



Plight of the monarch butterfly

INSIDE:

Translating the 'language of nature'
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Plight of the magnificent monarch butterfly



A monarch butterfly perches on pink milkweed flowers.



Starting in September, monarch butterflies migrate across America to Mexico.

Since visiting a forest in central Mexico – where millions of monarch butterflies seek refuge each year – famed chef and restaurateur Jose Andres has had a special connection with, and concern for, these imperiled creatures.

According to the Center for Biological Diversity, a nonprofit conservation group, the annual count of monarch butterflies released in February 2017 showed their numbers fell by nearly one-third from 2016's count. Scientists report that 2017's population declined 27 percent from 2016 and was down by more than 80 percent from the mid-1990s.

Their "survival is so much more vital than saving something that's pretty to look at," Andres stated in a 2014 National Geographic article. "They affect us just as much as we affect them ..."

The tiny butterflies make a huge contribution to the health of our planet. They pollinate many types of wildflowers as they feed on nectar. Monarchs are also an important food source for birds, small animals and other insects.

In 2014, the Center for Biological Diversity and Center for Food Safety petitioned the U.S. Fish and Wildlife Service to list the monarch butterfly under the Endangered Species Act. USFWS is gathering information to determine whether the monarch needs protection and is expected to reveal its decision in June 2019. In 2015, USFWS dedicated \$2 million for monarch conservation, plus \$4 million starting in 2016 to enhance and expand its conservation efforts.

The three primary threats to their survival are loss of milkweed (their host) plants, loss of winter habitat and climate change. Across the U.S., a massive effort – on the part of agencies, individuals and organizations – is underway to provide habitat for monarch butterflies, bumblebees and other pollinators.

Millions of monarchs travel thousands of miles each year. During the summer, monarchs can be found throughout the United States and southern Canada in most places where milkweeds are available. Most monarchs east of the Rocky Mountains migrate from southern Canada and the northern United States to the mountains of interior Mexico. Most monarchs west of the Continental Divide migrate to coastal California.

Monarchs east and west of the Rocky Mountains face significant threats to their survival in summer and winter. The monarch population east of the Rockies has plummeted by more than 90 percent since 1995. In a count conducted during winter 2013-2014, monarchs east of the Rockies dropped to the lowest number yet recorded. The number of monarchs west of the Rockies has dropped by more than 50 percent since 1997.

The Million Pollinator Garden Challenge (<http://millionpollinatorgardens.org/about/#pollinatorgardens>) is a nationwide call to action to preserve and create gardens and landscapes that help revive the health of butterflies and their fellow pollinators across the country. See page 8 for information on building a butterfly-and-pollinator garden.

Sustainable travel takes off – and pays off



Guests at the Flamingo Hotel earn food-and-beverage credits when they opt out of housekeeping services.

More than 100 million U.S. leisure travelers, or 60 percent of all leisure travelers in the U.S., identified themselves as “sustainable travelers” — those concerned with how their travel impacts everything from a destination’s local economy to the environment. That’s according to a 2016 study from Mandala Research, a travel/tourism research firm in Alexandria, Virginia. Other key findings of the firm’s inaugural survey included:

- More than half (53 percent) of sustainable travelers reported that sustainable practices at the destination influenced their destination choice. Either it was the “key factor in their decision” to visit the destination (28 percent) or helped them choose between destinations (25 percent), compared to 8 percent of all other.
- Nearly two-thirds of all travelers said they were much more likely to consider destinations exhibiting a strong effort to conserve and protect natural resources.

Statistics like these are probably why more hotels are offering incentives to guests who decline housekeeping services during their stay. For example, the Flamingo in Las Vegas, Nevada, offers a \$10-per-day food and beverage credit to guests who opt out of housekeeping services. So not only are guests compensated for their housekeeping choice, but they also help the environment by reusing their sheets and towels. After all, if the hotel is laundering less bedding and fewer towels, it’s reducing water and energy consumption.

Following are a few other companies in the travel industry whose amenities, policies and programs are aimed at reducing their impact on the environment.

- American Airlines, Lufthansa, JetBlue and Qantas are among the carriers making sizable investments in aircraft that consume less fuel. In 2016, JetBlue bought millions of gallons of biofuel (made from organic matter), which the airline said it will start using in 2019.
- According to The Independent newspaper in the United Kingdom, New York City’s Brooklyn Bridge (the Manhattan hotel, not the famous structure) is the “best for eco chic.” Open since early 2018, the ritzy, boutique hotel’s numerous green amenities include a Tesla for use within 3 miles of the hotel; electric car-charging access; bicycle valet parking; a floor-to-ceiling green wall in the lobby; filtered water in all showers, sinks and taps; and a rainwater reclamation system. The bedrooms are a tableau of upcycled wood and natural, organic fabrics.
- Royal Caribbean partnered with the World Wildlife Fund in 2016 to help with ocean conservation. The cruise line will reduce the carbon emissions from its ships by using scrubbers, machines that eliminate nearly all of the environmentally harmful sulfur dioxide from a ship’s exhaust system. And by the end of 2020, Royal Caribbean’s fleet will use seafood only from fisheries and farms certified as sustainable and won’t serve overfished species like swordfish.



Royal Caribbean will lower the carbon emissions of Serenade of the Seas and all other ships in its fleet.

Artful amalgam of cultures

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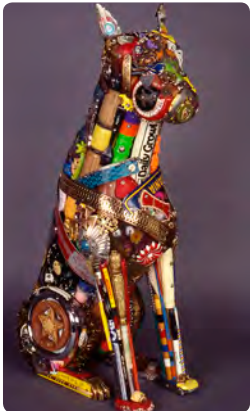
The artists featured in this edition of *Unity* provide distinctive presentations of nature and bring visual awareness to our throwaway culture.



"Scotty" by Leo Sewell

LEO SEWELL

Leo Sewell's young life seemed to epitomize the adage, "One man's trash is another man's treasure." He grew up near a garbage dump in Annapolis, Maryland, and became enamored with the junk



"Boxer" by Leo Sewell

he discovered there. Sewell collected discarded items from the site and took them apart. "My parents said I just can't take them apart; I had to rebuild something from them," says Sewell. In college, Sewell realized he could make beautiful art out of objects that others deemed useless or of little value.

Sewell's sculptures comprise recognizable objects of plastic, metal

and wood that are chosen for their color, shape, texture and durability. His studio is believed to have more than 100,000 pieces of "junk" that are meticulously organized into drawers with specific labels such as "pet ears" and "toes."

"Scotty," made from small items such as a red Crayola marker and a yo-yo, is called "a glittery, happy dog." The Christmas garland simulates fur and whiskers and makes this piece whimsical and fun.

"I regard 'Boxer' as one of my most refined pieces," says Sewell, "because I've done so many of them in different forms and materials and I know what's proper for a front foot, ear or haunch to make them look realistic."



"Diana" by Leo Sewell

"Diana" is Sewell's rendition of the famous sculpture of the same name housed in the Philadelphia Museum of Art. The subject – whose hair is made of aluminum fencing – balances on a bowling ball.

Sewell scours Philadelphia, Pennsylvania, for found objects. Throughout his career, Sewell has created more than 4,000

sculptures ranging from life-size models of animals to a 24-foot-long dinosaur. His art is displayed worldwide in museums and private and public collections.

RICHARD AND JUDITH SELBY LANG

Richard Lang was born and raised in Kankakee, Illinois. He remembers his parents being instrumental in fostering his love and passion for art. His mother attended The Art Institute of Chicago and his father was involved with music. At the age of 12, Lang attended an ecology summer class, where he developed an ecological map of a farm creek and catalogued every creature in the creek. By graduate school, Lang realized that art and ecology were paramount in his life.

While growing up in Dallas, Texas, Judith Selby Lang aspired to be a paleontologist. She and a friend would mine white limestone cliffs in the woods with hopes of finding a dinosaur skeleton. She now regards herself as an artist/archeologist mining beaches in search of plastic debris from the Pacific Ocean.

As residents of Marin County, California, this husband-and-wife team collects plastic remnants that have washed ashore at Kehoe Beach in the Point Reyes National Seashore.



"Chroma Red" by Richard and Judith Selby Lang

"The plastic is fashioned into a work of art and transported to a publisher in San Francisco to be photographed and printed," says Selby Lang. "The artwork is then disassembled and goes back into inventory to be used for future configurations."

"Chroma Red," an arrayed palette of plastic, presents a subtle gradation of rust to red and fuchsia to pink.



"Toy Handle" by Richard and Judith Selby Lang

The bucket handle's arched shape in "Toy Handle" frames an assortment of identifiable pieces, including a yellow hair curler and a blue hair dryer for a doll. Can you find the yellow corn cob holder?

"Kouros," in ancient Greek, means youthful boy, especially of noble rank. These pieces of found objects possess a peculiar beauty of muted colors.



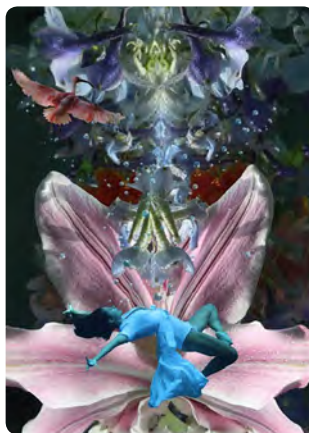
"Kouros" by Richard and Judith Selby Lang

The Langs say they use pieces of plastic like brushstrokes of paint. They state, "Our photographed work goes out into the world for exhibition in galleries, museums and art spaces to entice and educate the public about the perils of plastic pollution."

ANDREA BONFILS

Andrea Bonfils was raised in Scarsdale, New York, but maintains she's always felt she belonged in the water, whether skiing, scuba diving or engaging in other outdoor activities. She also distinctly remembers showing her love for the arts when she was young by making sculpture, painting and ceramics.

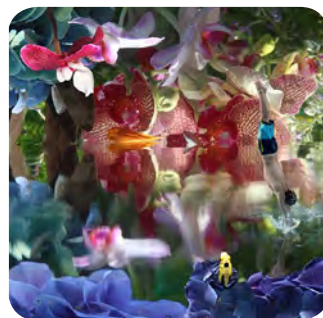
Bonfils, who now lives in Darien, Connecticut, has explored fluidity in underwater movement in her latest series called Submerged Garden. Her use of underwater techniques to create photographs that are dream-like and mystical allows her to make images of submerged floral sculptures that kaleidoscope into geometric abstract shapes.



"Submerged Garden Blue" by Andrea Bonfils

"Submerged Garden Blue" portrays a blue light and female being born from a flower, and "Submerged Garden Oasis" appears as an underwater cave of a natural playground lined with enormous orchids, birds and tree frogs.

Bonfils says "Underwater 9529" – which captures an upside-down female – is meant to challenge the viewer's perspective.



"Submerged Garden Oasis" by Andrea Bonfils

The woman appears to be diving and her weightlessness speaks to lightness, freedom and serenity.

"I use all mediums in what van Gogh called a 'language of nature,' particularly in my underwater series," says Bonfils. "My goal is to show curiosity and evolution translated within images that are compelling and seductive."



"Underwater 9529" by Andrea Bonfils

Vertical farming takes root in the U.S.



Strawberries grow without the need for soil in a specialized greenhouse.



Hydroponic gardening is the primary system operating in vertical farms.

As the Earth's population – 7.5 billion – continues to grow, so does the urgent need for more food and more soil on which to grow it. Around the world, some innovative entrepreneurs and farmers are addressing that issue by looking up, not down, for places to grow more food.

One solution might be located in vacant warehouses and even in used shipping containers from ocean transports. This solution, vertical farming, consists of growing crops indoors, with light, nutrients and temperatures that are constantly regulated. In vertical farming, growing plants can be stacked several stories high.

In the U.S., commercial-scale vertical farms – unlike the small, residential versions – have been utilized only for a few years. These farms vary in shapes and sizes, from two-level or wall-mounted systems to large, multistory warehouses. All vertical farms, regardless of their configurations, use one of three soil-free systems:

Hydroponics. The main growing system used in vertical farms involves submerging plant roots in nutrient solutions that don't contain soil. The solution is monitored to ensure that the correct chemical composition remains consistent.

Aeroponics. You can thank NASA for developing this innovative indoor growing technique. NASA coined the term aeroponics, defined as "growing plants in an air/mist environment with no soil and very little water." Aeroponic systems use up to 90 percent less water than their most efficient hydroponic counterparts. Although aeroponic systems aren't pervasive in the vertical farming world, they are drawing attention.

Aquaponics. An aquaponic system combines plants and fish in the same ecosystem. Fish grow in indoor ponds, producing nutrient-rich waste that feeds the plants in the vertical farm. The plants filter and purify the wastewater, which is recycled to the fish ponds.

Vertical-farming enterprises are sprouting across the country. Some of the most notable are:

AeroFarms • www.aerofarms.com

New Jersey vertical-farming system based on aeroponics. The world's largest indoor vertical farm in terms of annual output.

CropBox • www.cropbox.com

North Carolina shipping-container vertical farming system. Offers turnkey subscription plan providing nutrients, seeds and support.

Farmbox Greens • www.farmboxgreens.com

Small, enclosed vertical farm in a Washington residential setting. Delivers microgreens to local market.

GrowTainers • www.growtainers.com

Texas shipping-container vertical farming system, complete with mobile apps for environmental control.

The Plant • www.plantchicago.com

Built in an abandoned, Illinois pork-packing plant, this vertical farm also uses roof space for a conventional soil garden.

Urban Produce • www.urbanproduce.com

Seeded trays on conveyor-belt system. Produces microgreens, including kale, radish and cauliflower, in California.

Mussels: Good for the body and planet

Q. What's black and white and loved all over?



Elevate mussels by steaming them in broth infused with saffron.

A. That would be mussels. Their shells can be black as well as light brown, greenish or dark blue. The color of the meat in those shells can be white, to brown, to orange. And they're coveted, as well as cultivated, in the U.S. and abroad.

From a sustainability standpoint, though, mussels are – pun intended – quite a powerhouse. Farm-raised mussels are the ideal, ocean-friendly seafood option. The Shedd Aquarium in Chicago, the largest such facility in the world, denotes mussels as a “best choice” in its ocean-friendly seafood list.

Like other shellfish, mussels are filter feeders. This means that they capture and feast on tiny particles, plants and nutrients by filtering ocean water. The result: Mussel-farming operations can actually purify the water where they are located.

Most farmed mussels are raised on suspended ropes that never make contact with the seafloor, so there's no risk of destroying habitat. Some mussel farmers raise their mussels in mesh bags or cages, either suspended in the water column or attached to the seafloor. When the mussels are large enough to harvest, all farmers have to do is collect the bags or cages from the farming location.

Those who enjoy eating mussels are effusive in their praise for them. Cooks everywhere are pleased with the endless possibilities for recipes, from baked to bisque and chowder to salad. Low in fat and high in protein, mussels also get a nod of approval from nutritionists and doctors.

No question about it: Mussels can do no wrong.

Steamed Mussels With Garlic and Parsley

- 2 tablespoons extra-virgin olive oil, plus more for toast
- 2 garlic cloves, minced, plus 1 or 2 whole garlic cloves for rubbing toast
- Pinch of crushed red pepper
- 4 pounds mussels, cleaned
- 1/4 cup white wine or water
- 1 baguette, split lengthwise, then cut crosswise in half
- 1 cup roughly chopped parsley

Heat the broiler. Put the olive oil in a large heavy-bottomed soup pot or Dutch oven over medium heat. Add the minced garlic and red pepper and let sizzle for 30 seconds without browning. Add the mussels, stir to coat and increase the heat to high. Add the wine or water, and put on a lid. After 2 minutes, give the mussels a stir, then replace the lid and continue cooking until all of the mussels have opened, 6 to 8 minutes.

Paint the cut sides of the baguette pieces with the oil and place the cut sides up under the broiler to toast. Rub the toast with the remaining garlic cloves.

Stir the chopped parsley into the mussels, then ladle the mussels and the broth into bowls. Serve with the garlic toast.

(Recipe from The New York Times)



Steamed mussels are easy to cook and perfect for weeknight meals.

Build a butterfly-and-pollinator garden



Choose your location: Gardens should be planted in sunny spots, with some protection from the wind.

Evaluate the soil: Break ground to see the consistency of your soil in your yard. If your soil type doesn't match what you want to plant, consider building a raised bed or using flowerpots.

Prep the soil: If you're planting in your yard, remove the lawn and current plant cover and rake the soil. Additional dirt can be helpful and necessary for raised beds and flowerpots. Add your soil to the bed or pots.

Choose your plants: Find a nursery that sells native and local plants and milkweed (monarch butterflies' host plant) for your area. Choose plants that have not been treated with pesticides, insecticides or neonicotinoids. Plant perennials to ensure your plants come back annually. Choose diverse plants that bloom

throughout the seasons to ensure pollinators benefit in the spring, summer and fall.

Choose seeds or small plants: Small plants that have started growing in a nursery are simple and show instant return on pollinator visits, especially if you are planting in a small space. If you'd like to use seeds, plant in spring or fall, giving the seeds time to germinate. Remember to water your seeds before you see plants.

Plant flowers and milkweed: For small plants, dig holes just big enough for the root system. Cover the roots with dirt and reinforce with dirt or straw mulch to reduce weed growth. For seeding, spread seeds across your freshly prepared garden and cover them with dirt.

Wait, watch, water and weed your garden: Though it might take some time, you will eventually see butterflies and other pollinators.
– U.S. Fish and Wildlife Service