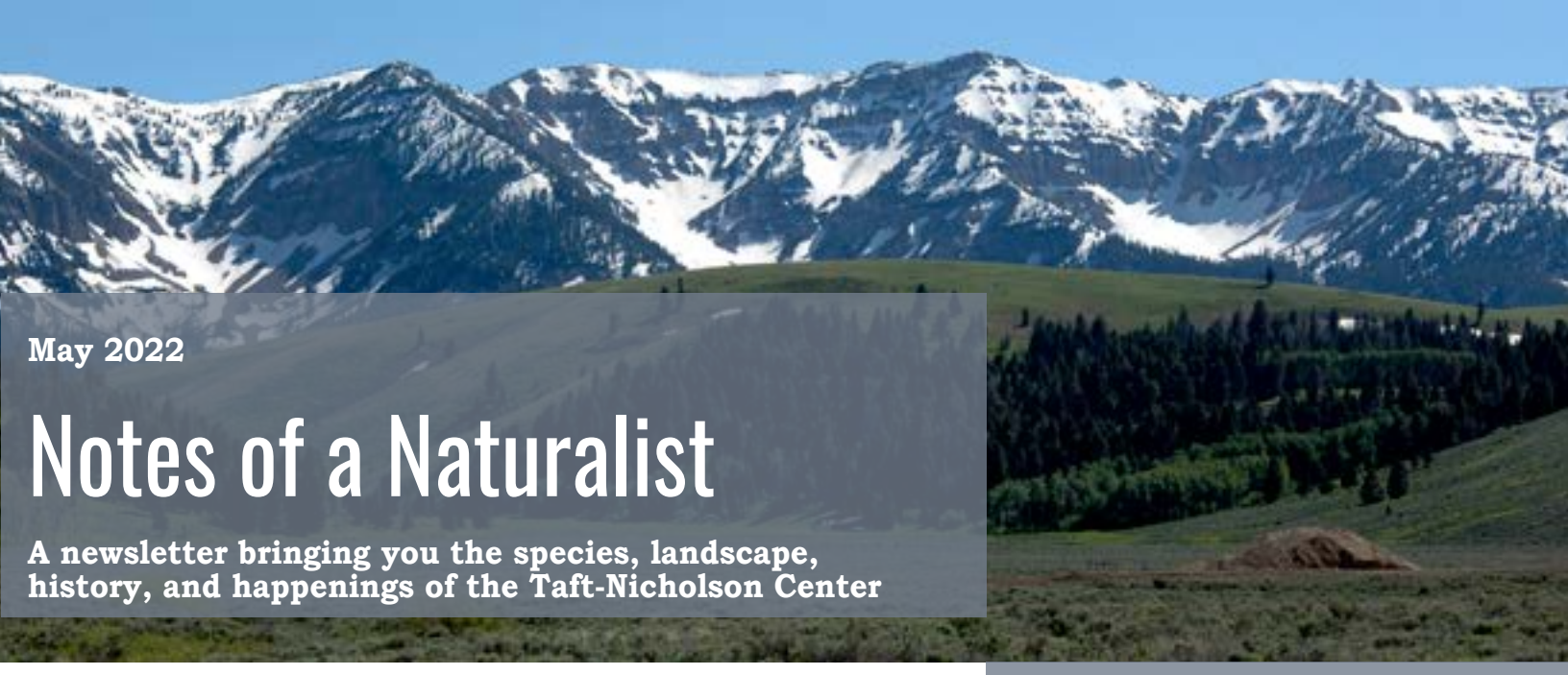


May 2022

Notes of a Naturalist

A newsletter bringing you the species, landscape, history, and happenings of the Taft-Nicholson Center

The Colors of Spring

The colors that transform the spring landscape start on a molecular level. The vibrant hues of plants, whether it be in the bright green of new leaves or the brilliant array of wildflower petals, are created by pigments. These are substances that reflect certain wavelengths of light, producing color, and absorb the rest. There are four main classes of pigments found in plants. Chlorophyll is probably the most well-known of these, which is a key component of photosynthesis and creates the green color that is unique to photosynthesizing organisms.

Pigments known as carotenoids are widely present in plants and produce yellows and oranges. They are best known for their contributions to golden fall foliage and orange carrots, but they can also be found in flowers. Flavonoid pigments also contribute to the burst of springtime color. Anthocyanins are a subgroup of flavonoids that create reds, blues, and purples. Other flavonoids reflect ultraviolet light, invisible to us but highly attractive to many insect pollinators. Betalains are yet another class of pigments, only found in some plant families. They produce shades of red and purple that differ from those made by anthocyanins. The characteristic bright pink of Montana's state flower, the Bitterroot, is the result of betalains. Flowers can contain a combination of carotenoids, anthocyanins, betalains, and sometimes even chlorophyll.

Bitterroot Photo Credit: NPS/ Jacob Frank

Different types of pollinators are attracted to different reflected wavelengths. These are often loosely grouped into pollination syndromes, which aren't rules so much as generalized patterns than can be seen. For example, flowers with UV nectar guides often draw in bees, while red flowers are popular among hummingbirds. Unlike the greens made by chlorophyll as a byproduct of photosynthesis, flower colors have evolved for the purpose of attracting pollinators. It is quite a beautiful coincidence that we also often find these colorful flowers to be so appealing.

Communicating in Color

From a bird's perspective, feathers can be worth a thousand words. Breeding plumage, mostly worn by male birds in temperate regions, is used to attract potential mates and challenge rivals. Feather colors and patterns can be quite complex and often convey information about the wearer. There are a few different ways that birds can produce colors. Like plants, birds have pigments. There are two main types found in birds: melanins and carotenoids.

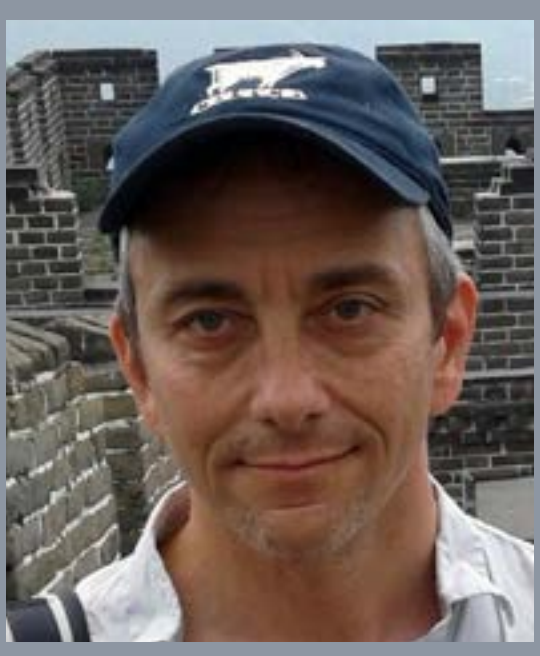
Western Tanager Photo Credit: NPS/ Lori Wilkinson

Birds produce their own melanins, which create browns, grays, and black. Carotenoids are responsible for more vibrant colors, like the red, yellow, and orange hues seen on a Western Tanager. Unlike melanins, birds can not produce carotenoids – they instead obtain these pigments by eating plants that create them, or by eating insects that eat those plants. Because carotenoids are a direct result of diet, these colors can say a lot about the health and food resources available to the bird wearing them.

Birds also produce what are known as structural colors, which are essentially the result of light bending as it passes through different types of materials. In the case of bird feathers, light is bent as it travels through layers of keratin, melanin, and air bubbles. Specific colors are the result of certain arrangments in these layers. This is what makes bluebirds blue and also what gives male hummingbirds their iridescence.

Meet the Artist: Chris Pavsek

Christopher Pavsek is a film scholar and filmmaker living in Vancouver, British Columbia, where he is an associate professor of film in the School for the Contemporary Arts at Simon Fraser University. He will be joining us for a couple of weeks in June, and will be back again for a week in August.



His recent filmmaking has focussed on the landscapes of the desert southwest and their representation in photography and experimental film. His recent video installation, "Scenes from Deseret" (2022), and a feature experimental documentary, "News from Deseret" (currently in post-production), are components of a project inspired by the structuralist filmmaking of James Benning, in particular his film Deseret (1995). His past filmmaking has examined the political legacies of the attacks of September 11 in the US, the AIDS epidemic in Vietnam, and his daughter's enthusiasm for food. His book, The Utopia of Film (2013), is a study of the utopian impulses in the cinema of Jean-Luc Godard, Alexander Kluge, and Kidlat Tahimik. Chris holds a PhD in Literature from Duke University and a Master's in Resource and Environmental Management from Simon Fraser University. In his creative work he strives to bring together the insights of critical theory, aesthetics, and the (social) science of conservation that he has gained through his diverse academic training.

Preparing for the 2022 season!

We are looking forward to a full season here at the Taft-Nicholson Center! Our doors will once again be open to classes and other groups. We will also be hosting faculty fellows in July, and artists-in-residence throughout the summer. Stay tuned for updates on groups, faculty fellows, artists, and happenings at the Taft-Nicholson Center! Find us on Instagram or Facebook to stay up to date on what's going on.