

Invasive Pigments and Feral Hues: A Handbook for Painting with Weeds



Ellie Irons
ellieirons.com

Invasive Pigments and Feral Hues: An Introduction

The manicured botanical gardens and sprawling parks of New York City are well known, and host an ost an array of carefully cared-for plant life, from rare ornamentals and showy cultivars to native trees and wildflowers. As in most American cities, these greenspaces dispersed among copious parking lots and highways, strip malls and sports fields, railroads and golf courses. Inserting themselves within this matrix of human-maintained and dominated spaces are another less well-regarded community of vegetal beings. Sometimes called “spontaneous plants”, they are just as commonly labeled “weeds”. Under this moniker they are routinely ignored and sometimes purposefully destroyed, even as they do the tough work of greening the rough edges and unmaintained corners of stressed urban ecosystems. 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 also have complex relationships with historical and future ecosystems in which they root. Over the past decade they have guided me in coming to know weedy vegetal beings as essential companions for this time of climate chaos.

Started in the summer of 2013, Feral and Invasive Pigments is both an art project exploring the migration and proliferation of weedy urban plants in tandem with dense human communities, and a method for getting to know those plants as pigments for water-color paints. By searching for spots of wild, plant-derived color in habitats heavily impacted by extraction, industrialization, and urbanization, and processing that color through a historically-based, artisanal process, I hope you can awaken to a new layer of your habitat and get to know the plant community that has woven itself into the core of our disturbed ecosystems.

In this handbook you will find the following sections:

- Finding/harvesting plants
- Plant portraits & naturalcultural history
- Paint-making process
- Materials and equipment
- Vocabulary and terminology
- Checklist of common plants/notes



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.

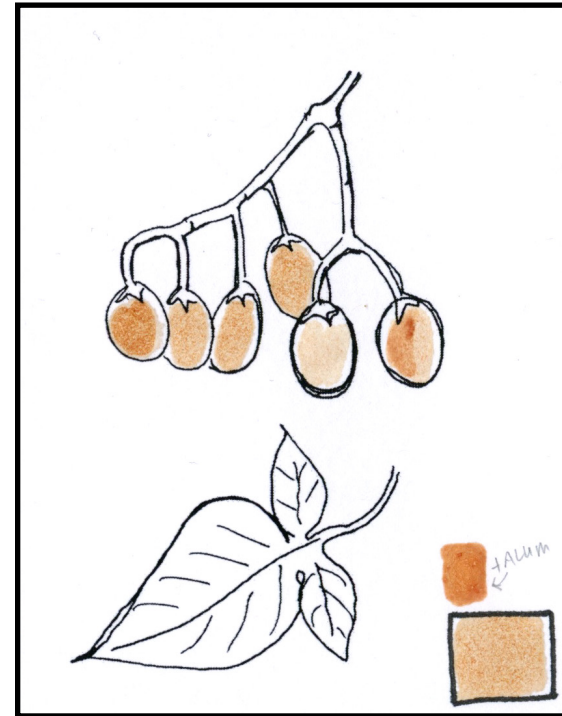
Finding and Harvesting Plants

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 line drawings and information about life history, distinguishing characteristics and habitat preferences for seven plants spanning the hue spectrum from red to violet.

Bittersweet Nightshade

ripe berries/red-orange pigment

Solanum dulcamara
Eurasia, North Africa



How to find it/tips:

- semi-woody vine winding around other plants, fences, trees
- arrowhead shaped leaves usually 1.5-2 inches long, green to deep purple-green
- small purple flowers with yellow centers yielding striking clusters of red berries about .5 inches in height, filled with tiny seeds
- plant is toxic (especially foliage and green berries, ripe berries edible to birds)
- the bulk of the pigment is in the skin. Strain out small seeds and grind skin only.

Naturalcultural History

Native to a wide swath of Asia, Europe and North Africa, bittersweet nightshade was reported as “extensively naturalized” in the United States by 1847. Although poisonous, it is sometimes tolerated in cultivated areas because its flowers and berries are more showy than the average spontaneous plant. It has a long history of medicinal use throughout its range for ailments ranging from skin conditions to rheumatism, and its active compounds (alkaloids) have been studied by contemporary researchers, who have found that extracts from the plant do show some effect on certain skin pathogens.

Pokeweed

ripe berries/deep magenta

Phytolacca Americana
Eastern North America



How to find it/tips:

- 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 purple/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.

Naturalcultural History

Pokeweed is native to south eastern North America (it was known 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 17th Century 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.

Black Nightshade

ripe berries/deep purple

Solanum nigrum
Eurasia



How to find it/tips:

- compact, bushy plant with green stems (slightly hairy) with oval leaves, ribbed edges
- Look for small round holes in leaves caused by insect damage, which cause a somewhat lacy appearance
- tiny white flowers with a yellow center give way to small clumps of green berries in mid-late summer
- mature fruits are a deep matte black, green inside and full of small seeds
- the bulk of the purple pigment is contained in the skin of ripe berries

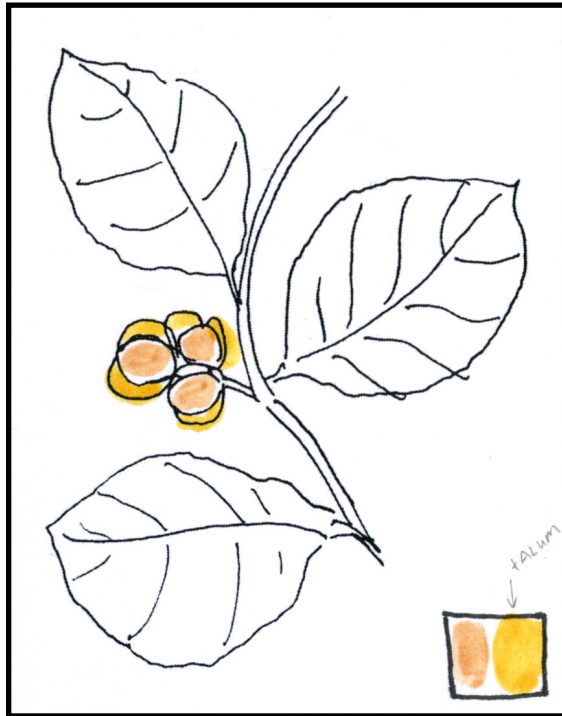
Naturalcultural History

Naturalized in the Eastern United States, black nightshade is a common feature of the New York City street scape where soil has been disturbed and the ground gets a fair amount of sun. Like other nightshades, it produces compounds in its leaves and unripe berries that are toxic, but it also has been used medicinally across many cultures in its native range, from Europe to India, Asia and Africa. The berries are apparently well-liked by birds, and this method of seed dispersal is probably important to the plant's dissemination. The plant has a very similar relative, Eastern black nightshade, that is native to the Northeast and is difficult to distinguish from the European species, even for experts.

Asiatic Bittersweet

ripe berries/deep magenta pigment

Celastrus orbiculatus
Northeastern Asia



How to find it/tips:

- Woody vine with, shiny, 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, rope-y vines twisted around other trees; rough bark, clusters of green berries in mid-late summer.
- berries ripen in late summer and autumn. Remove the hard outer husk (yellow) and use just the red-dish berry inside.

Naturalcultural History

Native to Northeastern Asia, asiatic bittersweet was imported to United States in 1860 as an ornamental, and used in the 1960s and 70s to stabilize soil along roadsides and highway embankments; it has spread rapidly throughout the eastern U.S. since that time, and is considered invasive throughout much of its range, where it hybridizes with native American Bittersweet. It produces large amounts of seeds, which provide food to wildlife and are readily transported over large distances by birds.

Canada goldenrod

flowers/gold-yellow pigment

Solidago canadensis
northeastern America



How to find it/tips:

- tall, upright herbaceous perennial with a central stem, ranging from 2-6 feet tall
- long, thin leaves alternate on stems, averaging 4-6 inches long, 1 inch wide, smaller towards the top
- often grows in clumps of stems that diverge from a central base
- likes meadows, open areas, large amounts of sun
- flowering stems at the top of the plant hold linear masses of small yellow flowers in late summer

Naturalcultural History

Native to northeastern America, Canada goldenrod has expanded its range and is considered invasive in temperate parts of Asia and Europe. Spreading rhizomatically and by its wind borne seeds, it can form dense stands, although grazing animals like foraging deer (also a booming population!) can suppress it. The plant occurs across the current-day United States in a range of habitats, including disturbed sites, rangelands and meadows. As a late summer bloomer, it provides an important source of pollen and nectar for bees and other insects into the autumn months.

Common Dandelion

leaves/emerald green pigment

Taraxacum officinale

Eurasia



How to find it/tips:

- dark green shallow to deeply lobed leaves grow from a single tap root, leaves can be flat to the ground or held aloft.
- upright or lax stems hold a single bright yellow, disc-shaped flower composed of many small florets
- flower produces seeds attached to silky, parachute-like pappi that are silvery-white in color
- plant is tolerant of mowing, often found in turf, but also sidewalk cracks, vacant lots, street tree pits

Naturalcultural history

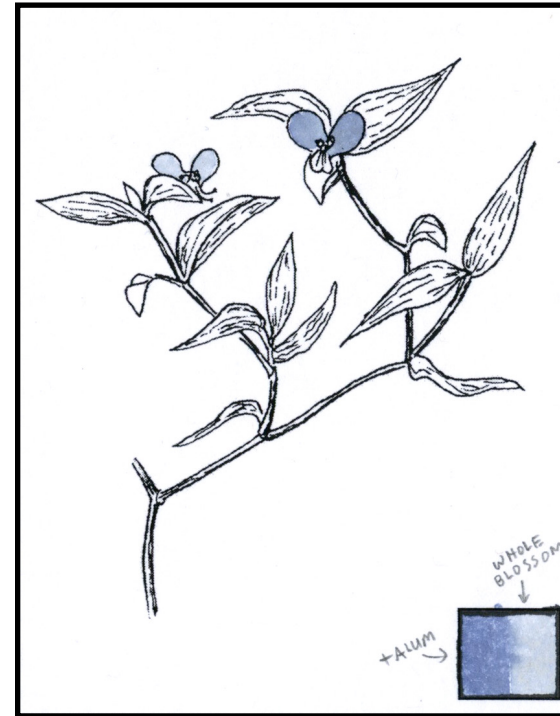
The genus *Taraxacum* represents an old and far flung group of species thought to have emerged up 30 million years ago in Eurasia. The common dandelion we know today was introduced to the United States from Europe early on in European colonization, probably as a food crop. The green leaves are edible and nutritious, the blossoms can be used to make dandelion wine, and the root of the plant also has a history of medicinal use as a diuretic. Although despised by those seeking the “perfect” lawn (it is tolerant of mowing and its deep taproot makes it difficult to remove) the cheerful yellow flowers of the dandelion are an important food source for insects. They bloom early in the spring and again in the fall, often present when other sources of pollen and nectar are not available.

Asiatic Dayflower

petals only/blue pigment

Commelina communis

Northeastern Asia



How to find it/tips:

- 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.

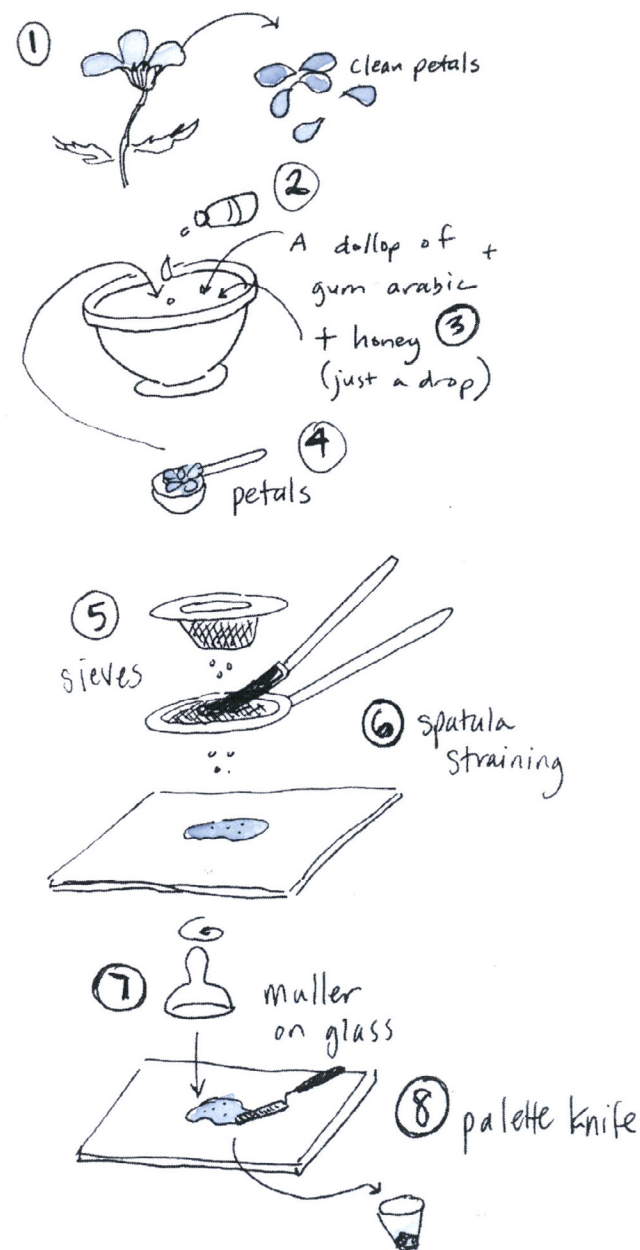
Naturalcultural History

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 wood-block 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 herbicide in Roundup.

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. It's great to make your paint right after you harvest, but you can also store plant parts in the refrigerator or freezer. Some respond better than others.

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), along with a pinch of alum crystals or ferrous sulfate if you're using it. Alum will generally "brighten" colors while ferrous sulfate with "sadden" (or darken) them.
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 detectible 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 (distilled, field, or tap, for different results)
finely ground plant parts
alum crystals (potassium aluminum sulfate)** (optional)
Ferrous sulfate (vinegar + iron)** (optional)

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 (or smooth cutting board, ~12 x 12")
small glass muller (optional)***
flexible palette knife*
paint containers like plastic shot glasses

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

**alum is a common dying ingredient, purchase it online. Ferrrous sulfate can be homemade, look at recipes online!

***order online from a specialty store like Kremer Pigments in New York City, or from independent glass artists.

Talking About Weeds: Vocabulary and Terminology*

Spontaneous urban plant: A plant that grows in an urban area without purposeful cultivation by humans.

Ruderal: A plant that grows in “wasted” or disturbed landscapes. From Latin rudera, ‘rubble.’ In ecological terminology, disturbance-adapted species.

Native: Indicates a life form present in this region prior to European colonization (c. 1600). Plants moved and migrated (due to human intervention and other factors) prior to 1600, but the native/non-native binary does not account for this.**

Invasive: A life form considered to be too successful (taking habitat and resources from species deemed more desirable) in some contexts. Invasive beings can be native or non-native, and act differently in different contexts.

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

Naturalized: Introduced or nonnative life form that reproduces on its own and is well-established in a given region but does not overwhelm or out-compete beings it dwells alongside.

Volunteer: A plant that grows without being cultivated.

Ecological Benefits of spontaneous urban greenery:

- temperature reduction
- food/habitat
- erosion control/soil stabilization
- nutrient absorption
- disturbance adapted, able to heal bare soil
- soil building
- tolerance of pollution/contamination (pollution reduction through adhesion/absorption)
- medical/cultural uses for humans

Characteristics allowing Spontaneous Urban Plants to succeed:

- **FLEXIBLE** (in a aspects of growth and reproduction, from conditions under which they germinate to ability to flower and fruit efficiently)
- **OPPORTUNISTIC** (ready to take off when conditions are right- sprouting early, growing fast when resources are available, reproducing quickly, producing lots of seeds before conditions change)
- **TOLERANT** (of stressful conditions, salt or high ph, compacted soil, wide range of light levels, wide temperature swings found in cities)

*Definitions adapted from Peter Del Tredici’s *Wild Urban Plants of the Northeast* and The Next Epoch Seed Library’s icon definitions.

**many of these qualities are context-specific, and refer to plants’ role in urban habitats on the lands currently know as the Northeastern United States.

Plant Checklist

Notes/color swatches:

Below are the common and scientific names of some of the spontaneous plants I've used in my palette, along with the color they yield, plant part, and time of year. All are readily found in New York City and many cities around the world with similar climates. A web search for any of these will yield plenty of information and photos.

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

Weedy Color Wheel (Overwintered late summer 2015/early spring 2016)

