation and waste management. She holds a BSc and MSc in Biology from Rutgers University-Camden and was the first Black woman to receive her PhD in Environmental Science and Management from the Bren School at UC Santa Barbara. Timnit is currently an assistant professor in environmental science and resource management with a focus on environmental justice at California State University-Channel Islands.

*Textile X Ocean Connector Sail
San Francisco Bay, CA - Sep. 2024*

An event about textile-derived ocean pollution (i.e. microfiber pollution), climate change, waste, green chemistry, ocean-thoughtful material alternatives, and more

*Event presentations by:
textile industry experts, textile company representatives, material innovators,
scientists, policy makers, and representatives from universities and
environmental groups*



BIPOC Volunteer Programs

Restore, grow, and learn in community with fellow BIPOC volunteers at Save The Bay's native plant nurseries and shoreline restoration sites

saveSFbay.org/calendar

SAVE THE BAY



Creating Community through Save the Bay's Native Plant Affinity Groups



Queer Volunteer Programs

Restore, grow, and learn in community with fellow LGBTQ+ volunteers at Save The Bay's native plant nurseries and shoreline restoration sites

saveSFbay.org/calendar

SAVE THE BAY



CNPS BIPOC Group and Cultivating Connection

“ We (conservation educators) have a short-list of ways we choose to engage with the public (interpretive hikes, birding events, volunteer planting, nursery work, seed collection, weeding, etc.). These events are crucial and can draw in people, [but] usually lack a creative component.

I’m not saying they need to, but integrating largely ignored disciplines, like art, into conservation work can only widen the audience and offer new ways for the community learn/think about conservation topics. For some it could offer their first connection to conservation if other standard events/classes didn’t appeal to them. ”


- Michael Viramontes, CNPS BIPOC Group

Photos courtesy of Ashley Borrego and Michael Viramontes



Using art to stimulate ecological curiosity on a community level could help contribute to a larger culture of environmental stewardship





Because the more people learn about and care about our local ecosystems, the more support our ecosystems will receive.



Thank you

Invasive pigments as a catalyst for environmental engagement

Elissa Callen

elissacallen.com

2024 Cal-IPC Symposium

IG @slateandrust

Thank you

Fritillaria pinetorum
4/3 CA rare plant

elissacallen.com

IG @slateandrut

linktr.ee/elissacallen