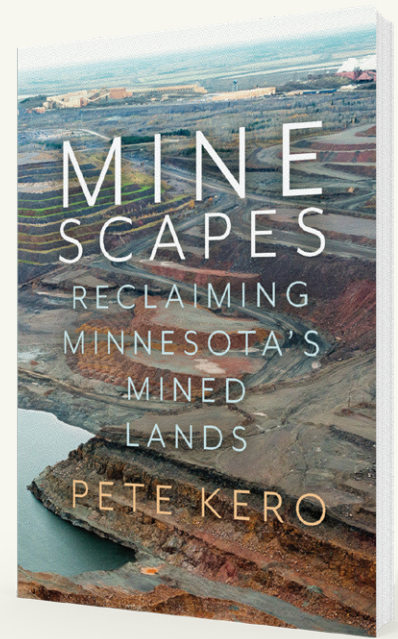


Minescapes: Reclaiming Minnesota's Mined Lands

by Pete Kero

The lands of the Mesabi Iron Range in northeastern Minnesota hold both riches and beauty, and over the decades people have approached these offerings in different ways. Some extracted valuable ore while setting aside lower-quality rock for later use; others repurposed those rock piles as ski jumps or built homes on top of them. More recently, residents have pushed to open former minelands for fishing, hunting, and mountain biking, thereby strengthening links between mining and tourism, both activities essential to the region's future.

The concept of "multiple use" has played out in different ways over the decades. The following excerpts from Minescapes: Reclaiming Minnesota's Mined Lands by environmental engineer Pete Kero explore one approach taken by a forester working for Erie Mining Company in the mid- to late twentieth century, followed by extensive regional-level planning undertaken by architects, engineers, and locals through the Laurentian Vision Partnership in the early 2000s.



From Chapter 3: The Pioneers

According to Pamela Koch's history of Erie Mining Company, "To achieve Erie's rated capacity of 7.5 million tons of pellets per year, it was necessary to mine 37 million tons of material, consisting of 24 million tons of taconite ore and 13 million tons of stripping." That meant that over 80 percent of the material being moved by Erie was waste material of one sort or another. And Erie was moving a lot of material: "Each month . . . Erie moved more material than the average large Mesabi Range natural ore mine did in a year." The productivity that steam shovel mining had brought to the Iron Range in the early 1900s had now been eclipsed by the material movement involved in taconite mining. Similar expansions in the footprint of mine waste were occurring elsewhere in the Lake Superior region.¹

The huge quantities of material movement and high percentage of unusable rocks and unconsolidated material meant that taconite mining was more about waste management than it was about hitting paydirt. Tailings basins required dedicated staff and were often the size of the small cities their operators and engineers went home to after their shifts ended. Taconite tailings were finer than natural ore tailings—like talcum powder in comparison to coffee grounds—and consequently could create a dust problem if they were dry or frozen and affected by high winds. Furthermore, taconite tailings were utterly devoid of organic material, making them essentially barren with respect to the possibility of becoming naturally vegetated by grasses or trees.

The new problems created by taconite waste fell to a 33-year-old forester living in Aurora, Minnesota. Sporting horn-rimmed glasses and a military physique, the young Sam Dickinson was accustomed to thorny problems. As a boy, he had managed the academic and social challenges of splitting his school year between the public schools of Sparta, Wisconsin (his family home), and Lutsen, Minnesota (the location of his family's cabin on Caribou Lake). During and after World War II, he had served on medium-sized landing vessels for the US Navy in the Pacific, achieving the rank of lieutenant, junior grade, and serving several tours near Japan. He had studied his way through undergraduate and master's degrees in forestry from the University of Minnesota and then Syracuse University. Now he was facing a challenge that would require all of his academic, social, and physical strengths to surmount: creating a way to grow things on unprecedented volumes of waste material for a type of iron mine that had not existed just three years earlier.

Dickinson's job entailed more than just the revegetation of waste materials. In fact, when he was first hired in 1954, Erie Mining wasn't even contemplating mineland revegetation when he was assigned to survey the landscape and oversee the logging of the forest on the taconite lands the company targeted. In those days, surveying was a much more physically demanding job, requiring its practitioners to hand-cut property lines through the woods and measure distances with hundred-foot-long chains.

Surveyors needed to be handy with a saw, chains, and a compass; good at geometry; and comfortable traversing all types of lands in any kind of weather. Dickinson also needed to coordinate and manage the work of hardscrabble loggers, making sure they were meeting schedules and clearing the correct locations, all while generating a revenue stream for Pickands Mather & Company to invest in the construction of the Erie Mine and processing plant.

Dickinson loved both the academic and outdoor rigors of his job. His coworker and fellow forester Dave Youngman, whom Dickinson had personally recruited away from a possible career with the US Forest Service, described him as “one of the best foresters I’ve ever met.” He was a great experimenter and was known for his thoroughness and attention to detail. Youngman said that any job assigned to Dickinson “was a job that was done extremely well.” Dickinson, like most northeastern Minnesotans, also loved to hunt and fish. He gave back to his community by coaching youth hockey. And he was especially known for his love of making maple syrup—which in northern Minnesota requires the hardiness of someone who can carry bucketloads of sap through a crusted-over snow blanket in spring, sometimes unpredictably breaking through the icy surface to sink up to one’s waist, just to provide enough raw material to make one pint of syrup.

Dickinson exceeded the expectations put upon him. He brought to Pickands Mather a concept he had learned in forestry school called multiple resource management. The idea was that any tract of land had multiple resources upon it and should be managed to provide the greatest benefit to the largest number of people. Under multiple resource management, trees atop a future mining area would not simply be bladed off by bulldozers (as they were in other mining operations at the time) but carefully harvested to provide timber for construction, papermaking, and the townspeople’s use. Pickands Mather allowed the public to hunt and pick berries on company lands. In the fall and early winter, it issued firewood and Christmas tree permits to the local residents free of charge. And fishing and swimming were allowed in company water reservoirs.

It was novel for a mining company to practice resource management that valued not only the minerals but also the timber, recreation, and public relations assets of the land under its control. According to Youngman, Dickinson had seen multiple resource management in use by the US Forest Service. And, in Youngman’s words, Dickinson “didn’t see any reason why we couldn’t have this same kind of philosophy for company lands.”

In a 1971 talk delivered in Duluth, Dickinson summarized multiple resource management as “fully utilizing its lands to provide for all compatible uses.” The resources for



Sam Dickinson, a forester for Erie Mining, assessing revegetation of a taconite tailings dam, 1972. This work was performed years before mandatory mineland reclamation.

which Erie managed its lands included minerals, timber, water, wildlife, and recreational uses. It is important to note that only two of these—minerals and timber—had the potential to bolster Erie’s bottom line. Despite this, in his talk Dickinson stated that “the ecological requirements of fish and wildlife are the *least* flexible aspects of the Multiple Resource Management Plan” and that “*all* land management decisions are given close scrutiny with regard to recreational potential” (emphasis added). In other words, the non-revenue-generating activities were given as much consideration as those that generated revenue.²

The employment of multiple resource management made Erie Mining a public-friendly company decades before today’s notions of social responsibility. Youngman recalled,

Most of the mines up here wanted to keep everybody off of their property. Erie Mining Company was not like that. If there was an operating area or other sensitive locations where they didn’t want hunters or bikers or people walking, they would post it. But all of the other areas, which was more than sixty thousand acres, was open to the public.

He added that “people would not go into posted areas because they had other places to go” and that liability for public use of company lands was not a concern because “there is a recreational law in Minnesota that protects the company. It worked out just fine. They wouldn’t charge anybody for any of this access, firewood, or Christmas trees, and it worked out just fine.”

Erie’s philosophy of using its resources to provide the greatest benefit to the largest number of people created some unique opportunities for a mining company. In 1970, Erie offered to provide Minnesota-grown Christmas trees for the annual Pageant of Peace outside the White House in Washington, DC. Dickinson and Youngman walked their future mining areas looking for 52 well-balanced and beautiful 12-foot-tall balsam fir trees. Balsam standing in a copse are sparse trees with horizontal boughs—not exactly textbook Christmas trees—and so this task required sturdy legs and a discriminating eye. Dickinson created a “viewing card” with a tree-shaped cutout to help select trees that would be full and uniform in appearance. After they chose the trees, Erie’s general shops—a fully equipped fabrication and maintenance shop—made a mesh-wrapping device to ready the balsams for their

journey. In a special event held in November, the mesh-wrapped Christmas trees were shipped from the mine to Taconite Harbor, where they traveled on the ore boat *Herbert C. Jackson* to Cleveland, then on an 18-wheel semitruck to Washington, DC. The Minnesota balsams on display provided a little Christmas cheer for the nation’s lawmakers, but more importantly, they highlighted the kind of public goodwill exhibited by Pickands Mather & Company and the Erie Mine.

Dickinson applied the philosophy of multiple resource management most ardently to reclaiming lands disturbed by Erie’s mining activities—its massive pits, overburden piles, rock stockpiles, and tailings basin. He took the initiative to arrange a pivotal meeting with his boss, the company’s general manager. In an era when no laws required the shaping or reforestation of mined lands in Minnesota, he drove the general manager up to an overlook that surveyed the entirety of the landscape created by the largest taconite mine at the time and told his boss, “We’ve got to be doing more.” Despite the costs to the company, the boss agreed, and that is when Dickinson was able to begin employing both his forester’s knowledge and his sportsman’s passion toward the pursuit of ecological



reclamation. He was a significant mover and shaker, and according to later coworker Dan Jordan, “He wanted geese on the tailings basin, deer habitat, fish in the waters. He wanted to start doing something with the mined lands.”

Youngman recalls, “Pickands Mather was an open-minded company in that way. They were very open to restoring the land as close as possible to what it has been before. Just about anything that we [foresters] wanted to do, they would approve.” In other words, he and Dickinson were given *carte blanche* to apply the best techniques they could muster into the reclamation of Erie’s mine-disturbed lands.

Youngman recalls that Pickands Mather & Company decided “on their own volition” to try to reclaim the fine, inorganic taconite tailings. When the taconite process was still being developed, Erie had hired a soil scientist from the University of Minnesota, C. O. Rost. According to Youngman,

The soil scientist was retained to see if he could grow grasses and legumes on taconite tailings. Everyone thought it was so barren of nutrients that you would need to put topsoil on it. He proved that by adding N and P [nitrogen and phosphorus], that you could grow vegetation directly on taconite tailings.

When Dickinson learned of these findings, he immediately began a series of test plots on the taconite tailings basin to examine various types of vegetation and fertilizer. Emphasizing the difficulty of these experiments, Youngman recalls that the tailings basin was “like a low desert. It was just like sterile sand.” In his 1971 talk, Dickinson revealed that the southern slopes of the tailings basin—because of the dark color of the coarse tailings used in dam construction—“recorded surface temperatures of 145 degrees Fahrenheit, which are due to the absorption of the sun’s rays.” Desertlike, indeed.

Dickinson and Youngman experimented with over 50 varieties of species from “low desert” regions, ranging from coniferous trees to garden vegetables. Because of the lack of nitrogen in the tailings, they placed special emphasis on species that would fix nitrogen from the air and thus make it available to plant life, such as alfalfa, bird’s-foot trefoil, Siberian peashrub, European alder, crown and milk vetch, and sweet, alsike, and red clover. They also tested various seeding, mulching, and fertilizing techniques—and had to invent new methods to perform these routine agricultural tasks on the steep slopes of the tailings dam.

FACING: Balsam from Erie Mining’s land for display at the annual Pageant of Peace outside the White House in Washington, DC, 1970

One day after years of growing vegetation on large areas of the tailings basin, Youngman dug into the ground with a spade. He observed a thin layer of black dirt, which had been created by the composted remains from earlier years of seasonal grasses and legumes. This dirt, called the “A horizon” by soil scientists, lay atop the inert desert of sandy tailings. Youngman remembers smiling and saying to himself, “It’s building soil now.” Dickinson echoed this sentiment when he wrote, “Probably our greatest satisfaction comes from the knowledge that we are building soil from crushed rock.”³

Subsequent studies have found that Erie’s vegetated tailings basin provides a prairie-like habitat that attracts birds not normally associated with northeast Minnesota. For example, as some of their native habitat was shrinking, sharp-tailed grouse were finding a home on the revegetated tailings basins and stockpiles. The result of Dickinson’s work was recalled by Erie’s operation general foreman Adrian “Ace” Barker, who said the tailings basin “was just like a park. Erie was kind of a showplace.”⁴

In another example of multiple resource management, Youngman contacted a former professor and ruffed grouse expert to help develop a management area for the species, which inhabits forested spaces, especially those with scattered clearings and dense undergrowth. The pair designed a forest management plan that created a habitat for the grouse. When the area was ready, Youngman recalls that Erie “made a trail through there so people could hunt adjacent to the three-mile road between the plant and Hoyt Lakes.” He himself walked the trail and recalls there “were plenty of birds in there.”

Erie’s experiments were not limited to terrestrial habitats. Youngman recalled an assignment he received from Erie general manager Clyde Keith, whom Youngman describes as “a conservationist in his own right.” Keith had asked him to buy minnow traps and put them in “every water body on the mine you can think of.” Youngman deployed the traps in flooded taconite pits, reclaimed cells of the tailings basin, and the former natural ore pits on Erie’s land. He said, “I found minnows everywhere!” Keith explained he was interested in knowing if the mine pits could be used for recreational fishing in the future. Having seen evidence that Erie’s pits could sustain fish, he began thinking about reclamation activities that could create underwater habitat for fish in the pits after mining was completed. Youngman recalls a hydrology study performed on one of the pits to determine the long-term water levels that would result after mine dewatering ceased. Once the elevation was known, Youngman recalls, “We planted that whole area with grasses and legumes”—to build an organic base for the future pit lake’s littoral

zone, or marshy perimeter. “We seeded it in with willows for the shoreline. Then the water covered it. Now there is habitat down there for minnows and fish. I am not a betting man, but I would bet that most of those taconite pits are filled with good-sized fish.”

Dickinson and Keith were not the only Pickands Mather employees who promoted how the company’s vision of multiple resource management could have a positive impact on the future use of minelands. In a 1971 presentation, Thomas Manthey, director of public affairs at Pickands Mather headquarters in Cleveland, Ohio, asked,

Why shouldn’t the picturesque man-made canyons be advertised as tourist attractions? Why shouldn’t the water reservoirs, and possibly inactive pits be developed for sport and recreational use? Why shouldn’t stockpiles be developed to enhance the landscape and to permit future public use?

Manthey concluded that the potential of mineland reclamation and repurposing was “limited only by man’s creative imagination.”⁵

In 1977, Dickinson’s visionary efforts in voluntary mineland reclamation achieved national recognition. Erie Mining Company received the first National Environmental Industry Award for Excellence, jointly awarded by the relatively new US Environmental Protection Agency, the President’s Council on Environmental Quality, and the Environmental Industry Council. Dickinson and Pickands Mather president Elton Hoyt III flew to Washington, DC, to receive the award. The value of this recognition is sharpened when compared with the criticism and heavy scrutiny that was being leveled at other sectors of the mining industry at the time. That same year, the US Congress passed the Surface Mining Control and Reclamation Act



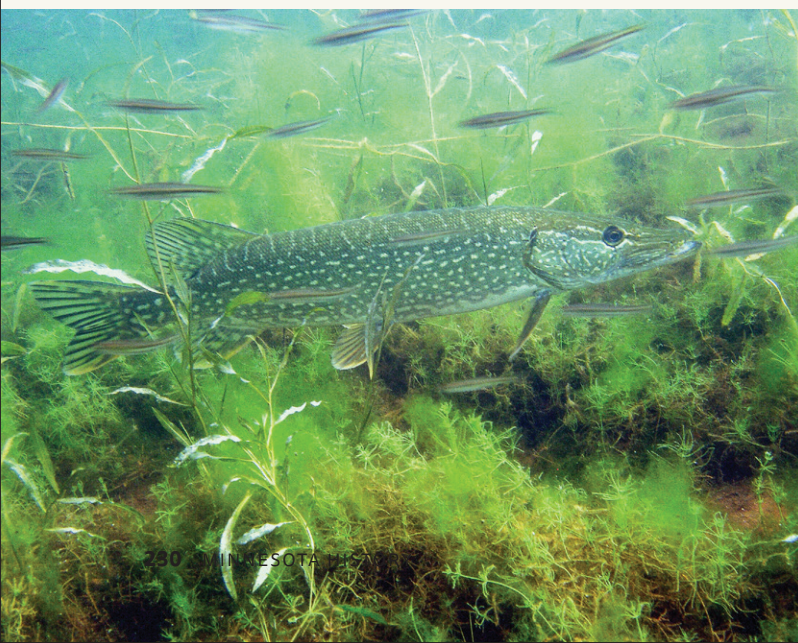
In 1977, Erie Mining Company received the first National Environmental Industry Award for Excellence, jointly awarded by the relatively new US Environmental Protection Agency, the President’s Council on Environmental Quality, and the Environmental Industry Council.

(SMCRA), which regulated the coal mining industry. Federal officials lambasted that industry for

destroying or diminishing the utility of land for commercial, industrial, residential, recreational, agricultural, and forestry purposes by causing erosion and landslides, by contributing to floods, by polluting the water, by destroying fish and wildlife habitats, by impairing natural beauty, by damaging property and citizens, by creating hazards dangerous to life and property, by degrading the quality of life in local communities and by counteracting governmental programs and efforts to conserve soil, water and other natural resources.⁶

In contrast, Erie’s voluntary philosophy of multiple resource management sought to enhance the quality of life in the local community by promoting multiple uses of company lands for industry, recreation, wildlife, and forestry. It was an act of courageous forethought. Youngman, in a 1992 paper entitled “Mineland Reclamation at LTV Steel Mining Company,” [LTV Steel bought Erie in 1989], wrote, “Under the able leadership of Sam Dickinson, research knowledge was refined and applied to large scale

Northern pike and baitfish minnows in a former iron ore mining pit in the Cuyuna Country State Recreation Area, Crosby, Minnesota



reclamation plantings. By the late 1970s, we had tested hundreds of plant species and reclaimed thousands of acres of stockpiles, pitwall and tailing basin areas." He noted that visionaries like Dickinson had "laid the foundation of an idea that would one day turn thousands of acres of mining waste on the Mesabi Iron Range back into productive land."⁷

Dickinson retired from Erie Mining Company one year after Pickands Mather received the national award. His work—and that of other mine reclamation pioneers, such as Gilbert Leisman and John Dougherty [discussed earlier in the book]—helped to prove it was possible to reclaim iron mining lands through the unintentional acts of nature and the purposeful actions of people. Of course, not every reclamation experiment proved to be a long-term success. Some of the experimental plantings employed nonnative species, such as bird's-foot trefoil and black locust, that—while extremely useful for quickly stabilizing disturbed soil or creating a thick wall of thorny "living fence" that would keep people away from dangerous mine areas—proved in the long run to overwhelm the native plants and eventually led to areas dominated by an ecologically stunted monoculture. Of such challenges, Dickinson wrote that "there have been frustrations and failures" and "the results of our work in revegetation have not been an overnight success by any means." Still, he and the other young reclamationists proved that mined land was not wasteland and could provide unexpected value as wildlife habitat, recreational areas, and forestry resources. Reflecting upon this time of experimentation over 40 years later, former Minnesota Department of Natural Resources mineland reclamation supervisor Julie Jordan recalled, "Some of the trees that Sam and Dave planted—they are just fabulous reclamation. At first, you could tell what they planted, but now it's just part of the regular landscape up there. It is beautiful what they did—with the stockpiles in particular." Dan Jordan, former Iron Range Resources and Rehabilitation Board mineland reclamation director and spouse to Julie, added that "Sam and Dave were working way beyond their years in figuring out mine reclamation."⁸

Over 20 years after Dickinson's retirement from Erie Mining Company, another group of visionaries picked up the mantle of multiple use management and repurposing of minelands in Minnesota. It started in the late 1990s as a conversation between Jim Swearingen, general manager of U.S. Steel's Minnesota Ore Operations, and the fabled Minnesota state representative Tom Rukavina. In a discussion about what the Iron Range could be after mining ended, Swearingen recalled Rukavina painting a mental picture: "Geez, Jim, you could create ski hills! You could create lake properties!"

Swearingen recalled how Rukavina's remark "tweaked my interest," and he soon recruited mining engineer Dennis Hendricks, who worked for U.S. Steel's division of resource management, to study the potential of turning mined lands into valuable real estate. Realizing they would need help with this idea, the leaders from U.S. Steel reached out to the University of Minnesota's Department of Landscape Architecture.

After some introductory meetings and visits to the Iron Range, representatives from the university understood that reclaiming and repurposing mined lands held tremendous promise to restore the landscape's biological functioning, its visual quality, and its potential to improve quality of life for residents. John Koepke, head of the Department of Landscape Architecture, and Christine Carlson, a research fellow and adjunct professor, stepped up to serve as the university's principal investigators. They recommended pursuing a regional approach that would envision the future of the entire Mesabi Iron Range. What resulted was a partnership in which private and public entities collaborated in an open forum dedicated to the notion of reconstructing and creating value from the Mesabi's postmining landscape. It became known as the "Laurentian Vision."

From Chapter 5: Laurentian Vision

The Laurentian Vision Partnership [LVP]'s first highly visible action—a public design workshop—was set to take place in Virginia, Minnesota, in 2001. This area at the heart of the Iron Range encompassed the greatest number of active taconite mining operations: U.S. Steel's Minntac Mine, Ispat Inland's Minorca Mine, and Eveleth Taconite's Thunderbird Mine. The process started in the spring with a public meeting sponsored by the Virginia Community Foundation. LVP leaders met with the mayor of Virginia, mining and city officials, and the public to discuss whether the city would host an intensive multiday workshop focused on conceptual planning and design of alternative solutions for transforming minelands into usable, healthy landscapes—and, if so, to identify the ideal site for this first exercise. [University of Minnesota research fellow Christine] Carlson remembered, "They were game; they had sites around the city of Virginia that were not doing anything and had to be redeveloped." Jointly combing through the possibilities, the stakeholders selected a site of some 500 acres located east and south of town, consisting of a complex of conjoined, idled natural ore pits, including the Missabe Mountain, the Comodore, the Shaw-Moose, and the Rouchleau. This site not only was well situated for redevelopment but also served as the location of the city of Virginia's water supply and Eveleth Taconite's future mining area. Thus, it seemed like

the ideal spot that brought together all the elements of the LVP's mission—community development, environmental protection, economic diversification, and protection of lands for future mining.

[University of Minnesota landscape architect John] Koepke and Carlson called the intense, multiday public design workshop a charrette—one of the first words in the new vocabulary the LVP introduced to the Iron Range. This specific use of the term, which means “cart” in French, dates back to nineteenth-century Paris, where architecture professors would send a cart to pick up students’ design work at the submission deadline. It is still used to define “the intense final effort made by architectural students to complete their solutions to a given architectural problem in an allotted time or the period in which such an effort is made.” But it also commonly means “a meeting [really, a structured, intense, multiday workshop] in which all stakeholders in a project attempt to resolve conflicts and map solutions.” As it turned out, both definitions accurately depicted the whirlwind of events and spontaneous design work that took place in Virginia over the intense half week of October 10–13, 2001.⁹

It was a Wednesday afternoon when Koepke, Carlson, and the other landscape architects arrived. Some, such as Tony Bauer from Michigan, flew in, but most of the university contingent drove up. Altogether, there were a dozen landscape architects, ranging in experience from national experts to graduate students. As soon as they arrived, Koepke, Carlson, Bauer, and a mining engineer from Eveleth Taconite introduced the LVP's mission, background, partners, and expectations for the charrette. Regional experts gave the group an immersive course in the natural history, cultural history, and current affairs of the Iron Range, and then Carlson presented the issues and opportunities for the charrette. It is noteworthy that some of the experts presenting that day were from state agencies whose workers were officially striking at the time of the charrette; nonetheless, they volunteered their time to make this important project happen, demonstrating the level of personal commitment state officials had made to the partnership by then. In the late afternoon, participants were given a tour of the mines and the communities within the design limits set for the charrette, and over dinner, they were briefed on the mining process.

The landscape architects were, as [U.S. Steel's Jim] Swearingen recalled, “from all over the country,” and none except for Bauer and James Pettinari, who hailed from the Iron Range city of Buhl, had ever seen the Iron Range or an active mine. By 8:00 pm the first day, the charrette officially kicked off with a public open house. Bauer gave a presentation on “Shaping Landscapes,” and LVP leaders

summarized the overall intent and goals of the next few days of work. During the open house, everybody—from mine representatives to city officials to regional businesses to the local populace—was invited to ask questions and share their visions of what would be best for the area's future and the landscape of the Mesabi. The landscape architects took notes and gathered ideas. They had been divided into three teams of four people, with each team dedicated to a certain aspect of the future visioning process: community development and housing, recreation and open space, or economic development. Carlson and Bauer were the overall process leaders.

After the initial public meeting wound down, the three teams, in Swearingen's recollection, “literally worked around the clock” to create sketches of how all the ideas could meld into the landscape. Pettinari, in particular, was noted for his “expert drawing skills that could quickly convert the discussion ideas into exciting concepts on paper.” Eveleth Taconite provided engineers for up to 12 hours per day to advise the teams—telling them what was feasible and what was not in terms of general engineering and mine development. Other resource experts were brought in at intervals, including the mayors of Virginia, Eveleth, Mountain Iron, and Gilbert. Unlike an engineering project that is undertaken with a single-minded focus to solve a particular problem, the charrette tried to envision multifaceted solutions by mixing together the creative output of all three of the design teams into a single plan.¹⁰

On Friday afternoon, a second site tour was conducted to begin validating the landscape architects' concept plans. By that evening, contributors were reassembled in a second public open house to view the progress the teams had made and to provide any final input or refinements. [Mining engineer Dennis] Hendricks recalled, “People would come in and watch. [The teams] were drawing; they were kicking ideas around. They were putting up sketches. It was fascinating to watch the whole thing.”

By noon on Saturday, the group presented the final products to all of the project's stakeholders, who included, in Carlson's words, “key community leaders, citizens, mine engineers, movers and shakers, and national design and planning experts.” The whole process concluded with a “farewell social” and a press conference. Everyone was included. Hendricks recalled that the stakeholders' reactions to the drawings presented at the final open house were overwhelmingly positive: “People who watched the presentations were like, ‘Wow, we never thought you could create this.’ An access ramp into the pit where you could have marinas, boat launches, and walking trails? Or a business district down there that did not impede mining?”



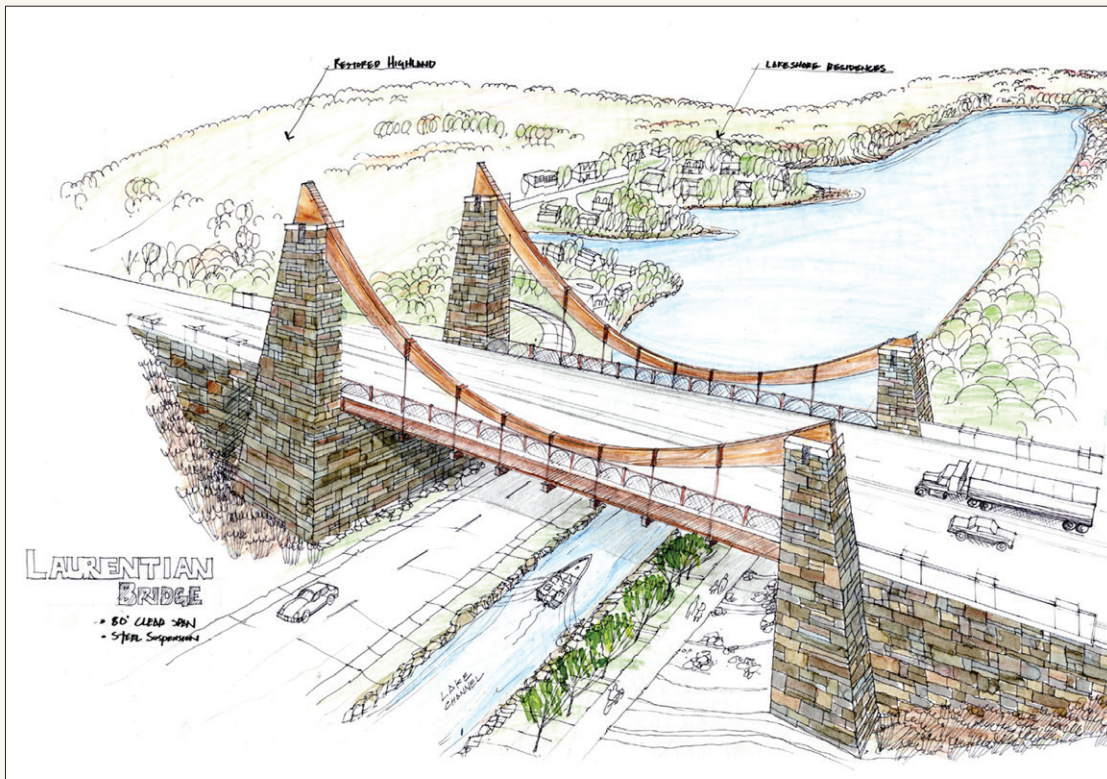
Iron Range native James Pettinari sketched enticingly scenic possibilities during the Virginia charrette.

Importantly, the professional facilitation techniques employed during this and future charrettes allowed those involved to air out some vexing issues regarding the future of the range cities that had not previously been brought to light. Carlson said the events provided a neutral territory to present and discuss conceptual solutions to these issues. For example, the Virginia charrette made it clear that US Highway 53, linking Eveleth to Virginia, would need to be moved to accommodate expansion of the Thunderbird Mine. Swearingen recalled, “It was the Quad Cities charrette that started this discussion and laid the groundwork for how to relocate Highway 53.” Rather than shy away from the potential highway relocation, the charrette made it a centerpiece for discussion. One landscape architect team was dedicated to developing concepts for the “Gateway Bridge” that featured links to the paved Mesabi bike trail and an overlook tower. Sketches showed the bridge bypassing an island dedicated to wildlife habitat and connecting into a lakeshore housing development and public park. The landscape architects were painting a picture of the future that featured the highway relocation

as a potential hub of activity, like the Golden Gate Bridge, rather than a potentially contentious mine siting issue.

Other parts of the Virginia charrette drawings featured urban ecology corridors that offered greenways for wildlife to cross the iron formation from north to south, sub-aqueous habitat zones created by programmatic plantings as the water levels rebounded after mining was completed, and a viewing corridor into the future pit lake known as the “Iron Gap.” There were natural amphitheatres, ski and bike trails, and what was termed a progress park for new businesses.

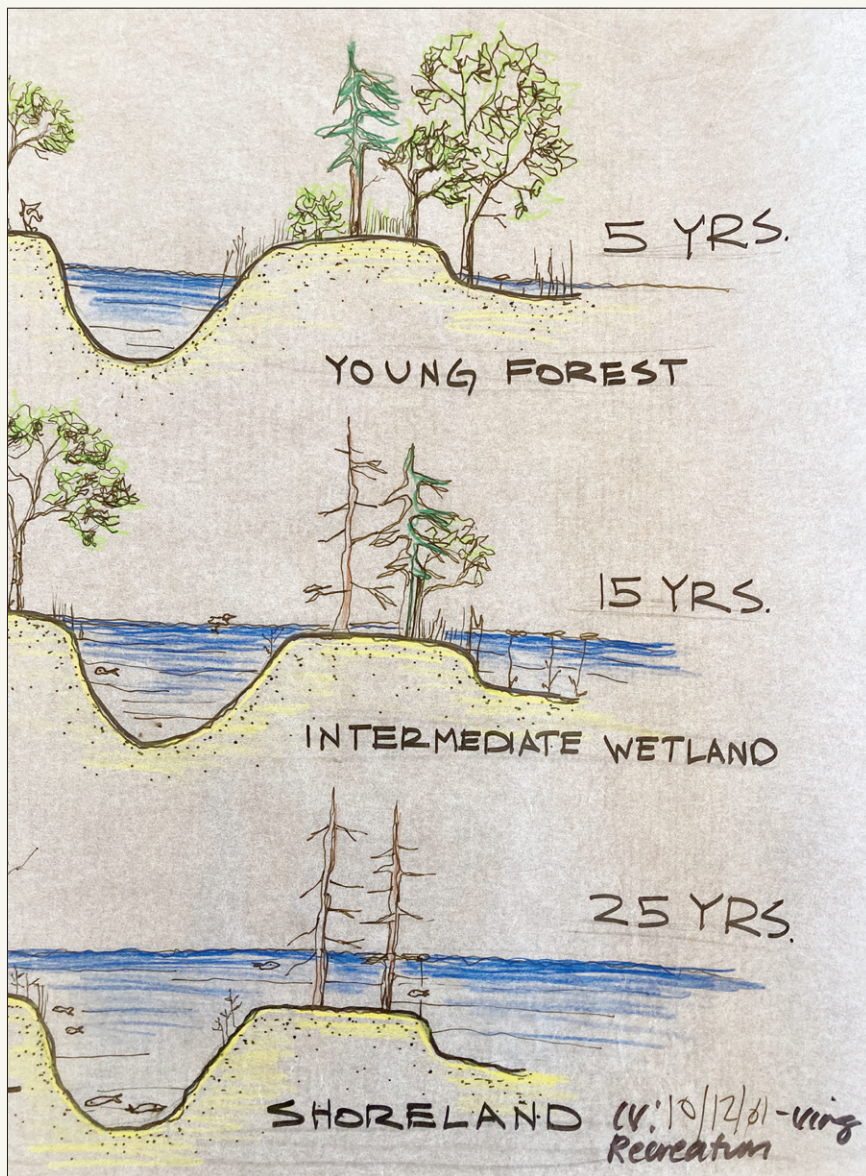
According to Koepke, Carlson, and [professional facilitator Mirja] Hanson, the charrette drawings were based on a “working hypothesis that mining companies can shape landscapes with certain mine activities in strategic locations across the Mesabi Range to improve the region’s cultural, economic and environmental life.” The landscape architects were trying to show “a vision of the region as a nonextractive landscape”—in other words, what the Iron Range could be when mining was over. And the charrette drawings were used to depict the idea that the machinery of today’s mining could be used to shape the minescape into “attractive, productive land, using thoughtful site planning and visual design devices.” The whole idea was



The Virginia charrette prominently featured multiple "Gateway Bridge" concepts designed to allow for mine expansion, inter-community connection, and enhanced recreational and cultural opportunities such as incorporating the Mesabi bike trail and an overlook tower.

The Virginia charrette included discussion of a "greenway," or wildlife corridors across the iron formation.





A charrette drawing showed how purposeful plantings could be used to develop shoreline habitats as water levels in mine pits changed over time.

engaged in this follow-up partnership, the members reflected on the charrette process. A representative of the city of Virginia said, “We have started something good and must continue it. The City of Virginia is in.” A representative of Eveleth Taconite said, “The mine is always creating new land forms. As long as costs are not increased, we are interested in knowing the best ways to stockpile material for future users.” And a representative from the city of Eveleth said, “I compliment the collaboration of the group up to now. This is an exciting opportunity to plan for the future.” Through these testimonials, it seemed as though the messages LVP was trying to convey—community engagement, transformation of the future landscape through mining, collaboration, and long-range planning—were being received.

The early work by LVP’s initiators laid the groundwork for what remains a vital, open, multi-stakeholder partnership that is still functioning to promote multiple uses of minelands 25 years after its inception (though it is now known as the

eventually boiled down into what would become the LVP’s catchphrase: “Pits and Piles into Lakes and Landscapes.”¹¹

The first charrette was a huge win for the Laurentian Vision Partnership. It sparked development of a Quad Cities Land Design Planning Partnership, which comprised 39 members representing a broad spectrum of public, private, and nonprofit agencies that eventually worked through a timeline of actions for relocating Highway 53 without impeding the progression of mining. As they

Mineland Vision Partnership, MVP). To date, the partnership has funded more than 41 enhanced mineland reclamation and repurposing projects in Minnesota, including the award-winning Redhead Mountain Bike Park, which held its grand opening in 2021. ▣

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Minescapes: Reclaiming Minnesota’s Mined Lands by Pete Kero is available from the Minnesota Historical Society’s museum shops and online store, as well as from independent bookstores, gift shops, and online booksellers. For more information on the book and upcoming author events, visit shop.mnhs.org/products/minescapes.

Notes

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Redhead Mountain Bike Park was created on 1,225 acres of former mine-land near Chisholm, Minnesota. It encompasses 10 former open-pit and underground iron mines. Since its grand opening, the park has received two statewide environmental awards, has been cited in numerous national and regional news publications, and was prominently featured in the full-length documentary Biketown, produced by the mountain bike magazine Freehub.





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