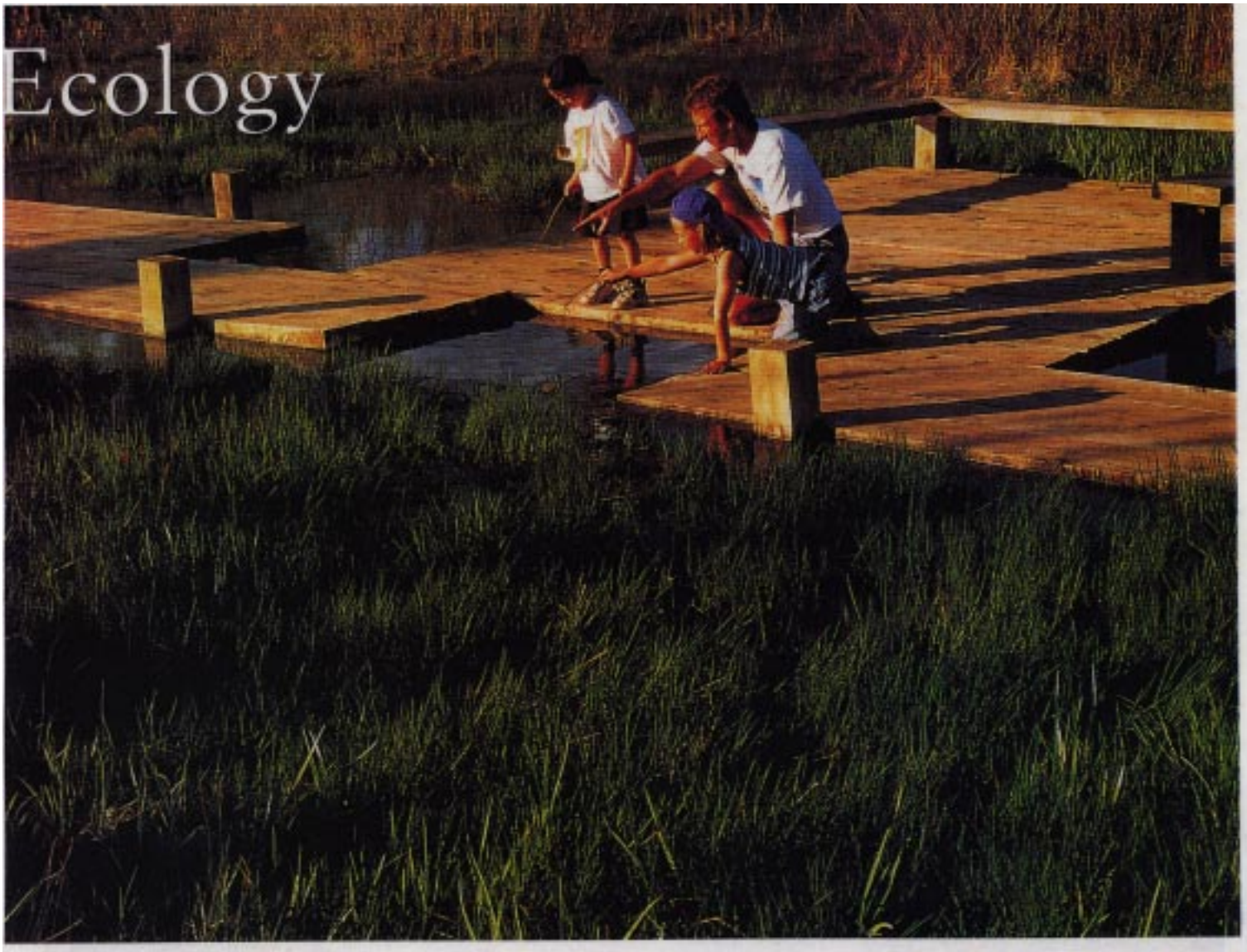


Elementary Alternative

A restoration ecologist and a landscape architect team up to naturalize a Colorado schoolyard.

BY MICHAEL LECCESE

In the shadow of the Rocky Mountain foothills children are busily playing outside of Crest View Elementary School. Some practice sports on sod playing fields; a few climb on manufactured playground equipment set into a swath of pea gravel. Located on the north side of Boulder, Colorado, Crest View also offers an ecological alternative to the usual schoolyard activity. An "outdoor learning center" referred to as the Habitat contains a reclaimed prairie swale that includes three tiny streams, a small pond, shrub thickets, and groves of ponderosa pine and wild plum. To provide access and seating for classes, the 1.3-acre Habitat includes a bridge, a "floating" boardwalk, and an eighty-seat amphitheater made from local red sandstone.

The Habitat is representative of an important trend toward naturalizing the nation's 100,000-plus schoolyards. Although no one has determined how many mown lawns have been converted into meadows, more than forty organizations are pursuing projects to encourage this movement. Statutes in at least thirty states requiring environmental education have helped the cause. So has the creation of special schoolyard-ecosystem curricula in Florida and elsewhere.

At the Crest View Habitat creative play of the Huck Finn variety seems to reign. A few children play hide-and-seek in tall prairie grasses, while from the boardwalk others work nets filling a container with minnows, crayfish, and tadpoles, then depositing the contents into a tiny pond. A first grader playing soccer kicks a ball into the marsh, apparently so he can be chased by teammates down meandering paths. Meadowlarks and red-winged blackbirds—species rarely seen elsewhere in this neighborhood of manicured one-acre lots—sing from cottonwoods.

Two colleagues who helped orchestrate this scene observe with satisfaction. Deborah Keammerer is a restoration ecologist who in the early nineties spearheaded the campaign to create the Habitat. Rob Layton,

A boardwalk adapted from a book on Japanese gardens provides access to the re-created wetland at Crest View Elementary School in Boulder, Colorado.

The article originally appeared in the July 1998 issue of *Landscape Architecture*, on pages 46-51.

Ecology

ASLA, is a principal of Design Concepts in Lafayette, Colorado. His firm has since designed half a dozen other schoolyard ecosystems in the region.

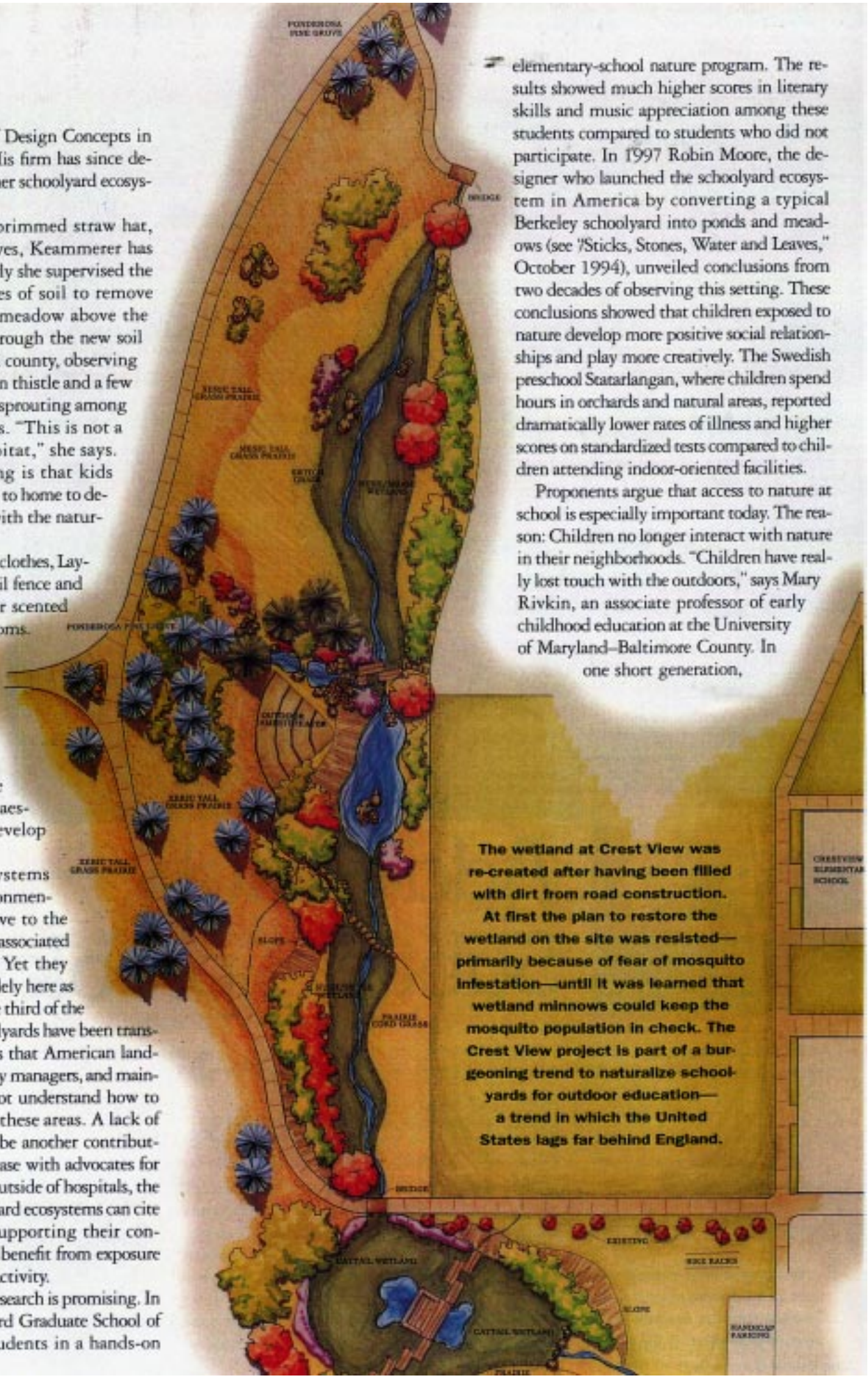
Wearing a broad-brimmed straw hat, jeans, and heavy gloves, Keammerer has come to work. Recently she supervised the scraping of ten inches of soil to remove weeds from a small meadow above the marsh. She tiptoes through the new soil imported from a rural county, observing the presence of Russian thistle and a few other invasive species sprouting among newly seeded natives. "This is not a pristine wildlife habitat," she says. "The important thing is that kids have a wild place close to home to develop a relationship with the natural world."

Dressed in business clothes, Layton leans on a split-rail fence and seems to enjoy the air scented by chokecherry blossoms. "The environment we put kids in tells them subliminally what we value," he says. Pointing to a concrete courtyard fifty yards away, he says, "What kind of aesthetic would a kid develop over there?"

Schoolyard ecosystems clearly offer an environmentally sound alternative to the sterile "landscaping" associated with public schools. Yet they have not spread as widely here as in England, where one third of the nation's 30,000 schoolyards have been transformed. One reason is that American landscape architects, facility managers, and maintenance crews may not understand how to create and maintain these areas. A lack of cogent research may be another contributing factor. As is the case with advocates for therapeutic gardens outside of hospitals, the proponents of schoolyard ecosystems can cite only a few studies supporting their contention that children benefit from exposure to nature as a school activity.

Still, the existing research is promising. In the 1980s the Harvard Graduate School of Education tested students in a hands-on elementary-school nature program. The results showed much higher scores in literary skills and music appreciation among these students compared to students who did not participate. In 1997 Robin Moore, the designer who launched the schoolyard ecosystem in America by converting a typical Berkeley schoolyard into ponds and meadows (see "Sticks, Stones, Water and Leaves," October 1994), unveiled conclusions from two decades of observing this setting. These conclusions showed that children exposed to nature develop more positive social relationships and play more creatively. The Swedish preschool Statarlangan, where children spend hours in orchards and natural areas, reported dramatically lower rates of illness and higher scores on standardized tests compared to children attending indoor-oriented facilities.

Proponents argue that access to nature at school is especially important today. The reason: Children no longer interact with nature in their neighborhoods. "Children have really lost touch with the outdoors," says Mary Rivkin, an associate professor of early childhood education at the University of Maryland–Baltimore County. In one short generation,



The wetland at Crest View was re-created after having been filled with dirt from road construction. At first the plan to restore the wetland on the site was resisted—primarily because of fear of mosquito infestation—until it was learned that wetland minnows could keep the mosquito population in check. The Crest View project is part of a burgeoning trend to naturalize schoolyards for outdoor education—a trend in which the United States lags far behind England.

Rivkin notes, the idea of spontaneous outdoor play has become almost nonexistent because of such factors as auto-dominated suburbs and parents' fears of child-snatching.

Additionally, school districts in Atlanta and elsewhere recently eliminated recess periods. Some schools now are actually designed without outdoor play spaces. "We are intent on improving academic performance," Atlanta's school superintendent told *The New York Times* in April. "You don't do that by having kids hanging on the monkey bars."

The Habitat offers an easily supervised option to such a philosophy. During school hours the little marsh and prairie are the sites of classes and other programmed activities for Crest View's 600 students. It has prompted the school to hire a science teacher and to install a full science lab in part of its library. Fifth-grade teacher Elaine Eichel has her students sketch, conduct pH testing, and measure water flows in the Habitat. She says the facility has inspired her students to consider careers in biology and environmental science. A fourth-grade class produces Shakespeare in the amphitheater. "The Habitat is definitely an enhancement to the school program," says Crest View Principal Woodrow O. Spriggs.

The Habitat works equally well as a playground or park. Adults can peer into the Habitat from almost any point on the school's west side. From within, a berm obscures views of houses, providing an idealized vista of mountains, trees, grasses, and sky. It is a view that students treasure and help sustain through scheduled cleanups and an annual "Frogathon" walk, which enables students to raise $2,000 a year to maintain the Habitat and as much as $4,000 more to fund other school activities.

Creating the Habitat from scratch was not so easy. Until the 1950s this area was a marsh recharged annually by spring snows. When Crest View was built the wetland was filled using earth excavated from adjacent road construction. But the marsh persisted, so the school installed a concrete drainage ditch. In 1989 Keammerer and a group of parents approached the principal with a proposal to remove the ditch to create what she called "a natural habitat for exploration and learning—a place where field trips could be taken at any time without leaving the school grounds."

But the proposal encountered resistance from the school's building-and-grounds manager. He was intent on planting new

The article originally appeared in the July 1998 issue of *Landscape Architecture*, on pages 46-51.

sod. Moreover, some neighbors feared mosquito infestations. But the manager soon learned that once a wetland, always a wetland. The site flooded, leaving newly installed sprinkler heads six inches underwater.

Recalls Keammerer, "That fall the principal called and said, 'Do you want to put in your wetland?' " The group of parents agreed to limit standing water to a depth of one foot to minimize the potential for drowning. Keammerer promised neighbors that mosquito-eating minnows in the ponds would control insects. Furthermore, her group raised the funds, materials, and labor to realize this vision. As a result cash outlay was only $26,000 for a project that would have cost an estimated $70,000.

Keammerer then asked Layton to join the emerging team. The Design Concepts site plan was adapted as materials were donated. "It was not so much a blueprint as a road map of where we wanted to go," says Layton. The plan shifted as the city made excavating equipment available at no cost. A landscape contractor donated giant boulders that were placed among the prairie grasses. "The rocks are situated so kids can use them as desks," says Keammerer, who has collected and published poems written by kids in the Habitat. The boardwalk design was adapted from a book on Japanese gardens. A local fence company built a handsome split-rail fence that corrals the Habitat.

Volunteers collected seeds and woody plants from a farm and drainage ditch to the east. Then 150 people showed up for two big planting days. Doubters might have remained after the first planting season. "The Habitat looked pretty scruffy that first

Prior to the restoration the site was a sterile area crossed by a concrete drainage ditch, *opposite left*. The same site, following the restoration, is corralled by a split-rail fence, *opposite right*. An amphitheater and a boardwalk, *above*, facilitate outdoor classroom experiences.

year," says Layton's business partner, Axel Bishop, ASLA. "It was a muddy mess with tiny plants. But it developed into a lush, wild area by the second year."

Meanwhile, public grant money poured in. Keammerer proudly recalls the day in 1991 when her daughter Linnaea accepted a check from Governor Roy Romer. The following year Linnaea was killed in a gun accident, and the Habitat was rededicated in her memory. Although her other daughter has matriculated beyond elementary school, Keammerer remains active in the project.

Neighbors now express so much pride in the Habitat that realtors use it as a selling point to prospective home buyers. In 1991 the Habitat won an ASLA chapter award for Design Concepts. The firm has since designed larger schoolyard ecosystems—a half-acre marsh out of a storm-water detention area at Summit Ridge Elementary in Littleton, Colorado, for example.

Eichel credits the Crest View project with building the human community as well by bringing together parents, kids, and neighbors. "I can't imagine not having the Habitat," she says. "It provides ways to introduce science concepts to kids and makes for more hands-on learning, which fifth graders enjoy rather than worksheets." LA

PROJECT CREDITS

Landscape architecture: Design Concepts, Lafayette, Colorado.
Restoration consultants: The Restoration Group, Boulder, Colorado.
Clients: Boulder Valley School District and Crest View Elementary Parent Teacher Organization, Boulder, Colorado.