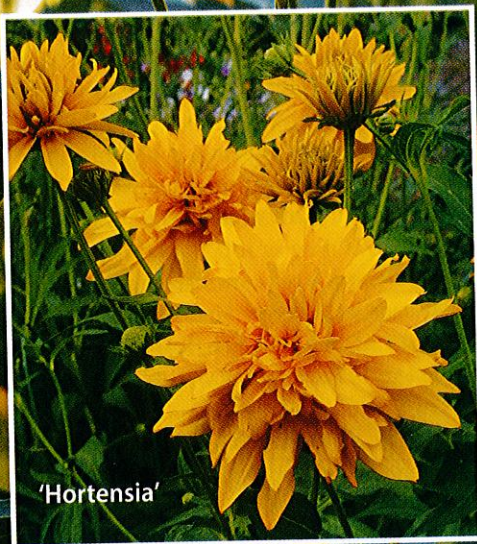


Cutleaf coneflower

These flowers
have just opened



'Hortensia'

Amazing Rudbeckia

These native plants beat the heat *and* brave the cold.

There's so much to love about rudbeckia. It's super cold hardy but also tolerates heat. Plants bloom for two months starting in summer and continue into fall. Deer pass it by, but birds and butterflies visit often.

You've probably heard of 'Goldsturm' black-eyed Susan or the numerous gloriosa daisies, such as 'Cherry Brandy' or 'Irish Eyes', but there's more to this big family than these popular hybrids. There are 25 species of annual, perennial or biennial rudbeckia and lots of cultivars. I'd like to introduce you to a few of the lesser-known family members. Although they're commonly called coneflower, don't confuse these yellow coneflowers with the similar-looking purple coneflower—these coneflowers are all *Rudbeckias* while those are *Echinaceas*. To avoid confusion, I'll refer to the group as rudbeckia, and call each species by its common name.

Rudbeckia grows best in full sun to part shade, though tall plants may need some staking to avoid leaning or flopping stems in more shade. They grow best in well-drained soil with regular moisture. But most are drought-tolerant and I'll show you a couple that do just fine in clay soil. Dead-heading encourages them all to rebloom more quickly. Don't worry about feeding rudbeckia—too much nitrogen produces weak stems and floppy plants. An annual application of a slow-release fertilizer, such as 14-14-14, in spring is plenty. To get more of your favorite rudbeckia, dig the plant in spring as the foliage is emerging. Split it into several smaller pieces and replant at the same depth they were growing or pot them up to share with a friend.

As you can see, care for rudbeckias is simple. Let's find out more about these amazing plants. ■

—*Sherri Ribbey*

Botanical Names

Black-eyed Susan
Rudbeckia fulgida
Gloriosa daisy
Rudbeckia hirta
Purple coneflower
Echinacea purpurea

Cutleaf coneflower

Rudbeckia laciniata

This Midwestern native is found in moist meadows or open woodlands and can grow up to 9 feet tall. Cutleaf coneflower looks and flowers best with consistent moisture and isn't as drought-tolerant as some of its relatives. The species, shown in the large photo at left, has 3- to 6-inch single yellow blooms with reflexed (curved downward) petals. You can see a few new blooms in the lower right that have just opened and their petals haven't "relaxed" yet. The dome-shaped cones have a green center disc. There are several hybrid cutleaf coneflowers but the best-known is 'Hortensia', also called Golden Glow. The 2- to 3-inch flowers, in the inset, are double. This hybrid grows 5 to 7 feet tall and 2 to 3 feet wide.

Both the species and hybrids can spread quickly to fill a space in ideal conditions. But they aren't invasive. To discourage spreading, divide them every three or four years or choose a spot that stays on the drier side.



Perennial

Blooms Yellow petals with a green center summer to fall

Light Full sun to part shade

Soil Moist, well-drained

Size 24 to 108 in. tall, 18 to 26 in. wide

Cold-hardy USDA zones 3 to 9

Heat-tolerant AHS zones 9 to 1

Source Prairie Nursery,
www.prairienursery.com, 800-476-9453

Amazing rudbeckia continued



Claspig coneflower



Annual

Blooms Yellow petals that may or may not have a maroon eye, summer to fall

Light Full sun

Soil Well-drained

Size 18 to 24 in. tall, 12 to 18 in. wide

Cold-hardy NA

Heat-tolerant AHS zones 12 to 18

Source High Country Garden
www.highcountrygardens.com
800-925-9387

Claspig coneflower

Rudbeckia amplexicaulis

(sometimes listed as *Dracopis amplexicaulis*)

Claspig coneflower is a natural for wildflower meadows or cottage gardens—anytime you want a casual look with lots of color. This annual is easy to grow from seed—you can start it inside or sow directly outdoors after all chance of frost is past. And though it's technically an annual, claspig coneflower reseeds so easily it seems like a perennial. Grow it with other easy-to-sow annuals, such as cosmos and marigold, for a cheerful combo in your cottage garden.

Claspig coneflower gets its name from leaves that wrap around the stem. The 2-in. blooms have a dark brown cone, or disc, that sits up to 1 in. above yellow reflexed petals. You may notice that the blooms in the photo have a bit of maroon in the center, but this is a variety. On some plants the markings will be very faint or even nonexistent.

Though claspig coneflower is native to the Midwest, it grows in a wide range of conditions and tolerates drought.

PHOTO: Courtesy of Prairie Moon Nursery (sweet coneflower)
LOCATION: Chicago Botanic Garden (Henry Eilers)



Sweet
coneflower



'Henry Eilers'



Perennial

Blooms Yellow in summer to fall

Light Full sun to part shade

Soil Well-drained

Size 3 to 5 ft. tall, 1 to 2 ft. wide

Cold-hardy USDA zones 4 to 8

Heat-tolerant AHS zones 8 to 1

Source Prairie Moon Nursery,
www.prairiemoon.com, 866-417-8156

Sweet coneflower

Rudbeckia subtomentosa

Need a plant that tolerates hot, humid summers and clay soil? Sweet coneflower, in the photo above left, is the rudbeckia for you. Native to wet prairies and open woodlands, this rudbeckia likes regular moisture but is also quite drought-tolerant. Its numerous 2- to 3½-inch yellow blooms have a light anise scent and bring long-lasting color to any sunny rain garden. Add a few bright red cardinal flowers and pale pink turtlehead for a head-turning moist-soil solution. 'Henry Eilers' at right is a cultivar that has quilled petals and grows about the same size as the species. Long-lived, sweet coneflower will give you years of enjoyment in the garden.

Botanical Names

- Cardinal flower *Lobelia cardinalis*
- Cosmos *Cosmos bipinnatus*
- Marigold *Tagetes* hybrids
- Turtlehead *Chelone lyonii*

Amazing rudbeckia *continued*

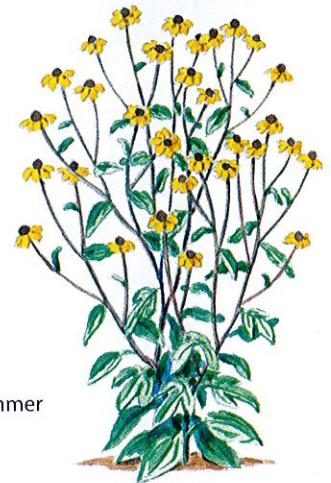


Three-leaved coneflower

Rudbeckia triloba

You never know where three-leaved coneflower, also called brown-eyed Susan, will pop up next—this petite biennial reseeds easily so there are always a few plants in bloom. I've planted three-leaved coneflower on one side of the yard then had its progeny show up on the other side a few years later—never in quantities that are problematic, though. With lots of the charming 1- to 2-inch blooms on every plant, it's a great companion for jazzing up late summer and fall borders. Grow three-leaved coneflower with garden mums and goldenrod to keep late-season butterflies well-fed. Or try 'Prairie Glow', a cultivar that has big 5-inch blooms with rusty red centers. It's a little bigger, at 36 to 48 inches tall and 18 to 24 inches wide.

Three-leaved coneflower grows best in moist, well-drained soil but tolerates drought and clay well.



Biennial

Blooms Yellow summer to fall

Light Full sun

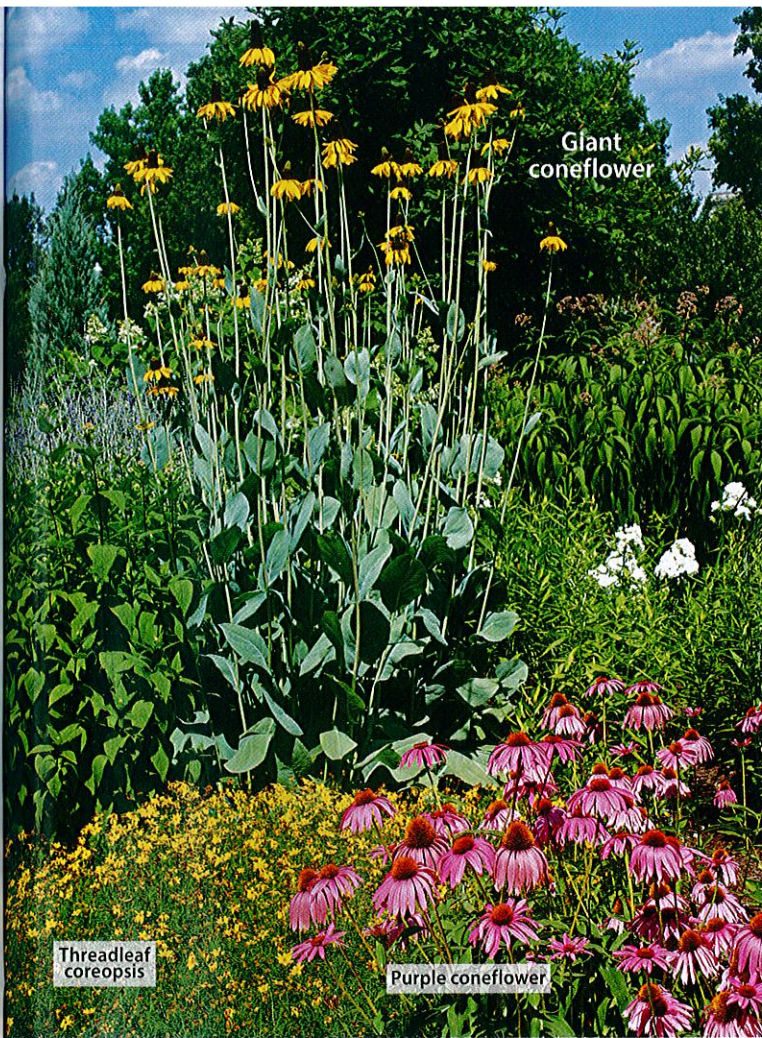
Soil Well-drained

Size 24 to 36 in. tall, 12 to 18 in. wide

Cold-hardy USDA zones 4 to 8

Heat-tolerant AHS zones 8 to 1

Source Prairie Moon Nursery, www.prairiemoon.com, 866-417-8156 (species); Bluestone Perennials, Inc., www.bluestoneperennials.com, 800-852-5243 ('Prairie Glow')



Threadleaf coreopsis

Purple coneflower

Giant coneflower



Giant coneflower's cones can get 6 in. tall.

PHOTOS: Courtesy of North Creek Nurseries, Inc. (three-leaved coneflower, giant coneflower blooms); courtesy of Select Seeds, Union CT (Prairie Glow); courtesy of Bluestone Perennials, Inc. (giant coneflower landscape)



Perennial

Blooms Yellow in summer

Light Full sun

Soil Well-drained

Size 5 to 7 ft. tall, 3 to 4 ft. wide

Cold-hardy USDA zones 4 to 9

Heat-tolerant AHS zones 9 to 1

Source Bluestone Perennials, Inc., www.bluestoneperennials.com 800-852-5243

Giant coneflower

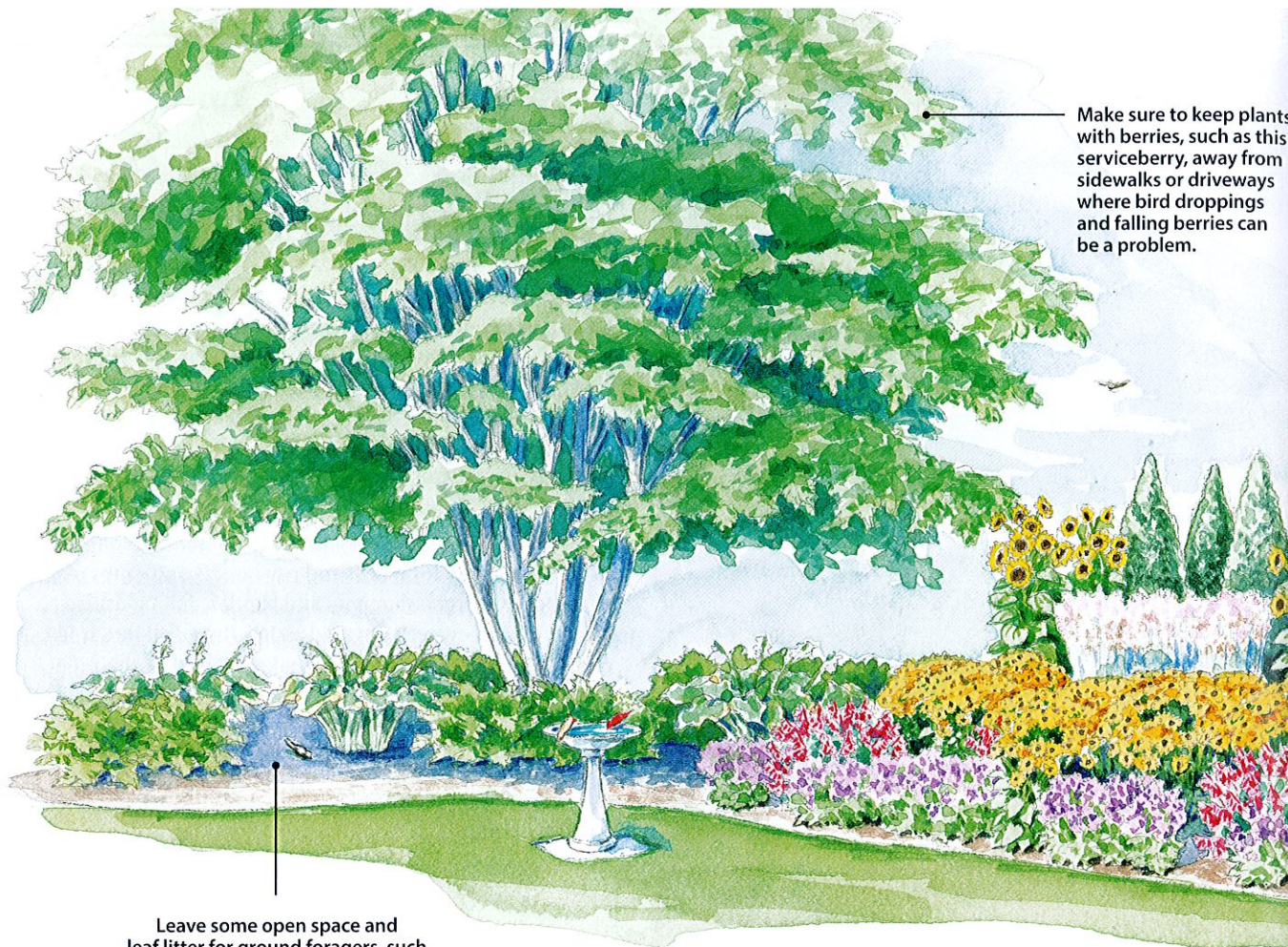
Rudbeckia maxima

Here's one sure way to wake up your summer border—grow giant rudbeckia, also called cabbage leaf coneflower. Its low rosette of foliage is made up of leaves that can get up to 18 to 24 inches long and 8 to 10 inches wide and produce flowering stems up to 7 feet tall in summer. The 2- to 3-inch blooms' yellow petals start horizontal then flex back and have cones that can be 6 inches tall. See how nicely this focal point plant works with the coreopsis and purple coneflower above? Giant coneflower's upright habit makes it a great plant for adding structure to perennial borders.

It's native to wet areas but has great drought tolerance also. Giant coneflower will spread slowly by rhizomes where it's happy.

Botanical Names

- Garden mum
Chrysanthemum hybrid
- Goldenrod *Solidago rugosa*
- Purple coneflower
Echinacea purpurea
- Threadleaf coreopsis
Coreopsis verticillata



Make sure to keep plants with berries, such as this serviceberry, away from sidewalks or driveways where bird droppings and falling berries can be a problem.

Leave some open space and leaf litter for ground foragers, such as sparrows and lark buntings.

Roll out the welcome mat for birds

Add a few plants to your backyard and you might be surprised how many of the neighborhood birds stop by or even settle in to raise their families. Fortunately, you'll also enjoy many of the things that make them feel at home. An evergreen hedge blocks the wind, making it easier for birds to forage, bathe or rest. Pretty flowers and foliage provide food and shelter from weather and predators. Take a look at this garden for many elements that will encourage birds to stick around. You can go all out and create a backyard habitat or add just a few of these plants or ideas—whatever your budget allows—the neighborhood birds will take advantage of all that you have available.

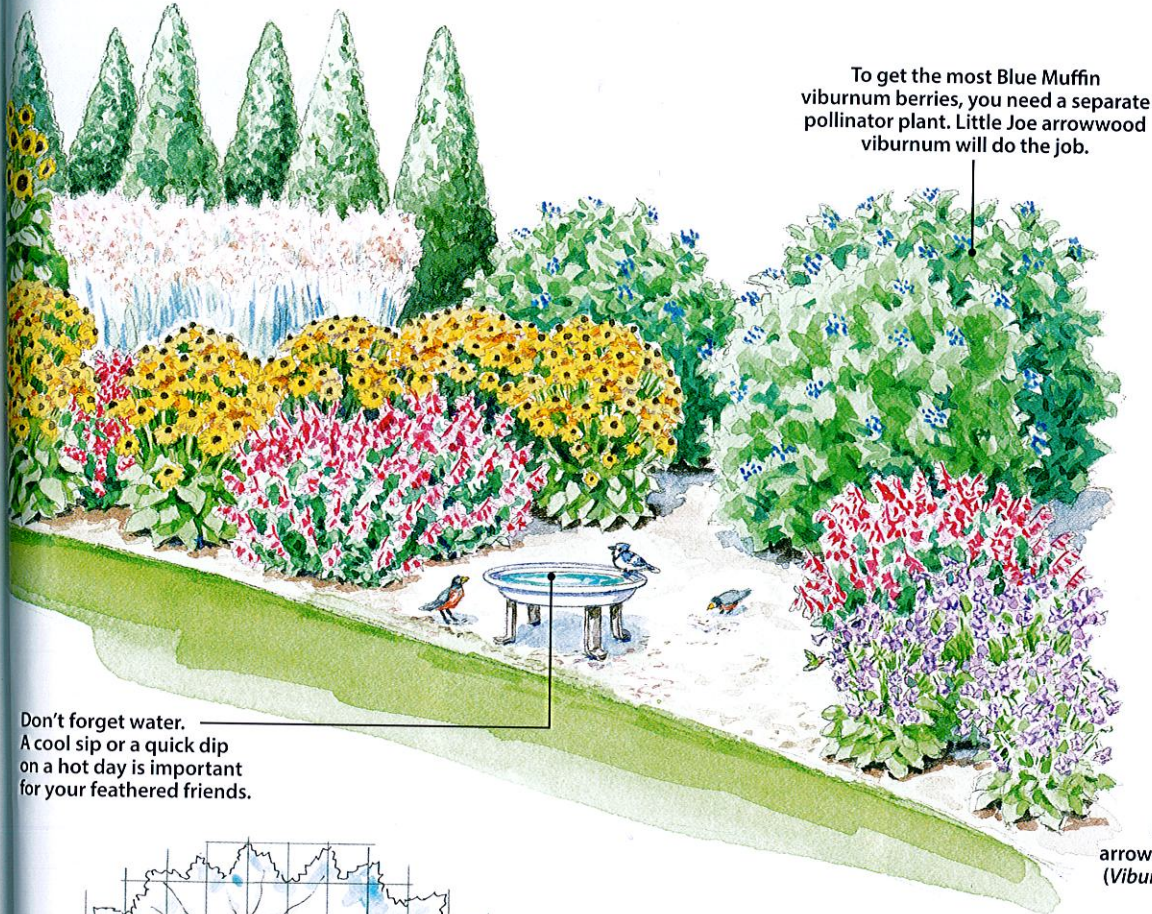
Start with a few trees and shrubs. Not only do they provide great structure for your garden, but birds perch on the branches to watch for predators, hide there for protection

and may even build their nest in one. Besides that, many trees and shrubs, such as this early summer-fruiting serviceberry and fall-fruiting viburnum, are good sources of food.

A variety of plants provide food at different times of year. Add a few flowers but skip deadheading the black-eyed Susan—its seeds and those of 'Lemon Queen' sunflower will be a favorite for some birds. Hosta, salvia and flowering tobacco are a good bet for bringing in hummingbirds. The autumn ferns give ground foragers a little cover while they're looking for insects. Take a look at the illustration above for a few more tips that will make your garden a hit with the birds. The plan at right shows how it all goes together. If you don't have room for the whole thing, just choose some of the plants that fit your situation. Turn the page and you can find out more about how to grow these bird favorites. >>

PLANT LIST (number to plant)

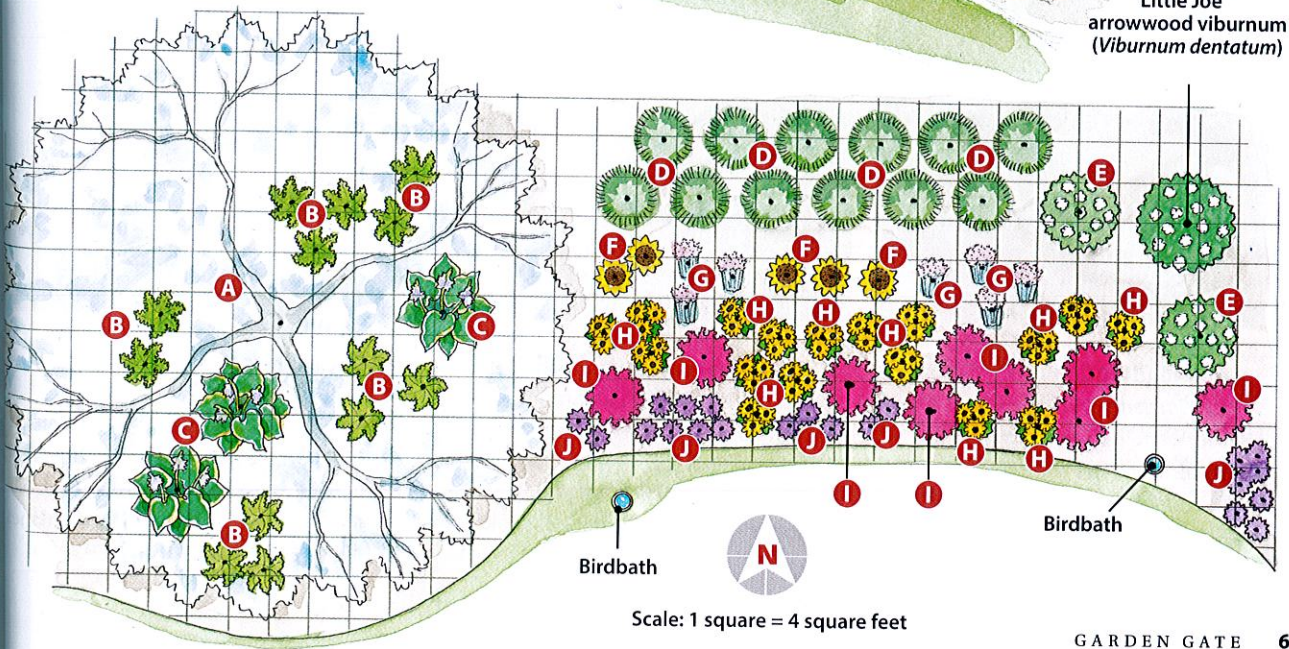
- A Serviceberry** *Amelanchier arborea* (1)
- B Autumn fern** *Dryopteris erythrosora* 'Brilliance' (13)
- C Hosta** *Hosta* 'Sagae' (3)
- D Juniper** *Juniperus scopulorum* 'Medora' (12)
- E Arrowwood viburnum** *Viburnum dentatum* Blue Muffin® (2)
- F Annual sunflower** *Helianthus* 'Lemon Queen' (5)
- G Switchgrass** *Panicum virgatum* 'Heavy Metal' (7)
- H Black-eyed Susan** *Rudbeckia fulgida sullivantii* 'Goldsturm' (17)
- I Salvia** *Salvia* 'Wendy's Wish' (9)
- J Flowering tobacco** *Nicotiana* 'Perfume Deep Purple' (21)



To get the most Blue Muffin viburnum berries, you need a separate pollinator plant. Little Joe arrowwood viburnum will do the job.

Don't forget water. A cool sip or a quick dip on a hot day is important for your feathered friends.

Little Joe™ arrowwood viburnum (*Viburnum dentatum*)



PRESIDENT'S VIEW

COLLIN O'MARA

President & Chief Executive Officer

How Do You Save a Species? Save Its Habitat.

In the February–March issue of *National Wildlife* magazine, we shared how more than one-third of North America's fish and wildlife species are at risk of extinction in coming decades. Now we need your help both elevating the urgency of addressing America's wildlife crisis and finding solutions to ensure wildlife thrive in our rapidly changing world.

Conservation successes across our nation are often considered the envy of the world. Yet for every successful recovery—from white-tailed deer, elk and bighorn sheep to wild turkeys, wood ducks and bald eagles—there are hundreds of species in trouble. Populations of songbirds, pollinators and amphibians, mammals from bats to moose and many aquatic species are plummeting. These are today's canaries in the coal mine, serving as harbingers of the emerging sixth extinction and calling us to act, not just for wildlife but for our own health, prosperity and ultimate survival.

In this issue of *National Wildlife*, we're spotlighting two significant challenges facing America's wildlife: fragmented habitat corridors and unprecedented wildfires.

Healthy wildlife populations need healthy habitat. Habitat corridors bisected by roads, development or walls can impede the ability of animals to find food, mate, diversify the gene pool and make seasonal migrations. For these reasons, increasing landscape connectivity is a priority for the National Wildlife Federation.

Millions of acres of habitat are also being destroyed annually by raging forest fires. While natural fires can rejuvenate habitat by clearing out old brush, thinning the tree canopy and allowing new growth, we're now experiencing record fires that burn hotter, longer and larger than ever before. These fires are



SUSAN MCELHINNEY (NWF)

National Wildlife Federation President and CEO Collin O'Mara is leading a charge to protect forest habitat and ensure healthy migration corridors for wildlife.

fueled by drier soils, dead trees from bark beetle infestations and a lack of habitat restoration to improve forest health. To reduce the risk of devastating fires, the Federation and its state affiliates are working hard to secure sufficient funding for proactive forest restoration.

Both of these habitat challenges are exacerbated by warming temperatures due to a changing climate. Many species are having migratory problems as they expand their ranges northward or seek cooler elevations. Fires worsen as hotter summers reduce moisture levels in soils, and warmer winters prevent the traditional cyclical die-off of hungry bark beetles.

The good news is that we can address these challenges if we each do our part. The Federation will soon be spotlighting specific actions the nation needs to take to save America's wildlife—and we'll need your help making this vision a reality. Thank you for joining us in this noble pursuit! 🌲

📢 **SHARE YOUR VIEWS.** Follow Collin O'Mara on Twitter at twitter.com/Collin_OMara. To share your thoughts and opinions, email president@nwf.org.

The Day the Sun Disappears

It's coming! On August 21, for the first time since 1918, a total solar eclipse will cross our nation

By Charles Fulco

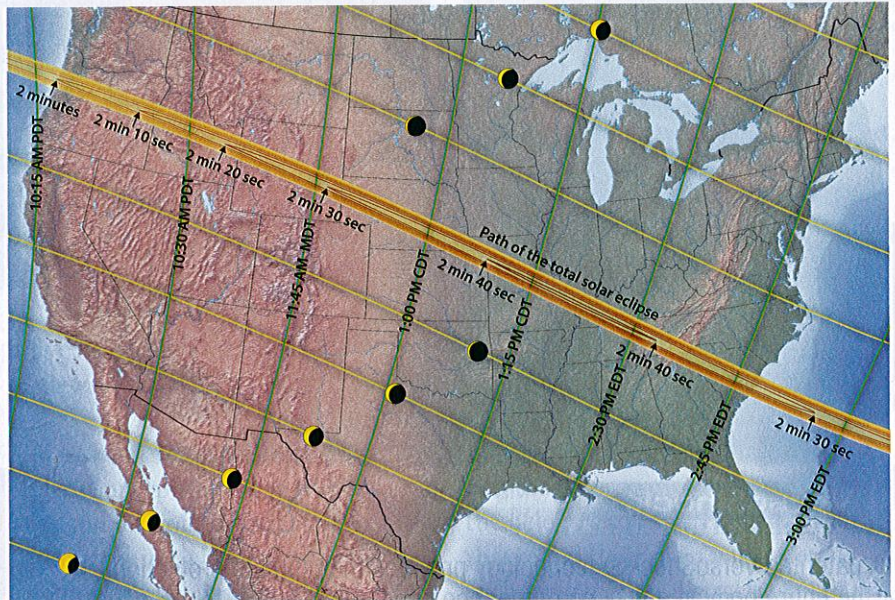
As someone lucky enough to have witnessed four total solar eclipses (TSEs) on four continents, I can tell you it's one of nature's most breathtaking sights. Along the "path of totality," with moon and sun in perfect alignment, the moon's shadow completely blocks out the sun. The sky darkens, the air cools, and for a few brief, stunning minutes, day turns to night.

On August 21, millions of people will see this spectacle as the eclipse's path of totality cuts across the entire United States for the first time in almost 100 years. The trick will be knowing where to catch the best view.

Finding the dark

People in every state will see a partial eclipse, but only those in the path of totality will see the complete blackout. It will begin around 10:15 a.m. Pacific Daylight Time off the Oregon coast. People there will be the first to see the eclipse—unless coastal fog blocks the show. If you want a near guarantee of cloudless skies, go to central Oregon near Madras, which has the best chance for clear viewing on eclipse morning.

To experience the longest duration of totality, head to southern Missouri, Illinois or Kentucky, where the blackout will last about 2 minutes and 40 seconds—longer than anywhere else along the track. Nashville, Tennessee, is the largest city in the path of totality, and Charleston,



MICHAEL ZEILER (WWW.GREATAMERICANECLIPSE.COM)



CHARLES FULCO




WILLOUGHBY OWEN (GETTY IMAGES)

From Oregon to South Carolina, the path of totality, where the moon completely blocks the sun, will sweep across the nation (map). Those outside this path will see a partial eclipse (right). A total eclipse begins and ends with a diamond ring of light (left).

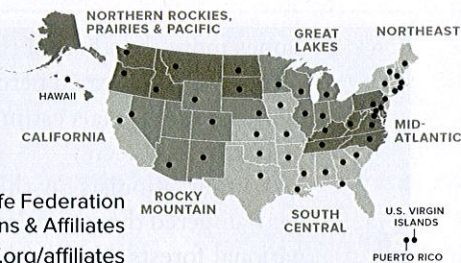
South Carolina, is the last large city the TSE will touch before its exit.

If you want to photograph the magic amid beautiful scenery, head to Grand Teton or Great Smoky Mountains national parks—but be prepared for crowds. And be sure to protect your eyes. For a TSE, direct

viewing is safe, but to gaze at the brighter partial eclipse, use a filtered telescope, binoculars or safety glasses. Viewed safely, this rare event will be the sight of a lifetime. 

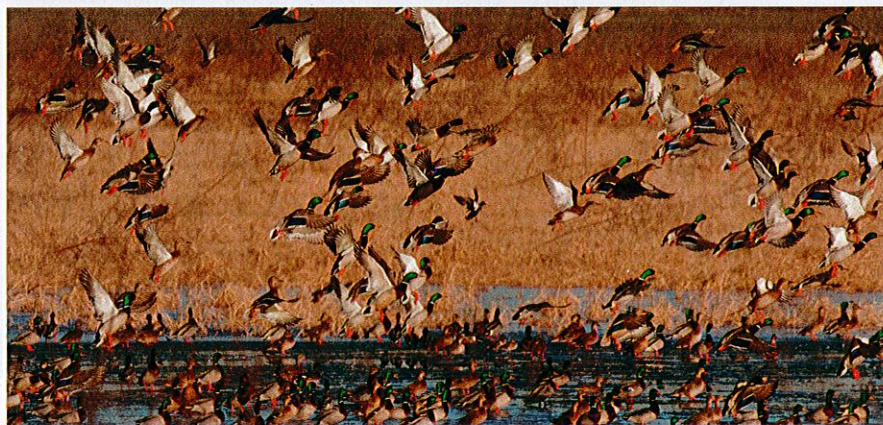
Charles Fulco is with the National 2017 U.S. Total Solar Eclipse Task Force.

WORKING FOR WILDLIFE



PROTECTING HABITAT

Vital wetlands saved from proposed levee



NOPPADOL PAOTHONG (MISSOURI DEPARTMENT OF CONSERVATION)

In early January, the White House Council on Environmental Quality rejected a U.S. Army Corps of Engineers proposal to build a levee and two pumping stations near New Madrid, Missouri, which would have drained 50,000 acres of

wetlands. The National Wildlife Federation worked with 90 organizations—including its affiliates Prairie Rivers Network (PRN) and Kentucky Waterways Alliance—as well as leaders in three states to rally opposition to the project.

The Missouri wetlands contain rare bottomland hardwood forests and are critical for 114 fish species and 193 migratory and other bird species (such as mallards, left). They also provide natural flood protection for dozens of Missouri, Kentucky and Illinois communities. In this middle Mississippi River region, “it is the last jewel of its kind,” says Melissa Samet, NWF senior water resources counsel.

The levee would have severed the floodplain and its wetlands from the Mississippi River. While a handful of farmers favored the project, “it was really about a few landowners wanting permanent protection at the cost of communities and wildlife,” says PRN Executive Director Carol Hays.

Visit: www.nwf.org/newmadrid

CONNECTING TO NATURE

Join the Great American Campout

On June 24, NWF will launch its 13th annual Great American Campout™ (GAC), a summer-long event that has inspired hundreds of thousands of campers to enjoy the outdoors. Whether you are with your family near Montana’s Bob Marshall Wilderness Area (like Melanie Ruth, right) or in your own backyard, “camping submerses you in nature in a way that a short day hike just can’t,” says Amelia Todaro, NWF education events coordinator. “You can really experience it with all your senses.”

Go online to pledge and you can find a group campout near you, including those NWF is hosting. The GAC website also offers many camping tips and activities—even some recipes for the grill. Visit: www.nwf.org/campout

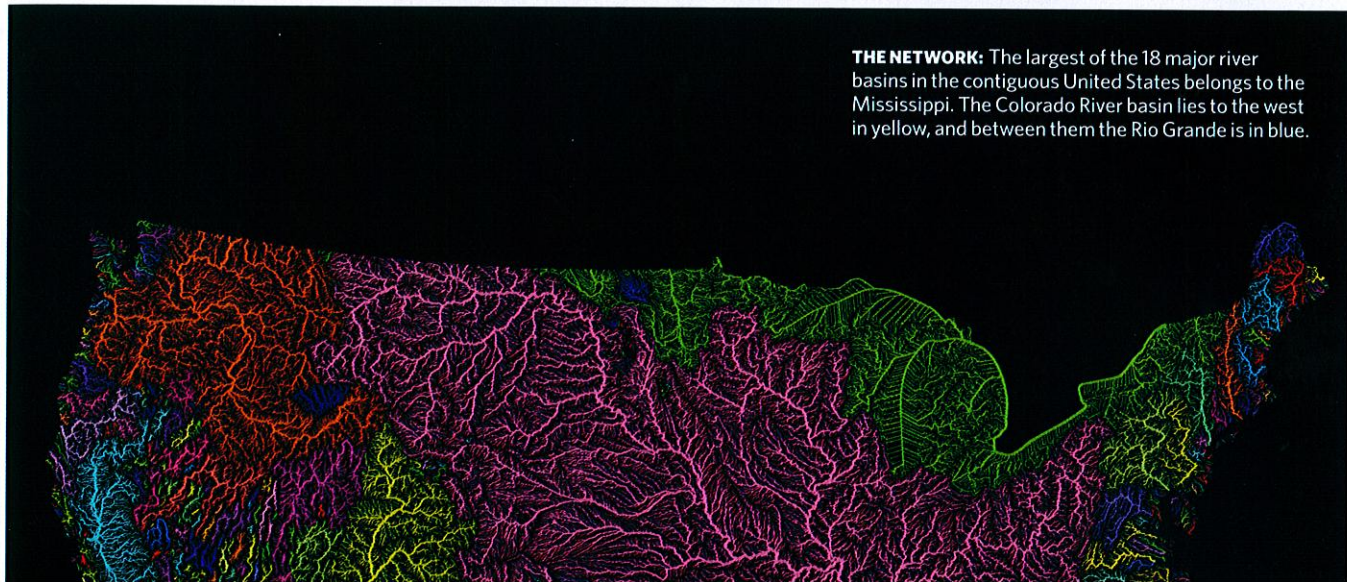


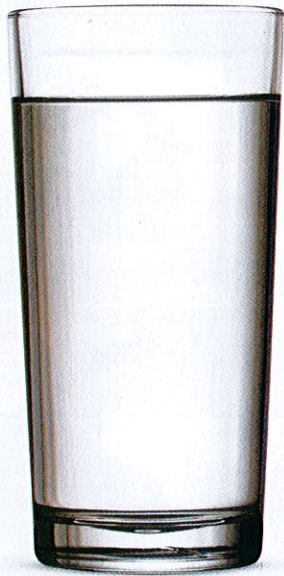
JOHN RUTH

INSIDE: CONSERVATION NEWS, SCIENCE AND INSPIRATION

worldview

THE NETWORK: The largest of the 18 major river basins in the contiguous United States belongs to the Mississippi. The Colorado River basin lies to the west in yellow, and between them the Rio Grande is in blue.





Water Makes the World Go Round

Hydrologists estimate that if all the water on Earth filled a 5-gallon bucket, just one drop of it would represent the clean, fresh water accessible to humans. It is important to consider water use when assessing environmental impact, but it can be difficult to determine how much water goes into making the products we consume. How water-wise are your choices? Take our quiz and find out. —D.S.F.

QUIZ

Which products use less water?



1

In your morning cup:
Coffee or tea?



2

Your shirt:
Cotton or polyester?



3

Lunch:
A small pizza margherita or a cheeseburger?



4

Drink:
An 8-ounce glass of milk or a 17-ounce bottle of cola?



ANSWERS: Some crops are thirstier than others, and irrigated, processed crops use the most water. Even so, most plant-based foods use less water than animal products. Thus, tea (7.9 gallons) requires less water than coffee (37 gallons); polyester (92 gallons) beats cotton (713 gallons); pizza (333 gallons) beats cheeseburger (660 gallons), and cola (46 gallons) beats milk (54.9 gallons).

How a Water Fund Works

Cities protect their water supplies and save money by promoting conservation practices upstream.

Degraded Watershed

In many cities worldwide, drinking-water supplies are greatly affected by how land is managed. Practices that clear forests, increase erosion and create pollution reduce both water quality and reliability.

1. DEFORESTATION

Clearing forests and other vegetation increases the erosion of soil. The sediment pollutes nearby waterways and makes filtration more difficult and expensive.

2. AGRICULTURAL RUNOFF

Rain washes fertilizers and other chemicals into nearby water sources, polluting the city's drinking-water supply.

3. SOIL EROSION

Livestock entering waterways trample the riverbank, contributing to sedimentation. Fecal waste in the water increases the risk of disease.

4. POLLUTION

Some agricultural runoff drains through pipes directly into waterways. Oil and rubbish from roads wash into rivers.

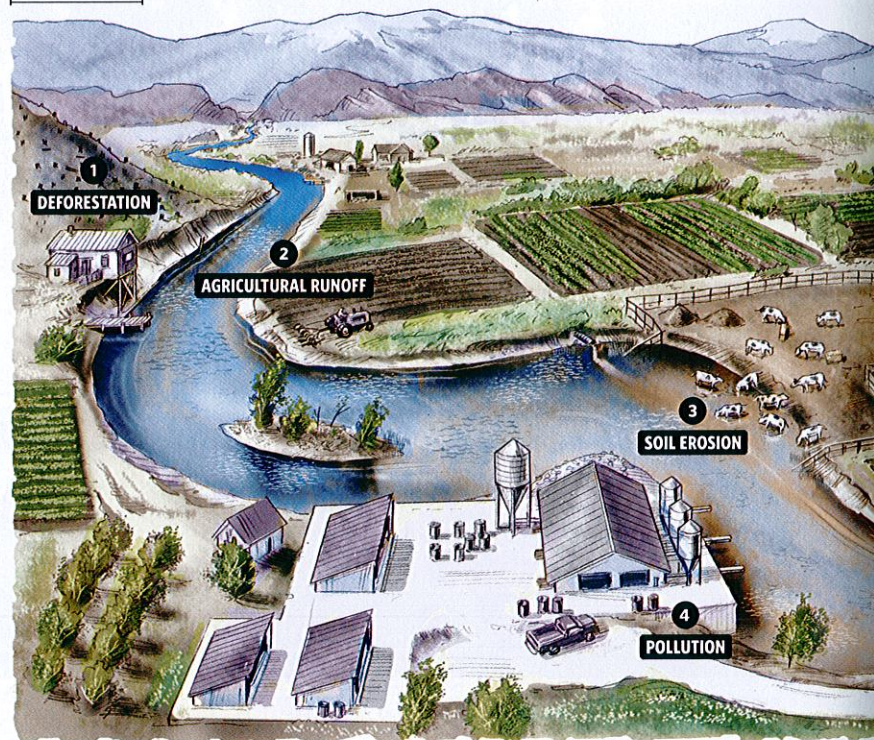
5. REDUCED FLOW

Agricultural soils and industrial surfaces have less ability to absorb and slowly release rain than naturally vegetated soils do. This deficiency results in less water during dry times and more flooding when it rains.

6. WATER TREATMENT

Urban centers receive dirty water that often can be unsafe for human consumption.

UPSTREAM



Healthy Watershed

Improving the health of the lands around water sources improves water quality, restores reliable water flows and brings numerous other benefits, both upstream and downstream.

1. FOREST PROTECTION

Protecting forests and grasslands sustains wildlife habitat, reduces erosion, and safeguards the quality and reliability of downstream water flows.

2. REFORESTATION

Replanting forests reduces erosion, captures carbon and expands habitat.

3. SMART AGRICULTURE

Planting cover crops on fallowed fields and fencing livestock away from the river reduce erosion and prevent pollution. Adding trees around crops and pastures can also enhance farm and ranch income.

4. RESTORED WETLANDS

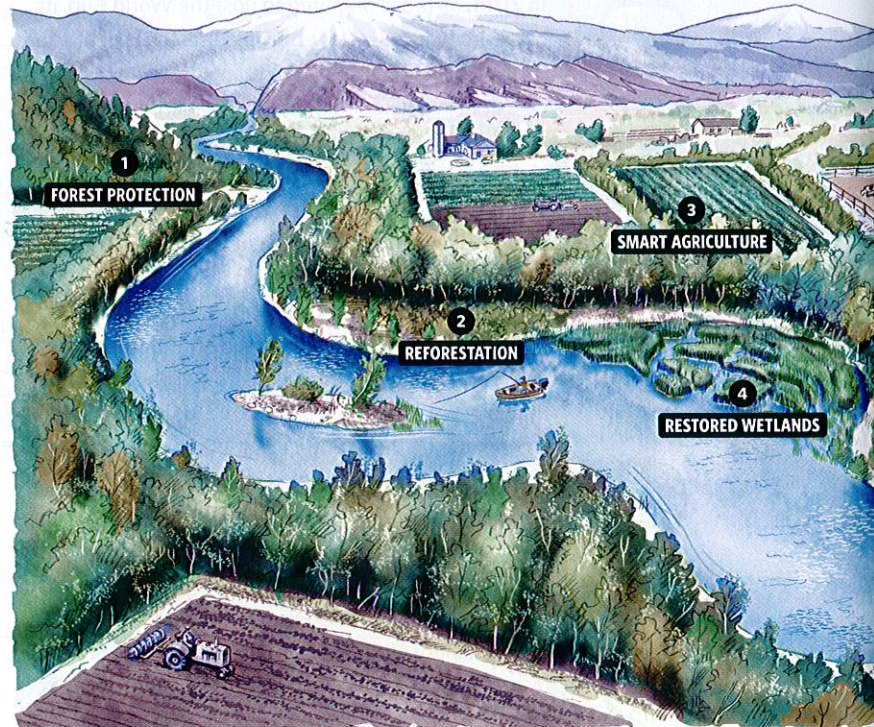
Wetlands help filter pollutants and provide critical habitat for plants and animals.

5. RELIABLE FLOW

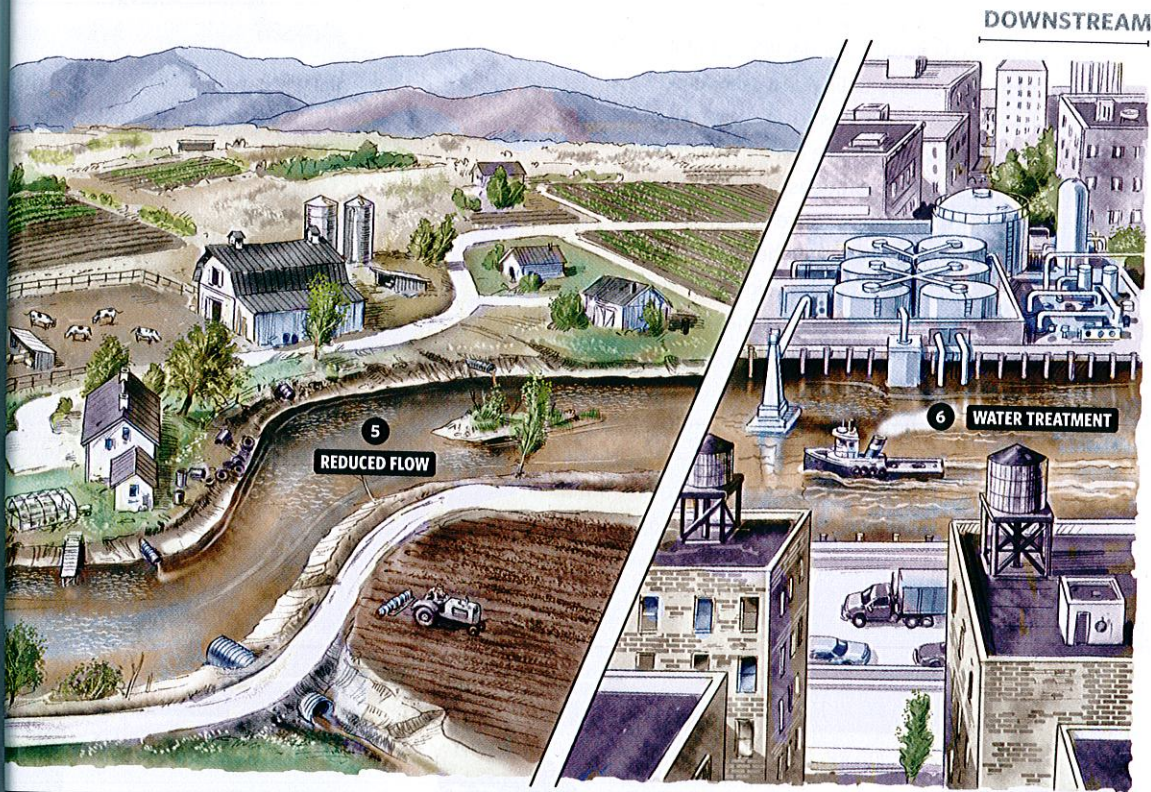
Naturally vegetated soils hold water when it rains and release it slowly, which helps sustain more predictable river flows.

6. CLEANER WATER

A well-managed watershed delivers a clean and reliable supply of water, so cities spend less on water treatment and filtration for human use.

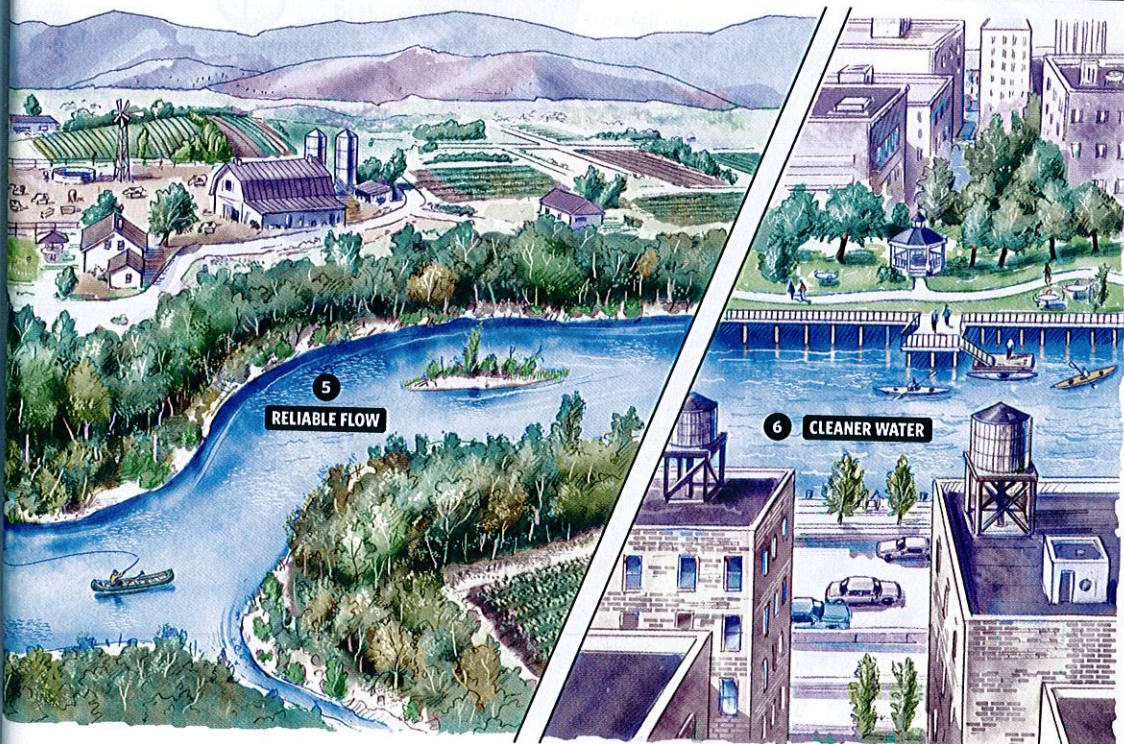


ONLINE: Dive deeper into TNC's analysis of 4,000 large cities and their watersheds at nature.org/BeyondtheSource.



RETURN ON INVESTMENT

Water users pay a significant cost for industrial treatment of dirty water when it reaches the city.



Rather than pay for expensive industrial filtration, water users pay upstream landowners to use good farming practices and to conserve or restore natural areas that protect water at the source.



ILLUSTRATIONS: © STEVE SANFORD (ALL)

RECYCLED PRODUCTS



BATH TISSUE

Atlas Tissue | Resolute Forest Products | Miami | atlaspapermills.com
Recycled Content: 100 percent recycled pulp | Market: General consumers

The "Green Heritage" line of tissue products is additive-free and septic-safe, according to manufacturer Atlas Tissue.

"Using rough and breakable recycled bath tissue isn't so great," the company wrote. "That's why we've created a new, recycled tissue line that is surprisingly soft, strong and comfortable."

The tissue is made entirely from recycled pulp, which comes from parent company Resolute Forest Products' Fairmont, W.Va. paper mill. Sourcing the pulp from in-house "allows for precise control of the entire production process, ensuring cost-competitiveness and consistent quality," according to Atlas.

Atlas, which operates a paper recycling facility in Tampa, Fla., has an overall manufacturing capacity of 62,000 tons of tissue. The company runs three paper machines and 11 converting lines, all in Florida. It makes tissue from virgin and recycled materials.

PLANT TAGS

Hip Labels | Greensboro, N.C. | hiplabels.com
Recycled Content: 5 to 10 percent post-consumer HDPE plastic
Market: Nurseries and other plant growing businesses

The MilkMade tag from Hip Labels uses polyethylene from recycled milk jugs and other sources to create a durable label for plant identification. The product comes in both hang tag and stake form.

Robert Lovejoy, Hip Labels president, said the company has been producing its MilkMade labels for 10 years, after initially developing them for one of the company's suppliers. Production has varied in the amount of recycled content it uses based on the thickness of the individual tag being produced. The recycled content percentage has also fluctuated based on the cost to produce the tag, Lovejoy said.

The tags are made entirely in the U.S.



RECORD PLAYER

House of Marley | Commerce Township, Mich. | thehouseofmarley.com
Recycled Content: 40 percent recycled PET bottles in dust cover
Market: Consumer electronics



The record player might seem like a product of the past, but this manufacturer is proving that notion wrong and doing so with a modern twist. The Stir It Up turntable, released in April by House of Marley, is made from a variety of materials.

With solid bamboo for its base, the record player includes recycled silicone rubber for the turntable slip pad. Its dust cover is fabric made from 40 percent recycled PET bottles, 30 percent organic cotton and 30 percent hemp. The turntable platter is made from recycled aluminum alloy.

Packaging for the product is made out of entirely recyclable materials, according to the company.

"The beauty of the Stir It Up lies in its ecological balance," said Rohan Marley, director and brand ambassador for House of Marley, in a release. "We're bringing high quality, earth-friendly materials together with innovative design." Rohan Marley is the son of music legend Bob Marley.

The recycled content isn't the only modern feature for the turntable – it includes USB to PC connectivity, allowing users to record their vinyl records as MP3s. ■