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**BOOKS & ARTS** BOOKS BOOKSHELF

# 'Beaverland' Review: America's Original Engineers

Beaver dams provide habitats for hundreds of other species, while protecting the forest from fire and flood.



North American Beaver in Denali National Park, Alaska.

PHOTO: DAN SULLIVAN/ALAMY

*By Richard Adams Carey*

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We began with sticks, progressed to spades and shovels, to axes and plows, have recently graduated to diesel excavators, all by way of reshaping the landscapes we occupy into configurations more suited to our wealth, safety and comfort. Only one other animal on earth also does so, and this critter is the busy protagonist of Leila Philip's "Beaverland: How One Weird Rodent Made America."

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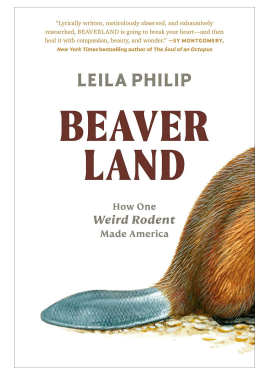
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**Beaverland: How One Weird Rodent Made America**

By Leila Philip

Twelve



That *Castor canadensis* “made America” sounds like hyperbole, but in her book Ms. Philip—author of four previous works of literary nonfiction, and an English professor in the Environmental Studies Program at the College of the Holy Cross—finds a shrewd angle that I think justifies her claim. Our forebears made America in one sense of the phrase; beavers did so in another.

Consider all that beavers accomplished before the advent of axes and plows. “Beavers need water, so they cut down trees and flood forests to create ponds,” writes Ms. Philip. “In doing so, they kill trees but create new habitat for hundreds of animal species that rely on those new waterways. Once they abandon a dam, having determined that life there is no longer manageable due to lack of food, it begins to drain and the pond grows back as meadow, then underbrush, then eventually forest, the soil enriched by years of accumulated pond rot and muck.”

These dams and ponds create “riparian discontinuities” believed now to be essential to the health of a river system. Such organic interruptions allow a river to cleanse its waters, and its adjacent wetlands to serve as a sponge absorbing floods. “Meanwhile, the life forms in the water itself increase exponentially,” Ms. Philip notes. “Wetlands are a soup of life; each teaspoon may hold millions of organisms. Water from beaver-altered streams and wetlands has been measured to contain fifteen times more plankton and other microbial life than wetlands without beavers.”

Beaverland is the author’s name for a continent veined by these vital river systems, where once roamed beavers big as grizzly bears. But how did a rodent whose encephalization quotient—its ratio of brain to body weight—is less than that of a squirrel ever learn a set of behaviors so complex, so socially coordinated, and whose rewards are so removed from inception? Ms. Philip reports that there is much in scientific literature about the nature and effects of beaver engineering, but little about the animal itself. We learn about the researcher Jordan Kennedy, whose findings suggest beavers possess the sort of collective intelligence

shown by termites in building their towering mounds—but how that intelligence works is a mystery as well.

If questions persist about how beavers do what they do, there has never been any question about the warmth and beauty of what they wear. By the time European fishermen were making landfall in North America, the Eurasian beaver, *Castor fiber*, was nearly extinct. The explorers and merchant ships that followed were lured not by cod, but by the beaver pelts fishermen had obtained cheaply in trade from Native Americans.

“The conversion of natural resources into power has always been the propelling force of empire,” Ms. Philip writes. “Throughout the colonial period, beaver pelts instead of gold were the unit of trade. Demand for beaver fur enabled the New England colonies to pay off their huge debts.” As the animal was extirpated in the East, entrepreneurs such as John Jacob Astor drove westward expansion by using fur “to rev up the engines of American capitalism.”

So *Castor canadensis* was a keystone species—the keystone species, perhaps—in the ecology of a primordial America. Then, ironically, it became the economic spark for the continent’s conversion by axe and plow into the landscapes we occupy today. Both North America’s resident engineers, human and rodent, begin by felling trees. But their impact was vastly different. Humanity’s monocultured farmlands, permanently dammed rivers, drained wetlands, and riverside highways and cities wound up polluting and impoverishing local ecosystems.

Our modern rivers are also much more likely to vanish in drought or else catastrophically flood. That looks to get worse, the author predicts: “Every environmental challenge we are facing now . . . is connected to water and how it moves through the land (or not).” One of the great conservation success stories of the last century was, at the urging of trappers, the reintroduction of beaver into its former range. In the country’s wilder parts, beavers have restored degraded river systems. Sometimes even humans want to restore rivers and wetlands, and Ms. Philip describes recent instances of engineers and biologists collaborating on the use of beavers—as opposed to excavators—at vast reductions in cost.

But paradise is not so easily restored. Beavers are agents of a shifting, dynamic sort of landscape, one that does not combine well with our stationary roads and structures. The author’s first mentor in learning about this animal is a neighboring trapper, Herb Sobanski, who obtains many of his pelts by removing “nuisance beavers” from the proximity of annoyed Connecticut home-owners.

In terms of scope, “Beaverland” is more than a natural history of the species. It is also in parts a memoir, a local and national history, and a sort of quest narrative that begins with Ms. Philip’s fascination with the beavers maintaining several dams and a pond near her home. Her most compelling guides along the way are those who challenge her own sensibilities—Mr. Sobanski and fur buyer Harlen Lien—and who are each portrayed with nuance and empathy.

Then there are those mentors from history who prove Ms. Philip right when she says that the study of beavers “has long been the terrain of American eccentrics.” Exhibit A is Dorothy Richards, whose rescue and nursing of a trapped beaver in the 1930s led to a house full of beavers she raised herself, a popular memoir, and then the establishment of the nation’s first beaver sanctuary. Archie Belaney was British, but certifiably odd for his assumption of a false identity, that of an indigenous Canadian trapper named Grey Owl. From the platform of that persona, Belaney found a wide audience between the world wars for writings and lectures that were prescient about the role of beavers in wilderness ecology.

“Beaverland” itself is as full of charm and wonder as its beguiling protagonist. The book’s ultimate—and unanswered—question is whether this continent’s two engineering species can coexist with each other. For its own good, the one with the excavators had better learn (like Dorothy Richards) how to share its space.

—*Mr. Carey’s books include “Against the Tide: The Fate of the New England Fisherman” and “The Philosopher Fish: Sturgeon, Caviar, and the Geography of Desire.”*

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