

Invasive Pigments and Feral Hues: A Brief Guide to Painting with Weeds



Introduction: Spontaneous Plants and their Pigments

The manicured botanical gardens and sprawling parks of New York City are well known, and host an impressive array of carefully maintained plant life, from rare ornamentals and showy cultivars to native trees and wildflowers. The concrete deserts that spread between these green oases are host to another, less well-regarded community of plants. Sometimes called “spontaneous plants” or “wild urban greenery”, they are just as commonly labeled “weeds”. Under this moniker they are routinely ignored and sometimes purposefully destroyed, but these plants, doing the tough work of greening the rough edges and unmaintained corners of New York City, have much to offer. Like all plants, they stabilize the soil, reduce nutrient and storm runoff, cool the air, provide food and habitat for nonhuman animals, and sequester carbon. They all also add a hint of wild verdure to neighborhoods in sore need of greenspace, and finally, they provide the pigments that form the basis of my Invasive Pigments project.

Started in the summer of 2013, Invasive Pigments is both an art project exploring the migration and proliferation of wild urban plants, and a method for using those plants as pigments for watercolor paints. By hunting for spots of wild, plant-derived color in the streets of the city, and processing that color through a historically-based, artisanal process, I hope you can discover a new layer of the city’s structure and get to know the novel plant community that has woven itself into the core of the urban ecosystem.



This urban meadow at the intersection of Bushwick Avenue and Beaver Street in Brooklyn was formerly a gas station and autobody shop. It is currently owned by the City of New York and is slated to be turned into a playground.

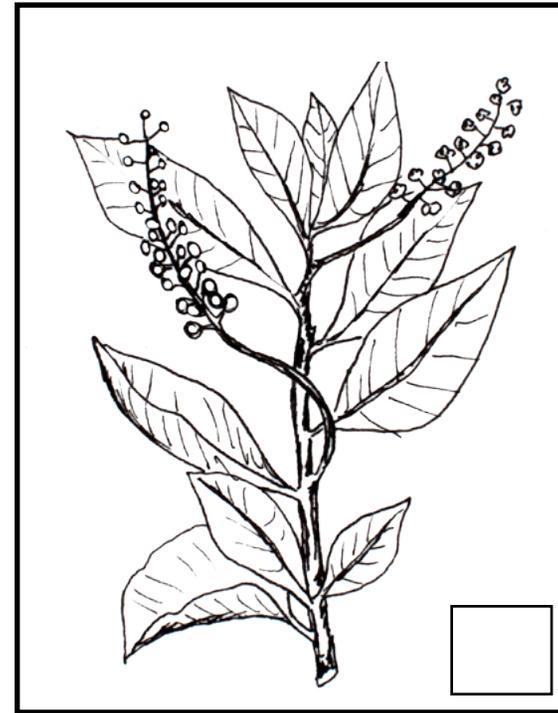
Finding and Harvesting Plants

The urban meadow above is home to several of the plants included in my *Invasive Pigments* palette, including golden rod, mugwort, clover and paulownia. Different landscapes host different plant species, and species composition can vary greatly even between two vacant lots on the same street. The key to finding these plants in the cityscape is cultivating a certain kind of plant-attuned attentiveness. As you move through the city, keep your eyes open and loosely focused on the world around you. Scan across, around and into places you might usually ignore. Become receptive to spots of color and splashes of leafy green. Bend down, reach up, crouch, investigate. These plants are everywhere, but they are easy to miss if you're not anticipating them. Of course it also helps to know what you're looking for! The following pages include illustrations and information about life history, distinguishing characteristics and habitat preferences of several common urban plants. Peter Del Tredici's field guide *Wild Urban Plants of the Northeast* includes many more.

Pokeweed

ripe berries/deep magenta pigment

Phytolacca Americana
Eastern North America



How to find it:

- bushy perennial plant with large, fleshy leaves
- found in many locations throughout NYC, from street tree pits to sidewalk cracks to the understories of informal forests and parks.
- Look for clusters of small white blossoms ripening from green to deep purpleish black berries, each about the size of a pea.
- berries ripen late August-September, but leaves and stems also make a useful pigments and can be harvested throughout the summer months.

Natural History and Human Interactions

Pokeweed is native to south eastern North America (it was used as a dye and an ink by Native Americans and early European colonists) and has been spreading steadily throughout the United States, as well as Europe, over the past 400 years. It is thought to have been introduced to Europe and Africa around the time of the Columbian exchange (1650) for its dye properties and perhaps as an ornamental. It has since escaped cultivation and naturalized, and is listed in invasive species databases in countries, from South Africa to Australia. Many parts of the plant are toxic and hazardous to livestock and wildlife. The plant also has potential medicinal properties that are still being investigated. Rumor has it that the fermented ink of the pokeweed plant (fermentation creates a deep rusty brown ink) was used to write the Declaration of Independence.

Asiatic Dayflower

petals only/blue pigment

Commelina communis

Northeastern Asia



How to find it:

- Herbaceous, delicate vine-like plant, stands upright or sprawls along the ground.
- common along the edges of parks and lawns, under or along fences where water drains (very sensitive to mowing)
- Look for bright blue blossoms with two mouse-eared petals, each about the size of a pinky nail.
- flowers bloom throughout the summer, each blossom lasting only a day. Best harvested from dawn to noon, before petals wilt.

Natural History and Human Interactions

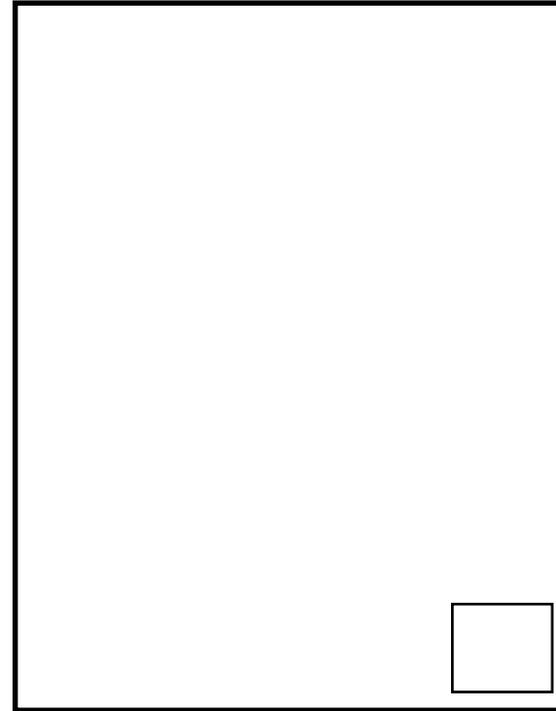
Asiatic Dayflower is native to northeastern Asia. Its path to the United States is somewhat unclear, but the first record of its collection is from 1898. Since then it has spread throughout the northeastern United States. In its native Japan, prior to the introduction of synthetic pigments, a cultivar of the same species was used as a dye for woodblock prints and fabric. It is currently becoming more well known as a weed in the United States due to its appearance in crops of Roundup Ready corn and soybeans. It appears that the plant may have developed a resistance to glyphosate, the main pesticide in Roundup.

Oriental Bittersweet

ripe berries/deep magenta pigment

Celastrus orbiculatus

Northeastern Asia



How to find it:

- Woody vine with rounded leaves and bright red berries with a yellow husk
- This muscular vine grows up chainlink fences, telephone polls, and hardwood trees- whatever it can use to get to the sunlight.
- Look for thick, ropey vines twisted around other trees; rough bark, shiny green leaves.
- berries ripen in autumn. Remove the hard outer husk (yellow) and use just the reddish berry inside

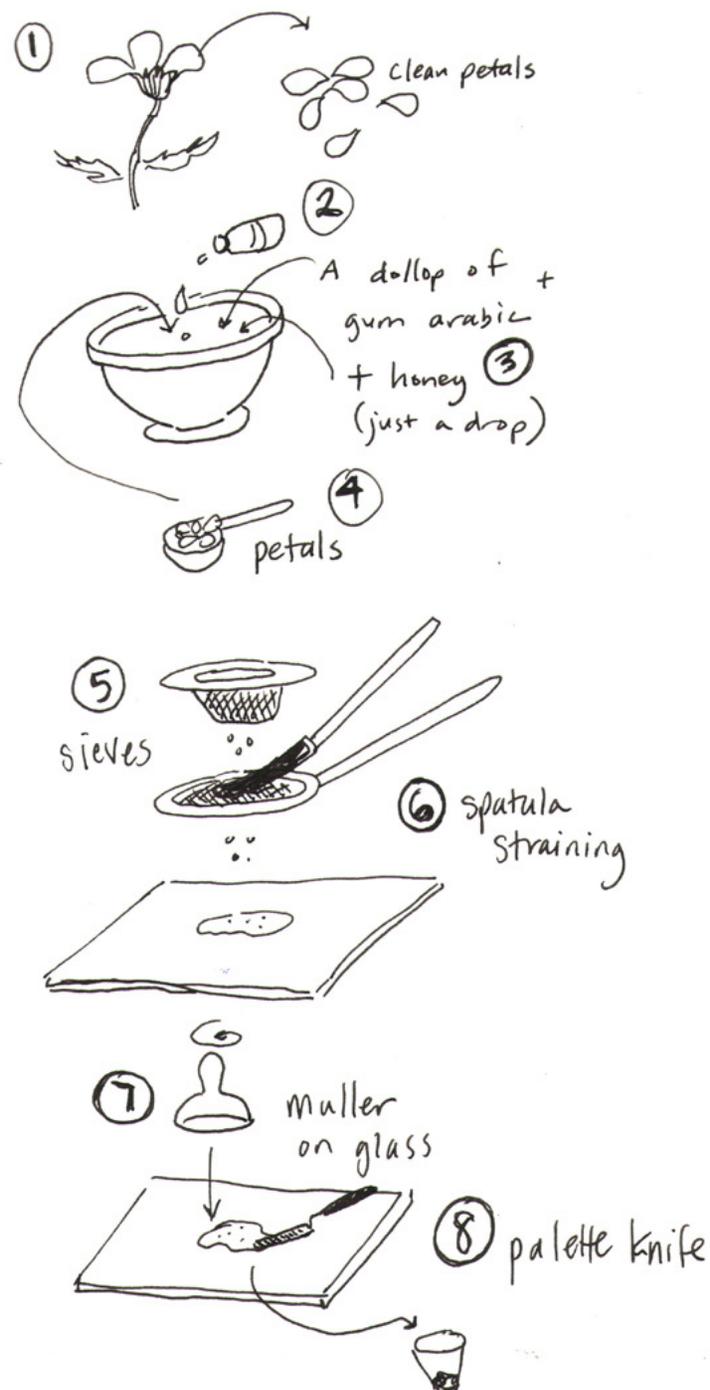
Natural History and Human Interactions

Native to Northeastern Asia, oriental bittersweet was imported to United States in 1860 as an ornamental, and used in the 19060s and 70s to stabilize soil along roadsides and highway embankments; it has spread rapidly throughout the eastern US since that time, and is considered invasive throughout much of its range, where it outcompetes the native American Bittersweet. It produces large amounts of seeds, which provide food to wildlife and are readily transported over large distances by birds.

Making Paint

The preparation and paint-making process is a little different for each kind of plant part, but the basic guidelines below will get you started. If you're working with flower petals it's best to make your paint right after you harvest. You can also store some plants in the refrigerator until you can process them, and berries can be frozen.

1. Clean and separate the plant parts you want to use. You may want to remove large seeds or pits, or separate the contrasting colors in a blossom. Rinse anything that is dusty or sandy. Cut large pieces into smaller segments so they are easier to grind.
2. Put a nickel-sized dollop of liquid gum arabic in the base of your mortar. If you're working with dry plant parts, like a coarse grass or thin petal, you may need to add an equal amount of water. Wet plant parts like berries don't require additional water.
3. Add a drop of honey to the gum arabic (I take a toothpick and dip it in the honey, then wipe it on the mortar base)
4. Add a tablespoon or so of your prepared plant parts to the mortar base, and grind the mixture as finely as possible. Add water in small amounts if necessary. The mixture should be liquid enough to strain, but not runny.
5. Holding the mortar over the glass sheet, scrape the mixture out of the mortar base through the sink strainer and onto the broth strainer using a flexible spatula. (if the mixture is already finely ground, without seeds/thick skin, you can skip the sink strainer and just use the broth strainer)
6. Press the mixture through both strainers using the spatula to apply pressure. Think of this as wringing out a rag. You want to get as much liquid (and color!) out of the plant parts as possible.
7. When the mixture has dripped through onto the glass, use a muller to gently grind it further, until any fine residue or grit is no longer detectable and the color looks even.
8. Scrape up the mixture using a metal palette knife, and store it in a small open container so that it can dry (plastic shot glasses work well). Label your pigment so you know what you made it with, and when. You can paint with it while it's still wet, but the color will get a bit more intense once it dries. Rewet with a brush like any commercial watercolor cake.



Supply List

Many of the supplies listed below can be found at 99 cent stores, drug stores or grocery stores. Some need to be purchased from an art supply store like Blick, and the muller is best ordered online or purchased at a specialty pigment store like Kremer Pigments.

Paint ingredients:

honey (any kind)
liquid gum arabic*
water
finely ground plant parts

Tools:

small scissors for cutting/dissecting plants
tweezers for separating plant parts
stainless steel mortar and pestle
plastic pipette for adding water precisely (optional)
flexible spatula, icing style works well
sink strainer for larger/more fibrous plant parts, berries etc
fine mesh broth/oil strainer
glass sheet (12 x 12" works well)
small glass muller (optional)**
flexible palette knife*
paint containers like plastic shot glasses

*purchase at any art store, like Blick or Artist and Craftsman

**available at Kremer Pigments, 247 West 29th Street

Other resources:

Wild Urban Plants of the Northeast: A Field Guide, Peter del Tredici
ellieirons.com/invasive_pigments_project

Plant Checklist

Below are the common and scientific names of some of the spontaneous plants that have yielded pigments for my palette. All are readily found in Brooklyn. A web search for any of these will yield plenty of information and photos.

- __ Asiatic dayflower (*Commelina communis*)
(blue, petals)
- __ Bittersweet nightshade (*Solanum dulcamara*)
(red, berries)
- __ Black nightshade (*Solanum nigrum*)
(deep purple-black, berries)
- __ Common blue violet (*Viola sororia sororia*)
(blue-purple, petals)
- __ Common lambsquarters (*Chenopodium album*)
(green, leaves)
- __ Dandelion (*Taraxacum officinale*)
(green, leaves)
- __ Garlic mustard (*Alliaria petiolata*)
(green, leaves)
- __ Lesser celandine (*Ranunculus ficaria*)
(yellow, stamens and pistils)
- __ Morning glory (*Ipomoea*)
(purple, reddish-pink, blossoms)
- __ Pokeweed (*Phytolacca americana*)
(red, magenta, berries)
- __ Princess Tree (*Paulownia tomentosa*)
(deep brown, bruised leaves)
- __ Oriental Bittersweet (*Celastrus orbiculatus*)
(orange, berries)
- __ Wild cherry (*Prunus serotina*)
(rusty red, fruit)

Some helpful urban botany terms (or how not to say “weed” all the time)

Definitions drawn from Peter Del Tredici’s *Wild Urban Plants of the Northeast* and Wikipedia

Ruderal: a plant that grows in wasted or abandoned landscapes. From Latin rudera, plural of rudus ‘rubble.’ In ecological terminology, a disturbance-adapted species.

Pioneer species: a plant that colonizes bare ground; an early successional species.

Invasive: A non-native species with the ability to reproduce and spread rapidly in minimally managed or “natural” habitats, thus reducing biodiversity through competition with other species. Also sometimes used to describe unwanted plants that thrive in agricultural settings, regardless of native/non-native status.

Native: Species occurring naturally* in a given region; not introduced into an area as a result of human activity.

*In what I think is probably a rather gross oversimplification, the cutoff for native species in the Northeast is generally understood as circa 1600, around the arrival of Henry Hudson and the beginning of the acceleration of the Columbian Exchange. Species existing in the area pre-1600 are described as native. In Europe, where the record of urban ecological history is contiguous over centuries, there is a category between native and nonnative that addresses those species that were introduced through agriculture and trade within Europe prior to 1500.

Adventive: Introduced or nonnative species with only limited or temporary distribution in a given area.

Naturalized: Introduced or nonnative species that reproduces on its own and is well established in a given region.

Spontaneous urban plant: A plant that grows in an urban area without being cultivated by humans. May refer to either native or nonnative species.

Urban Ecology Concepts

These are highly disturbed ecosystems, moving rapidly through cycles of disturbance, which leads to a somewhat permanent population of plants that are usually early succession plants.

Urban land taxonomy as it relates to vegetation:

- remnant landscapes
- managed or functional urban landscapes
- abandoned/degraded

General Characteristics of Spontaneous Urban Plants:

- flexible (in a aspects of growth and reproduction, from conditions under which they germinate to ability to flower and fruit)
- opportunistic (ready to take off when conditions are right- sprouting early, growing fast when resources are available, making a lot of seeds quickly before conditions change)
- tolerant (of stressful growing conditions, salt or high ph, compacted soil, wide range of light levels, wide temperature swings)

A few specific characteristics of interest (drawn from Peter Del Tredici’s “General Characteristics of Spontaneous Urban Plants”)

- Annual and herbaceous perennial species display “phenotypic plasticity”: when growing conditions are good they are large, produce abundant seed crops, when conditions are poor they are stunted with limited seed production.
- Many herbaceous species display a prostrate growth habit with a strong taproot and are tolerant of trampling or mowing.
- Many woody species can sprout vigorously from underground structures/cut stems following traumatic damage/extreme drought.
- They can readily colonize disturbed soil in full sun.
- They can tolerate problematic soils characterized by any or all of the following: low levels of organic matter, high levels of chemical contamination, relatively high pH, and high levels of compaction.

Ecological Benefits of spontaneous urban greenery:

- temperature reduction
- food and/or habitat for wildlife
- erosion control on slopes and disturbed ground
- stream and river bank stabilization
- nutrient absorption (mainly nitrogen and phosphorous) in wetlands
- soil building on degraded land
- tolerance of pollution or contaminated soil (air and soil pollution absorption through adhesion and through absorption and processing)