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

Invasive Pigments and Feral Hues: An Introduction

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 green-space, 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.

In this handbook you will find seven sections:

- Finding/harvesting plants
- Plant portraits & natural history
- Paint-making process
- Materials and equipment
- Vocabulary and terminology
- Checklist of common plants/notes
- Weedy Color Wheel
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.

Natural History and Human Interactions

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 in Europe for a range of ailments, 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
*Phytolacca Americana*
Eastern North America

**Ripe berries/deep magenta**

**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 pigment 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.

Black Nightshade
*Solanum nigrum*
Eurasia

**Ripe berries/deep purple**

**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

**Natural History and Human Interactions**

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.
Native to Northeastern Asia, oriental 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 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.

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 can provide some regulation. The plant occurs in most U.S. states across a range of habitats, including disturbed sites, rangelands and meadows, and historically had a variety of medicinal uses among Native American tribes throughout North America. As a late summer bloomer, it provides an important source of pollen and nectar for bees and other insects into the autumn months.
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 lawn owners (its tolerant of mowing and its deep taproot makes it difficult to remove) the cheerful yellow flowers or 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 is native to northeastern Asia. It’s 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 pesticide 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. 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 nickle-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 if 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
- 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, by Peter del Tredici
- ellieirons.com/invasive_pigments_project
- USDA Plants Database, Plant Fact Sheets

Talking About Weeds: Vocabulary and Terminology

*adapted from Peter Del Tredici's Spontaneous Urban Plants of the Northeast

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

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

**Pioneer species:** A plant that colonizes bare ground, often after extreme events (fire, landslide, excavation)

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

*A reductive binary: the cutoff for native species in the Northeast is generally understood as circa 1600, around the arrival of Henry Hudson and 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 for species that were introduced through agriculture and trade pre-1500.

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

**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.

**Volunteer:** A plant that grows without being cultivated, native or nonnative.

**Ecological Benefits of spontaneous urban greenery:**

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

**Characteristics allowing Spontaneous Urban Plants to succeed:**

- FLEXIBLE (in 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)
Plant Checklist

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. 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)