

POWER TO THE PATTERNS

NATE DOWNEY

Permaculture designs use “natural patterns” to increase the efficiency and productivity of any given system. These patterns are nature’s equations. Over time, they are expressed as cycles of existence and phases of expansion and contraction. In space, patterns denote constants that move, store and produce energy. Expressed visually, we see spirals, branches, waves, webs, layers, rings, wombs, moons and more.

Every pattern reveals a universal conduit—from lightning to life, from healthy river systems to powerful grass-roots organizations. Their rhythms make up the relationships that we observe. Their borderlines define highly animated edges of stability and diversity. Understanding the potential embedded in a pattern means beginning to ascertain a transcendental language. Learn the vernacular, apply it, and expect your systems to thrive.

One lesser-known pattern is called “tessellation.” In Latin, *tessare* means “square,” and *ella* means “small,” so in art and architecture, “tessellation” becomes the application of “little shapes” found in mosaics, tiled floors, and any aggregate that makes up a gap-free, planar surface. Visualize M.C. Escher’s interlocking birds. Think honeycomb, spider web, flagstone patio, or jigsaw puzzle. From a human perspective, patterns cause desolation, too. Those archetypal images of tessellated mud, dried and cracked by evaporation, remind us of the damage often found in the wake of natural patterning.

One prehistoric example of tessellation exists in the integumentary systems of scale-covered animals like moths, butterflies, reptiles and most bony fish. Permaculture designers often mimic the “fish-scale pattern” when we harvest storm water in on-contour swales. To visualize this fish-scale pattern at work, let’s first define its integral component, the swale: A *swale* is a ditch with its excavated dirt placed on the downhill side of the ditch in the form of a berm. In an *on-contour swale*, the berm is level, but at either end it curves slightly upwards and back into the hill. In this manner, the berm and ditch can easily contain

runoff, absorb moisture, build soil and sustain life.

Fish-scale patterning comes in handy during large storms when a swale is full of water. Picture an almost overflowing swale. Now, envision a similar swale appropriately placed below your first swale.

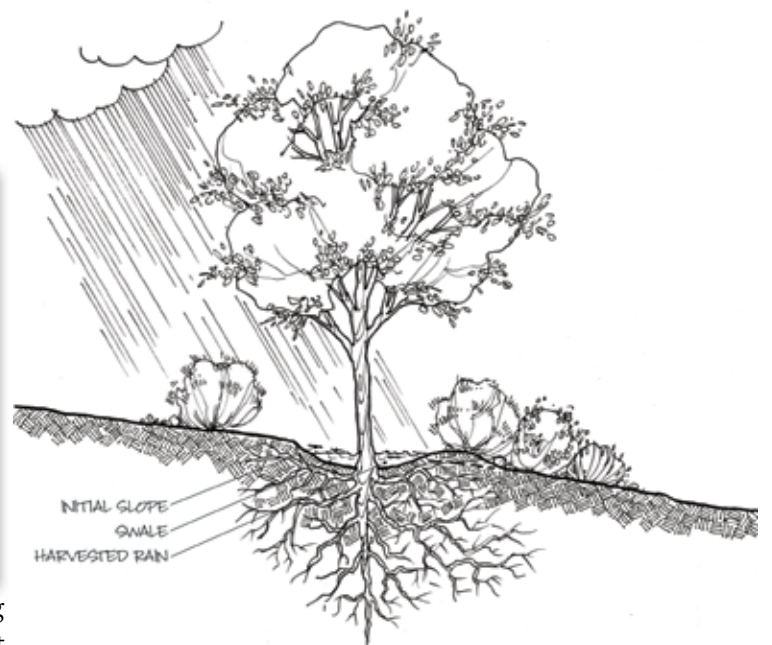
Given a perfect replica of the fish-scale pattern, a third, fourth and fifth swale would be poised, ready to collect overflow from the swales above them.

Fish scales and the swale systems that mimic them have completely opposing functions. The former prevents water from getting into the fish. The latter diverts water into Earth’s epidermis. As we work to improve the fragile crust of our increasingly over-fished planet, we should also realize that “opposing” natural patterns are inextricably woven together. As soon as you see one pattern in one place, you can see many others. All that you have to do is change your position in space or time.

Look deeply into a wave on the ocean. Feel the scratch of a whirlwind on the sand. Lie down, and gaze up under a tree branch. Scale the walls of a colorful canyon. Find a quail’s nest in a field.

Observe. Waves turn into branches. Branches spiral into webs, layers, rings, wombs, and moons. It’s all a matter of perspective. If you work with these patterns, you cooperate with nature. If you guide this cooperation toward sustainability, you may just be communing with nature to the highest extent possible for a self-conscious human being.

I’ll expand on these ideas at two upcoming events that are part of Santa Fe’s Carbon Economy Series. During an evening presentation on Friday, July 22, the topic will be our grim water situation and strategies for reversing it. At the all-day workshop on Saturday, July 23, we’ll immerse ourselves in the language of patterning. First, we’ll learn the lingo. Then, we’ll delve into a dozen examples of these



Drawing by George Lawrence

patterns being used to harvest water. Finally, equipped with this universal vocabulary and buttressed by these practical examples, we’ll wrap the workshop up with some real-life, hands-on experience.


By the way, my eco-shtick happens to be in extremely good company. The series includes experts like Owen Hablutzel, Joel Saladin, Kirk Gadzia, and Dr. Elaine Ingham, who will be speaking and running workshops on

a monthly basis at Santa Fe Community College through October. For information, visit www.carboneconomyseries.com. ⚙️

Nate Downey is the author of Harvest the Rain: How to Enrich Your Life by Seeing Every Storm as a Resource (Sunstone Press, 2010). Nate started and has run the local ecological landscaping company, Santa Fe Permaculture, Inc., since 1992. He can be reached at 505.690.7939 or via www.sfpermaculture.com.

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