

Grand Valley

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This double issue of the *Grand Valley Review* spotlights the campus ravines as well as select papers from the The Underground Railroad in Michigan—A Decade of Discoveries Conference held at Grand Valley State University in fall 2008.

The next issue, to be published in fall 2010, will feature material celebrating the 50th anniversary of GVSU.

Thereafter, this publication will broaden its scope to the wider Great Lakes region and undergo a transformation into *Wake: Great Lakes Thought & Culture*. Please be looking for this publication in fall 2010.



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Grand Valley State University's "Secret Garden"

Peter Wampler is Assistant Professor of Geology at Grand Valley State University. All photos by the author or courtesy Facilities Services. Check out the stormwater initiative website at <http://www.gvsu.edu/stormwater>.

I came to Grand Valley State University (GVSU) in the fall of 2004 from a decidedly more mountainous setting in Oregon. Soon after my arrival I discovered that GVSU possessed a well-kept secret, a "Secret Garden" if you will. The ravines located between the campus and the Grand River are an oasis of topographic relief in an otherwise flat landscape. They host an amazing array of deer, turkeys, snakes, and turtles in addition to some great exposures of glacial deposits.

As I explored the ravines with students and had conversations with colleagues in the geology department it became clear that the "Secret Garden" was not without its weeds and thorns. Decades of growth at GVSU had taken a toll on the ravines. Some of the most obvious impacts

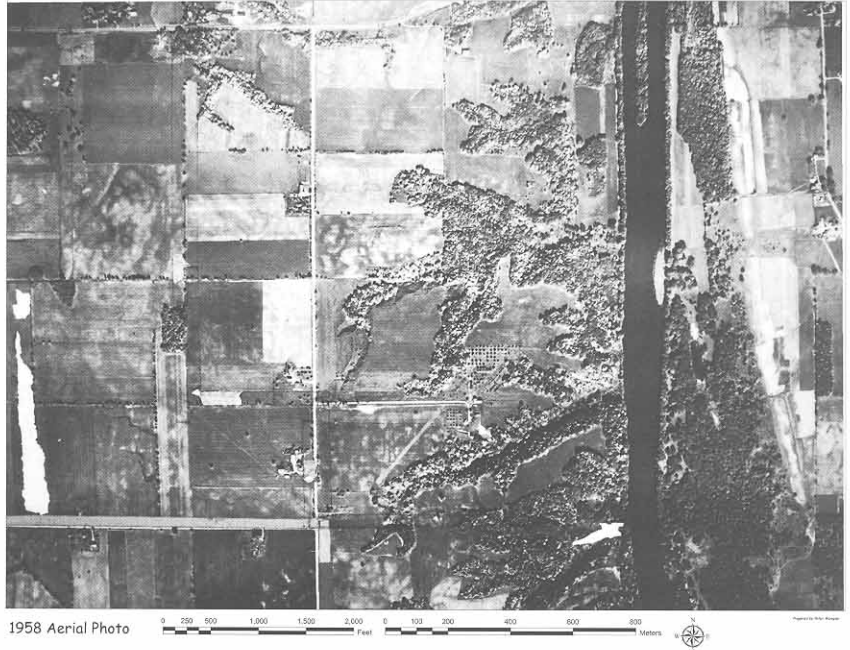


Discharge pipe near the Ravine Apartments taken during a rain event September 23, 2006.

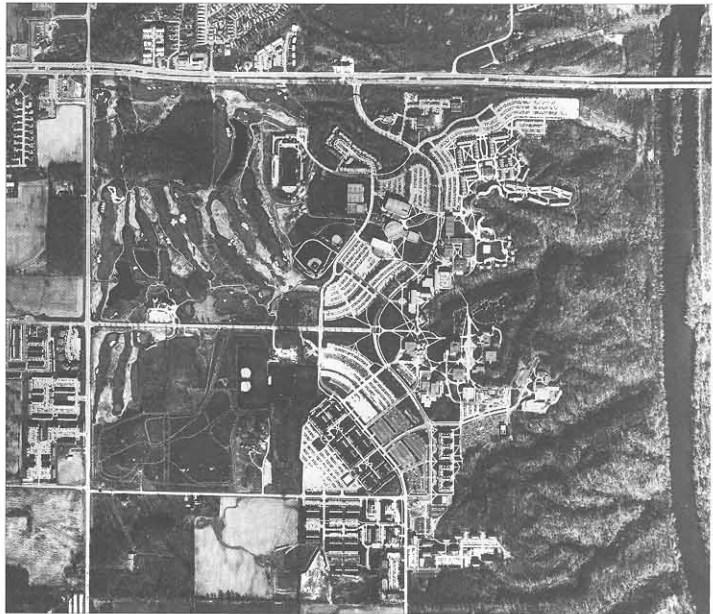
are the complex network of pipes that are inserted into the ravines like so many intravenous tubes, eroded and unstable hill slopes, stream channels that are deeply eroded and unstable, and the many generations of rock structures placed in the ravines in an attempt to slow erosion. As I applied my background in human impacts to rivers systems to the problem it became clear that the root problem, to put it simply, was too much water that arrives too fast to the ravines after rain events.

Since the inception of GVSU it has been a commuter campus where most students travel by car to get to campus. Since the 1960s GVSU has converted roughly 170 acres from farm fields to impermeable building roofs, parking lots, pathways, and roads. The “Rapid” bus service and high gas prices have done a lot to reduce the need for parking, but significant demand remains. Rain water no longer seeps into the ground and must be removed via drains and pipes, many of these pipes directed to the ravines on the east side of campus. This is in stark contrast to the pre-GVSU condition where the water flowed predominantly west after a rain event and a much greater portion seeped into permeable farmland and forests. We have effectively converted a landscape that historically functioned a bit like a sponge to one that behaves more like a fire hose after a rain.

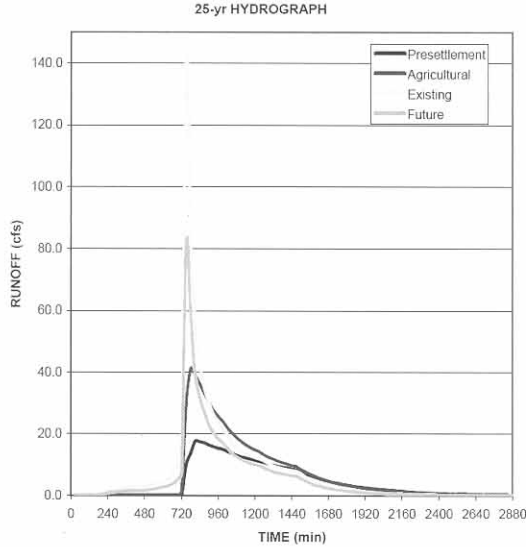
During the summer of 2006 a GVSU student, Patrick Womble, and I received funding from the Student Summer Scholar program to install stream gauges and study the runoff in the ravines. Our main goal was to provide data to Facilities Services so that they could make more informed decisions about future development at GVSU. Facilities Ser-



1958 Aerial Photo



2004 Aerial Photo



Hydrograph from a computer model created to model campus runoff. The lightest gray line represents the current condition, and the darkest line represents presettlement conditions for Little Mac Ravine, an increase of over 1000% (FTCH, 2007).

vices, particularly James Moyer, was very supportive of our work. The results of this initial study confirmed that runoff had increased dramatically on campus and the impacts to the ravines were numerous and widespread. Later computer modeling by Fishbeck, Thompson, Carr, and Huber (FTCH) in 2007 confirmed our initial finding that runoff had increased up to a thousand percent between the 1950s and now.

In 2007 Facilities Services funded an expanded network of monitoring for water quantity and quality in the summer of 2007 which is ongoing. This effort involves undergraduate students and provides excellent real world experience in solving a complex applied hydrology problem.

Progress being made

Several steps have been taken to improve the runoff situation in the ravines. Facilities Services has taken a leadership role in creating a storm water plan for campus that reflects the best available storm water practices. Facilities Services has collaborated with FTCH, faculty members from geology, biology, and other departments through an ad-hoc committee, the Storm Water Advisory Group (SWAG). SWAG and Facilities Services work together to monitor, evaluate, and develop new ways to improve the storm water runoff at GVSU.

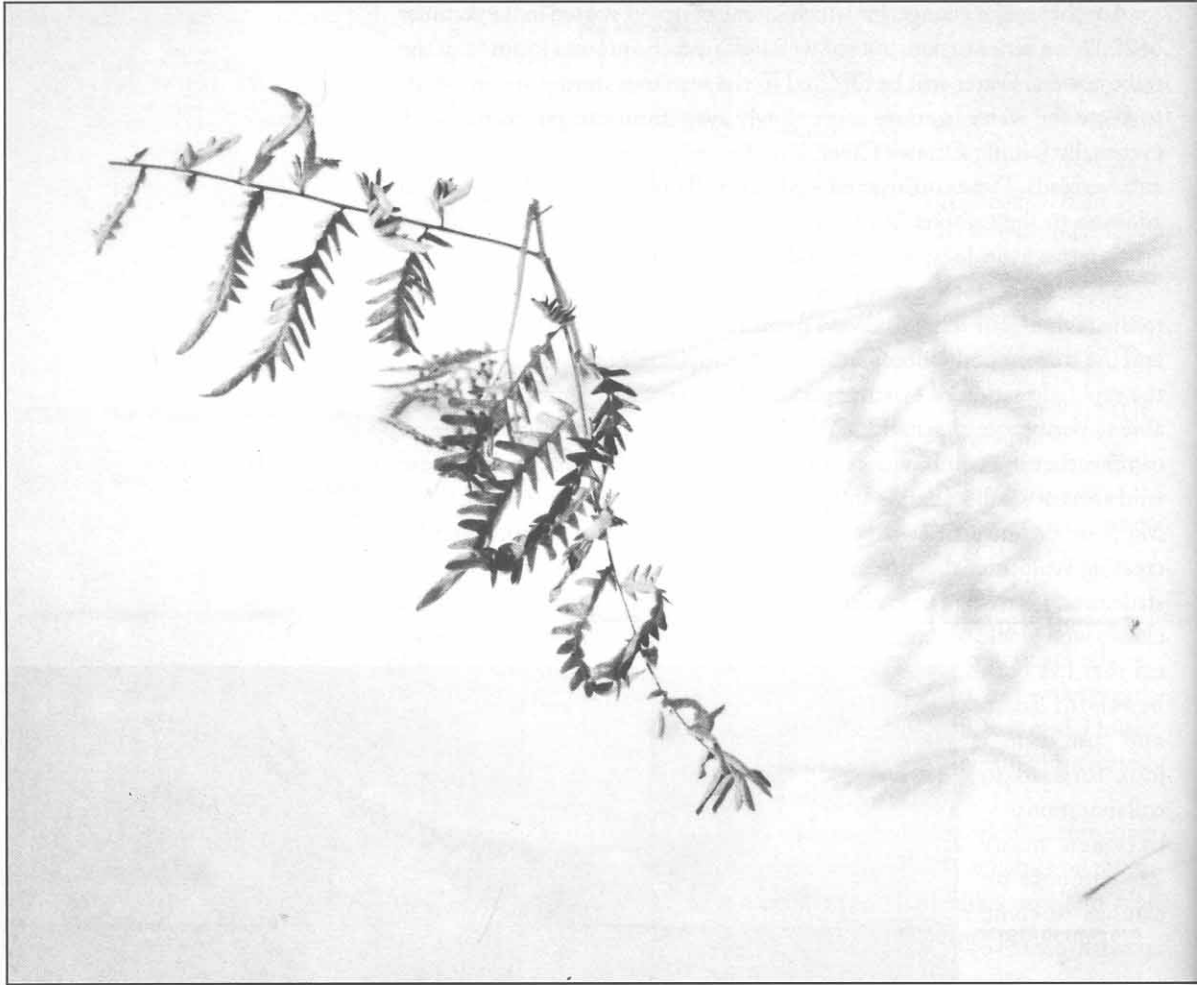
The broad goal is to return GVSU to runoff levels present in 1960 when the university was founded. This is done through the incorporation of "green" storm water technologies into new structures on campus. For example, the new Turf Building was constructed in such a way that storm water that formerly flowed from Lot F now is now directed into a large rain garden on the south side of the building.

Another major change, for which initial work was started in the summer of 2009, is a series of constructed wetlands near the present location of the radio towers. Water will be directed to the wetlands during storm events to allow the water to move more slowly away from campus to the west, eventually joining Ottawa Creek after passing through a series of ponds and wetlands. These constructed wetlands will not only provide a beautiful addition to the campus, but they will be a living laboratory for studying ecosystems, hydrology, wildlife, and water chemistry.

GVSU has made great improvements in the area of storm water runoff to the ravines, but there is always room for improvement. We as a faculty and the student body should fully support, financially and philosophically, the rapid alteration of existing parking lots and surfaces from impermeable to permeable alternatives. We should be accepting of a landscape on campus that is a combination of manicured lawns and spaces with more wild areas of small wetlands and ponds that provide storm water functions. Many other universities have gone so far as to embrace storm water by creating sculptures that are in fact cleverly designed storm water control structures. I have had many creative art students in my general education classes who would welcome the opportunity to sink their teeth into a project that has both beautiful form and function. I look forward to collaborations between many departments on campus to come up with creative solutions to solving the storm water runoff issues at GVSU.



Parking Lot C strip of permeable asphalt after a rain. Note no storm water is reaching the outlet drains.



Seasonal Light: Fern in Snow. 2007.

Seasonal Light is a meditation in visual form within and upon a part of our communal landscape, the Ravines.

Art is, among other things, the mastering and moving forward of a specific tradition of human making. Art is valuable because, like the other disciplines at their best, it teaches us how to pay attention, to judge the meaning and significance of our experience. The imagination is not only about creation; it is about how we see and experience the world. Our everyday version of things is also an act of the imagination, one that has been rationalized and ossified. Only in a world in which the imagination has real force is a world worthy of humans ultimately possible.

In the words of the poet David Wagoner:

*"No two trees are the same to Raven.
No two trees are the same to Wren.
If what a tree or a bush does is lost on you,
You are surely lost."*

*A. W. Thompson is
Associate Professor
of Photography and
Director of the School
of Communications at
Grand Valley State
University.*