

Nuts to You! Review by Peter Bane

MARK SHEPARD *Restoration Agriculture* *Real-world permaculture* *for farmers*

Acres, USA. Austin, TX. 2013.
329 pp. paper. illus. color plates. \$30.

IT'S EVIDENT that Mark Shepard has written the stand-out permaculture title of the year. A cross between a broadside and a case study, *Restoration Agriculture* is a strong piece of advocacy. Shepard, a broadscale permaculture farmer and teacher in southwest Wisconsin, has contributed to this magazine several times in the past 15 years. With this book, he is out to convince the world that woody agriculture based on principles of natural selection must replace our chemical-dependent grain and oilseed monocultures. He goes far down that path, making the case on ecological and nutritional grounds.

The 106-acre spread Mark calls New Forest Farm grows nuts, fruits, berries, vegetables, livestock, mushrooms, and harvests honey. Not a forest garden because of its scale, it models the oak savanna found across much of its longitude in North America, an ecosystem of tree copses scattered through grassland and grazed by herds of ruminants. After 20 years in development, the farm is contoured for water management, and the perennial plantings are yielding abundantly. The book's color photos suggest some of the beauty and richness that Shepard describes.

Having visited the place in its early years and heard the author's enthusiasm for his ideas first-hand, I recognize the same style in his writing. You might say his postulates are shaped to yield his conclusions. I happen to agree with Shepard that woody agriculture is an important piece of our future land use. No one can sensibly defend the current domination of corn and soybeans except those invested in the profit-making structures of power around it. I grew up at the epicenter of that form of agriculture and fled it searching for a more sane relation of humans to nature. New Forest Farm is a brilliant example of such. I am sure that in his many public talks Mark has had to hone his responses to naysayers;

the polemical tone is unmistakeable in this volume. I might be inclined in advancing the same arguments to temper my claims a bit, but I appreciate his passion.

Oak savannas, Shepard asserts, are the most widespread ecosystem in North America, and savannas the second most productive type of ecosystem on Earth, after tropical wet forests. My study tells me the rankings are a little more complex with watery estuaries and swamps along with temperate forests more productive of calories than any grassland; perhaps we should say those statements need qualifying. Humans have made the Eastern temperate forests into a patchwork of agricultural savannas, now poorly managed, because we find savannas well suited to our psyches and our food needs. The real savannas today are indeed widely distributed, from coastal Georgia to northern Missouri to central California, and oaks are present in all of them, yet the continuous belt implied by the book's claim runs from southern Minnesota and Wisconsin south and westerly through central Texas. Most of the region east of the Wabash and south of the Great Lakes to the Appalachians is a mesophytic forest, however disturbed. No matter, the audience the author wants to reach are farmers living in savanna-like environments across the Corn Belt. He is out to change not just minds, but practices.

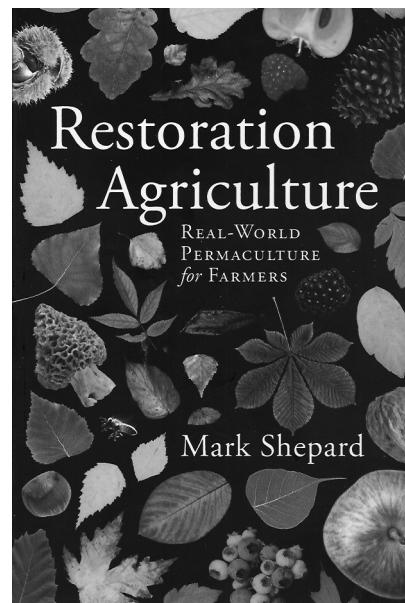
For the doubters, Shepard marshals statistics. The Appendix lists nutritional values for organs and other edible parts of the main livestock animals. Elsewhere, he tallies the use of calories derived from the US corn crop, with the disturbing conclusion that only 2.7% of it feeds humans directly, the rest going to industrial inputs, livestock feed, and transport fuel. This is surely good ammunition in the fight against those TINA-heads (There Is No Alternative! - thank you Margaret Thatcher, and good riddance) who claim variously that organic, or woody, or ecological agriculture cannot feed the world. Of course industrial monocrops don't either, 800 million are hungry, while corn blows out of our tailpipes.

Woody polycultures, he shows, yield more total calories per acre in any case than corn grown by itself. And they are far better for the land, needing little tillage and providing niches for the fertilizing inputs of livestock.

Trained as an engineer and an

ecologist, the author, who grew up in New England and has lived in Alaska, cites J. Russell Smith, author of *Tree Crops: A Permanent Agriculture*, Japanese natural farmer Masanobu Fukuoka, and Bill Mollison, co-author of *Permaculture I*, with inspiring his vision for agricultural transformation. Shepard waxes poetic about the richness of the former post-glacial savannas in the earliest epoch of native settlement on our continent. He believes we can recreate this richness with new animals and plants, using a multi-layered design for cropping at six or seven levels from canopy to ground level.

The oak savanna mimic at New Forest Farm, from tallest to shortest species, is based on chestnuts, apples, hazelnuts, plums and cherries, cane fruits,



gooseberries, grapes, fungi, and grass for livestock. Different regions require different species but follow a similar structure. He has also grown, though doesn't emphasize in the book, annual vegetables both for domestic use and for market. How much this was primarily a transitional strategy during the early years of system establishment is not clear.

Indeed, the details of management of Shepard's various crops are not fully described either, though we do get tantalizing bits.

Even more than his arguments about ecosystem politics, if you will, his findings at New Forest Farm struck me as most valuable. He advocates growing grapes on fruit trees. The mechanical harvesting, he admits, has yet to be developed. Shepard's

collaboration with Badgersett Research Farm of Minnesota in the propagation and promotion of hazelnut and chestnut culture for the Upper Midwest goes back many years. Those crops are now on extensive trial in many locations and machinery has been developed to harvest hazelnuts (using a blueberry picker platform).

Also of interest is his exposition of a form of rotational grazing called leader-follower. Calves and lactating cows are followed by younger steers and heifers, then older and dry cows. Next come pigs, which Shepard prefers to have ringed (nose guards to prevent rooting), then turkeys, sheep, and chickens. Geese are an alternate to sheep because they're short grazers too. The choicest forage is eaten by the largest and neediest animals, while everyone else down the hierarchy finds a leftover niche. This contrasts with Joel Salatin's widely copied model of cattle followed by poultry. The greater complexity of leader-follower is certainly appealing, for all the animals offer different services and products. But the same complexity may make adoption and management harder for some.

The other major support for Shepard's approach is his homage to Fukuoka, and perhaps also Burbank: devotion to methods of natural selection. The author advocates letting the weak plants die (or killing them off), while reproducing the strong survivors; this as a way of selecting for disease resistance and adaptability to environmental conditions. He recommends the same approach to beekeeping: drown the weak colonies, favor the strong. It's hard to argue with this well-tested approach, even if modern veterinary science and the chemical industries have pushed in a different direction. I wanted to

learn more about how he practices this.

One discordant note that left me quizzical was the author's statement that of thousands of chestnuts planted at his farm only two were bearing. He explains that this was due to the relative tenderness of Chinese chestnuts in his Zone 4 climate (average winter minimum -25°F), and some extreme weather that had affected the region within the past two decades. This contrasts with his earlier writings that chestnuts were a major trial species (precocious varieties obtained from Badgersett) and from this book as well. Friends who heard him speak in recent months report that he still vigorously promotes chestnut planting, but in this book, he dismisses American chestnuts, which are much more cold-tolerant than

as well as Shepard, I wanted as much as possible of the findings on the ground at New Forest Farm. After 20 years, there should be plenty to report, especially about chestnuts, even if it's not all rosy. Certainly the vision has been strong, the pictures are beautiful, and some of the productivity hinted at is impressive. But to be holding up a model, even one that has been tested somewhat, when a field trial is available to learn from makes a less compelling argument. Shepard points more often to the exceptions than to the rules.

Less problematic but still unwelcome is a certain raggedness in the editing as the author rambles a bit, and typographic or factual errors creep in that shouldn't have been missed by the proofreader.

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their Chinese cousins, as unavailable, still under research, or in their native unadapted form, blight-susceptible. Surely there are some American-Chinese crosses available that resist blight and are cold-hardy. Is he trialing these? And what has happened? And if there is no chestnut to fill his tall tree niche in the savanna, what has taken its place? Oaks perhaps, or butternuts? We learn only that he has flourishing walnut groves without yet the adapted pawpaws they want.

As a permaculture designer and teacher who knows the theory of woody agriculture and the history of its advocacy

Mark's unnecessary claim that an acre contains (the wrong number) of square feet (farmers will know), or on the same page that the wild plant ancestor of corn is spelled with a 'c' rather than an 's' is simply a pity. We hope that a future edition will correct these and other bloopers. We would also welcome, even as a forward to a second edition, more detail of the cultivation successes and failures that have made Shepard's work so valuable. We know he is a moving and charismatic speaker. The book's readers deserve to get the best of his knowledge. △