

Right Here: Embedding Geoscience in Place-based Interpretive Signage in Northwest Calgary, Alberta

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Summary

Inspiring wonder and awe, provoking imagination and inquiry, and engaging in place-based studies through science, art, and literacy have been intentional aspects of a school and community based interpretive signage project in northwest Calgary called Whispering Signs. Also intentional has been the embedding of geoscience concepts within the subject matter of the signage, both explicitly and implicitly. The cumulative sign content addresses an extensive cross section of interrelated concepts from the geosphere, biosphere, hydrosphere, atmosphere, and sociosphere, thus presenting an ecocentric perspective of our ecological context. Understanding our multifaceted context *in situ* contributes to our critical role as effective stewards “for the responsible and sustainable use of the Earth’s many resources” (GeoCanada Conference website).

Place-Based Literacy

Place matters. Building connections to place, in a variety of genres, is critical to developing the “common bond with the Earth itself” (GeoCanada, 2010) for students, the public, and all those working with the Earth. Ecological thinking within the many faces of environmental and geoscience education, calls for a synthesis of critical pedagogy and place-based education into a “critical pedagogy of place ... [which] must embrace the experience of being human in connection [with] others and with the world of nature, and the responsibility to conserve and restore our shared environments for future generations.” (Grunewald 2003, p. 6).

Interpretive panels in parks and natural areas are a way to extend sustainability and sense of place education into the public realm of lifelong learning (Knowlton Cockett, 2008). Thomashow (1995), in his book, *Ecological Identity*, states, “Sense of place is the foundation of our deepest connection to the natural world,” (p. 194). Sobel (1998), in his book, *Place-based Education*, affirms that “developing a sense of place is one piece of the puzzle in remaking our schools with a focus on sustainability,” (p. 9).

Wessels’ (1996), in *Reading the Landscape’s History*, which encompasses biological and cultural heritage at the land’s surface states (p.60), “Only when we understand the heritage of the land, the linkages between a culture and nature, and are able to interpret that heritage, does a real sense of place become possible.” Geoscientists look deeper still, and may have read Hawkes (1951), *A Land*, where she narrates from a single point of contemplation in her back garden while she gazes in awe at the heavens, taking her readers on a storytelling journey around Great Britain through geologic time from the Precambrian to the present. She repeatedly touches on the idea of consciousness evolving along with the evolution of the landscape, thus contributing to a sense of connectedness. More satisfying to geoscientists, Huck and Whiteway (1998) lead off their *In Search of Ancient Alberta* (inside cover), with:

If we can begin to comprehend Alberta’s long history, we might see the landscape with new eyes. Then, and only then, might we find our place in this uncommonly beautiful part of the world.

Whispering Signs

Whispering Signs: Ecological Encounters in an Urban Prairie (Knowlton Cockett, et al., 2008), is a collaborative 'Sense of Place' project involving school, community, and municipal participants.

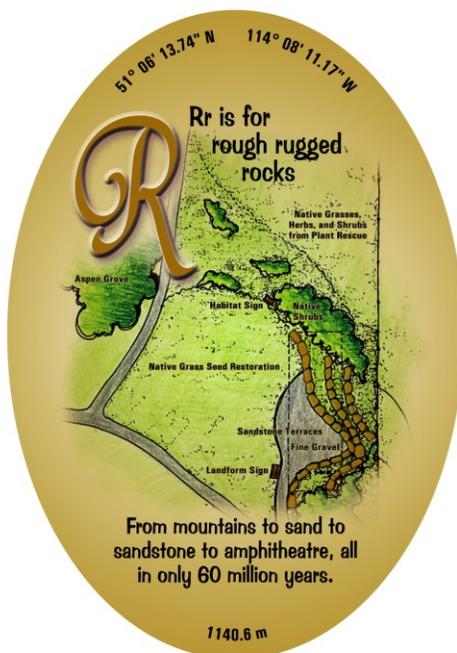
The thirty-four outdoor interpretive panels are part of a prairie reclamation and restoration initiative through Dr. E.W. Coffin School, The City of Calgary Parks department, and the local community of Brentwood in northwest Calgary. Whispering Woods natural area, where many of the signs are located, is an outlier of Nose Hill Park, thus comprised of native rough fescue grassland and aspen parkland. The adjacent schoolground and residential areas allow students and the public opportunities to enjoy these spaces, including for studies and stewardship.

During the creation of the signage, deliberate attention was given to include geoscience content such as the rock cycle, deep time, geomorphology, climate change, water conservation, sky science, and natural resources. In all cases, whether through art, poetry, or science, honoring 'place' was of paramount importance, including the connection of the sign's content to its immediate physical location.

Detailed GPS data situates each sign with latitude, longitude, and elevation, and this generative project is supported by a website: www.natureground.org. Nine large panels include original art by ten different women from the community covering topics such as stewardship, biodiversity, invasive alien species, prairie conservation, and glacial geology. The remainder of the signs, with primarily children's art, feature letters of the alphabet together with additional ecological concepts on 6" x 8" oval panels flush mounted on 6" diameter, 30" high wooden posts.

Alphabet Panels

Rr is for rough rugged rocks



Paskapoo sandstone, rescued from a waste rock pile during construction of a local highway interchange, was used to create an outdoor classroom in Whispering Woods, called the Prairie Amphitheatre.

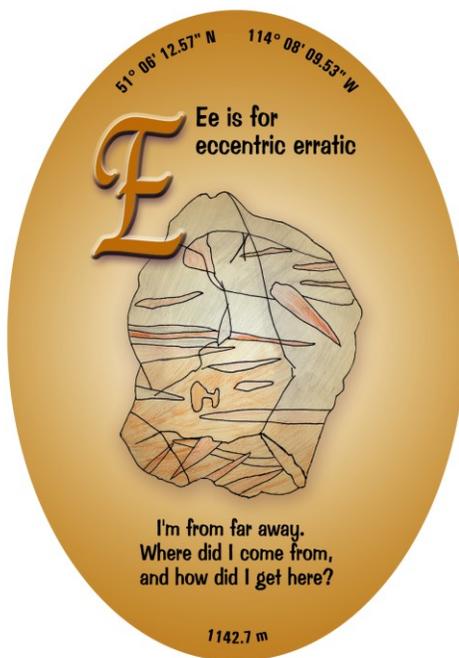
The artwork chosen for this sign was part of a conceptual drawing by Bernie Amell of Riparia Ltd., and the sign is located adjacent to the actual amphitheatre, constructed in 2004, which embraces a panoramic Rocky Mountain view.

The Prairie Amphitheatre invites students and the public into a tactile experience with the local bedrock, a natural resource often used in Calgary's Sandstone City buildings. Volunteers also work in and around the rock amphitheatre while removing invasive plants.

The brief comment on the sign alludes to fundamental geological processes, the use of natural resources and cultural heritage, and incorporates a sense of awe by the simple inclusion of the word "only" in the contemplation of deep time – all in a placed context.

Figure 1: From mountains to sand to sandstone to amphitheatre, all in only 60 million years.

Ee is for eccentric erratic



Amongst the pile of waste rock originating from southeast Calgary and used for the amphitheatre was a crumb of the Canadian Shield, transported southwest from the country's interior by the most recent continental glaciation. These gneiss erratics are not naturally found in northwest Calgary, except if (much!) later transported by truck to places like the Centennial Natureground, the reclaimed prairie space in the schoolground near Whispering Woods.

Students often choose to sketch this intriguingly different rock when in the natureground, which also features large tablets of Paskapoo sandstone placed in sinuous stepping stone pathways to invite passersby into the native grassland without trampling the forbs.

When consulted as to what they wished to see on a sign, Grade 3 students studying Rocks and Minerals were adamant that they did not wish to be "told" things, and gleefully requested riddles. This philosophy of inquiry, straight from the students' perspective, has been infused throughout the signage where content is shown, not told, through art, poetry, and questioning.

Figure 2: I'm from far away. Where did I come from, and how did I get here?

Minerals, climate change, and vistas

However, on Ff is for frosty footprints, the observer is directly told that frost is a mineral, and the definition of a mineral is invoked in the balance of the comment. This sign has given rise to more comments of, "Huh; I didn't know that!" than any other sign. Sometimes facts are fun, and expand knowledge through wonder. It is also paired with the visual metaphor of our ecofootprint, moving in proportion and direction with our natural environment. The did-you-know comment regarding non-migratory geese opens a dialogue on anthropogenic climate change, and knolls and night skies provoke an examination of our place, both on the ground and in the heavens.



Figure 3. Additional examples of Alphabet Panels with geoscience content

On the Shores

51° 08' 12.45" N 114° 08' 11.02" W 1140.6 m

On the Shores

If we can begin to comprehend Alberta's long history, we might see the landscape with new eyes. Then, and only then, might we find our place in this uncommonly beautiful part of the world.
Huck and Whiteway (1998) *In Search of Ancient Alberta*

Glacial Lake Calgary
Judith E. Hall - acrylic on canvas

The Blade of Grass
The blade of grass was tossed in the raging wind.
Cold gusts blew around it, pushing it side to side.
A ravenous rabbit foraged nearby, shivering in the brisk air.
But the plant could not see.
The blade of grass just swayed in the breeze.

Right Here
How many eons,
how many lands,
how many shores
has Calgary seen?
Right here,
rolled western oceans.
Right here,
lapped eastern seas.
Gathered right here,
mountain meltwaters,
captured right here
by glacial blockade.
Waiting and filling,
swelling, then spilling,
bursting and flooding
towards the new spring.

Retreating ice gave way to tundra, forest, and the renewal of the grassy plains. Camels, mammoths, saber-toothed cats, and bison all flowed across the emerging prairie, and humans followed the herds.

Grassland, Judith E. Hall - watercolour
David, Grade 5 - poem
Polly Knowlton Cockett & Robin Cockett

www.naturoground.org

Brentwood
UNIVERSITY OF CALGARY
National Geographic

Figure 4. Imagining Glacial Lake Calgary in Springtime, by Judith E. Hall

Conclusions

Place and context are critical in grounding the imagination of concepts in geoscience, an inherently interpretive science. In the large interpretive panel, *On the Shores*, placed exactly on an old shoreline of Glacial Lake Calgary, the viewer can gaze at the same mountainous horizon both in the actual distance and in the painting's distant past, and where the viewer might also contemplate the poem, *Right Here*, encompassing Alberta's long history:

How many eons, how many lands, how many shores has Calgary seen?
Right here, rolled western oceans. Right here, lapped eastern seas.
Gathered right here, mountain meltwaters, captured right here by glacial blockade.
Waiting and filling, swelling, then spilling, bursting and flooding towards the new spring.

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