

The Call of the Notre Dame Wild

A Land Untouched by the 20th Century

Even in Notre Dame's own Garden of Eden, life isn't always idyllic.

When you are host and chaperone to 17 undergraduates as **Gary Belovsky** is, there are times when the quality of patience becomes strained. This happened to be one of those moments. "I have to go," Belovsky said after receiving an urgent telephone call. "Two of the students just ran their van off the road. They're stuck in the mud."

There are 35 miles of dirt and gravel roads that are roughly cut into the 7,500 acres of thickly forested northland of the University of Notre Dame Environmental Research Center (UNDERC). So every bend in the road, every rut, and every deer that decides to leap in front of a startled city kid behind the wheel offers rich opportunity for an unanticipated off-road experience.

Here in this remote kingdom straddling the border between Michigan's Upper Peninsula and Wisconsin, there aren't too many ways for rambunctious collegians to go astray. When they do, it falls on Belovsky, the new director of UNDERC, to get them back on track.

Every now and then a student will veer from the straight and narrow. In this instance, the cure was a strap—a thick, yellow, nylon strap attached to a four-wheel drive truck. An hour later Belovsky returned to the director's residence, strap in hand. "Two of the girls saw a fawn fall in front of them on the road. They backed their van up because they didn't want to frighten it," Belovsky reported to his wife, Jennifer.

To have the rear wheels of a vehicle leave the road at UNDERC is to immediately enter the wilderness. The retreating glacier 10,000 years ago left a landscape rich in boreal bogs and kettle lakes. The topography is flat. The ground is nearly always wet. Consequently, it is a rich habitat, home to an unmatched diversity of native plant and animal species. In short, UNDERC is a biologist's paradise.

Because UNDERC is the closest thing to North America before the arrival of the Europeans, it is the perfect place to conduct biological research.

In what better place than UNDERC can a biologist understand nature without the insults and intrusions of modern man?

It wasn't always such. Loggers treated the land harshly in the late 1800s. The tract of land that was to become UNDERC was heavily logged between 1900 and 1902.

Later, roaring fires, intensified by the dry kindling that the loggers left behind, swept over the land.

Yet in the short span of 100 years, nature rebounded resoundingly. UNDERC erupted with a forest of aspen, birch, red pine, white pine, red maple, sugar maple, and hemlock.

The property was owned by New York financial advisor Martin Gillen, who bequeathed initially 5,500 acres to Notre Dame in 1943.

The deep calm of the wilderness was immediately recognized by the Holy Cross priests at Notre Dame as the perfect place to conduct religious retreats and engage in contemplation and reflection, sometimes enhanced with a fishing pole in hand.



Martin Gillen

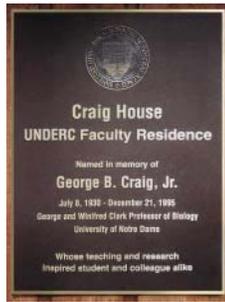
Having been closed to the public for most of the 20th century, the tract is rich in rare plants, lakes with fish that rarely see a hook, and undisturbed marshes that are prolific breeding grounds for a myriad of species.

White tail deer and black bear roam here. "We have wolves now," Belovsky said. "A few students reported hearing them just two days ago. I thought I heard some barking about a day ago."

But for sheer numbers, no species can hold a candle to the mosquitoes and black flies that pour out of the woods.

Not surprisingly, the tract near Land O' Lakes became the second home for Notre Dame's pre-eminent mosquito researcher, the late George Brownlee Craig, Jr.

Craig was the driving force behind making the University's unique patch of paradise into a researcher's dream world. In the 1970s, he and then-director Robert Gordon embarked on a mission to develop UNDERC into a haven for graduate and undergraduate research.



With the enthusiastic help of Notre Dame President at the time **Rev. Theodore M. Hesburgh, C.S.C.**, their grand scheme took root.

Hesburgh, a fisherman par excellence, loves UNDERC as much as anyone at Notre Dame. He was instrumental in achieving Craig's vision of using the property as an incomparable place to teach biology to undergraduates. Back then, students lived in trailers. Often they shared their living quarters with mice. "Things have changed a lot since the 1970s," Belovsky said as he drove his truck toward his favorite lake for largemouth bass, Bay Lake.

The trailers are gone, having been replaced by modern living quarters, he explained. The new James B. Hank Research Facility is continually being upgraded with modern laboratory equipment. The log cabin classroom that resembled a deer camp lodge is still on the premises. "It's now just a recreation hall for the students," Belovsky said. Structurally unsound now, it is scheduled for demolition.

In 2001 Belovsky returned to Notre Dame where he graduated *summa cum laude* in 1972 in business administration. By 1977 he was a bona fide biologist, having received his master's degree at Yale and his Ph.D. in biology at Harvard University.

As the new UNDERC director, Belovsky came with the intent of fully using UNDERC's vast potential. "In the last few years we have really increased the number of research projects here," Belovsky said (see page 8). Whenever he gets the chance early in the evening, Belovsky will slip over to Bay Lake to hunt the bass occupying his favorite fishing holes.



UNDERC Summer students rest at the James B. Hank research facility.

Boats at UNDERC can only have electric motors. It makes for a slow ride across the waters. But it gives Belovsky plenty of time to describe his vision for the future. "My mission is to get this place much more intensely used for research."

Notre Dame has always collaborated with the University of Wisconsin. One study, begun in 1951 on Peter and Paul Lakes by famous UW limnologist Arthur Hasler, was the first-ever experiment using whole-lake ecosystems. "We want UNDERC to be used by not just Notre Dame and Wisconsin researchers. We want to have it opened up to be used by a wider range of researchers," Belovsky said.

Monitoring instruments on lakes and streams will give researchers baseline information available on the Internet. A weather station will provide continuous data on the Internet. "There are very few places left in North America where you can get baseline information about what the natural world was like before it was mucked up by people," stated Belovsky.

Historically, most of the research at UNDERC has been aquatic. But terrestrial research is fast catching up. Terrestrial research on insects, plants, spiders, deer, and small mammals is being conducted by Belovsky, his graduate students, and **Karen Francl**, the assistant director and a 1997 Notre Dame graduate. In addition, new faculty at Notre Dame and faculty from other universities will be starting terrestrial research projects.

For example, new faculty member **Jessica Hellmann** (see page 20) received her Ph.D. at Stanford University on butterflies. "She is interested in the changes of the range of butterflies due to global warming," he said. "UNDERC happens to be an ideal place for her to work. One butterfly has the southern edge of its range here. Another has the northern edge of its range here. So she will keep track to see whether or not the range of these butterflies will change to coincide with global warming." Having visited UNDERC this summer, Hellmann has identified a wide range of studies, not just with butterflies, that she would like to pursue.

Belovsky tossed an artificial night crawler next to a patch of lily pads where a largemouth bass was waiting. The rod bent, arcing downward. But the fight was over

"There are very few places left in North America where you can get baseline information about what the natural world was like before it was mucked up by people." Gary Belovsky

in minutes. "It's not a big one," Belovsky said. "Look at its belly. It's spawned out." Belovsky released the 15-inch bass. "We could pick up much bigger ones right over there. I've gotten some up to the boat that I'm sure were over 20 inches. Sunday I caught one that was 19 inches."

Back in the days when Craig was shepherd to his students, UNDERC "was run on a shoestring," Belovsky said, as the motor whirred behind him. "Our budget now is substantial, allowing us to provide research support to graduate students and faculty, as well as operate the much larger undergraduate program."

It was Craig's strength of personality that kept UNDERC afloat in those early years. "He brought a class up here with six to eight students. Before I took over, we had as many as 14 students. Now we are up to 18 students, with plans to expand to 24," he said.

To be an undergrad and to travel to UNDERC with "Doc" Craig was tantamount to making a pilgrimage to hallowed ground. Craig, a big man with a big heart, would embrace each and every student with a personal warmth. He exuded enthusiasm for biology that was contagious to all around him.

Craig died in December 1995. Later, at the Basilica of the Sacred Heart, Father Hesburgh eulogized him. "I think my favorite picture of him is in the laboratory up at UNDERC, where many of our undergraduates go to study each summer



and as many as 60 graduate students as well,” Hesburgh said at the pulpit. “That was George’s dream—to take this wonderful property and make it one of the most unique centers for environmental research in the United States.”

“But my favorite picture of George is at UNDERC, where there would be 10 or 15 undergraduates and to see George in the laboratory just focused on *Aedes aegypti*, his favorite mosquito. As he is bent over the microscope, he is totally surrounded by students who idolize him. And he recounting everything he is seeing through this microscope and they are listening in rapt attention. He loved to teach undergraduates and they loved him.”

Craig’s ashes were scattered on Roach Lake, a short distance from the President’s Lodge. So what underlies UNDERC goes far deeper than pure biology.

And for many who come to UNDERC,

it is a priceless experience of a lifetime. “We do know of a number of romances that have started here,” Belovsky grinned.

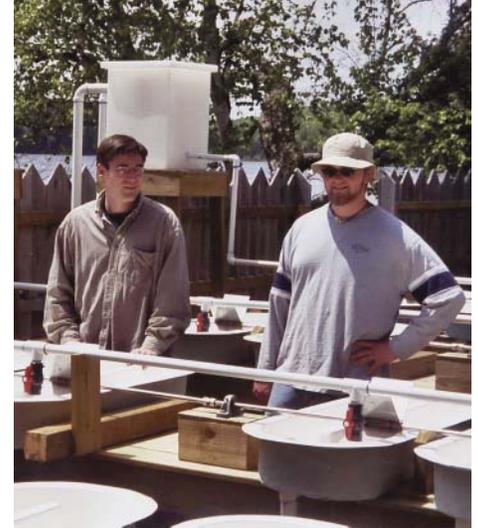
In late May, in honor of Hesburgh’s birthday, the students would hold a spaghetti dinner at UNDERC. “We would have a wonderful evening of conversation with the students about the possibilities of science and humanity and doing something about preserving this beautiful world of ours,” Father Hesburgh recalled.

Courses on lakes, streams, aquatic insects, and amphibians are the bread and butter of the curriculum here. UNDERC recently added teaching modules on mammals, birds, reptiles, and forests as well. Teaching isn’t limited to textbooks and classrooms. “A lot of them are city kids. They have never fished or camped. So UNDERC is a whole new experience for them,” he said.

Solitude becomes a way of life. The serenity magnifies sensory experiences. There is that fresh hint of pine in the air. The verdant canopy of tree limbs offers perpetual shade. Spring peepers and other frogs play their symphony at night. Occasionally a loon will wail. But mainly there is that pervasive calm at UNDERC.

One day Belovsky realized that the undergrads knew little about basic navigation. It struck him that the students only walked on the roads. “They would not walk off into the woods,” he said. One lecture is devoted to how to use a compass and read a map.

To test their proficiency, the staff then deposits them on the far end of the UNDERC property. “Then we make them walk cross-country back to the apartments,” he said. The staff patrols the roads to make sure nobody cheats and uses the roads. Awaiting them at the apartments is a party. “Some of them get turned



Paul Frost and James Larson fine-tune their artificial stream experiment at UNDERC.

around and come back three-and-a-half hours later, totally wet and muddy,” he grinned. One award goes to the wettest and muddiest student. But for many, getting back safe and sound is a thrill of a lifetime.

“You hear them talking excitedly to their parents on the phone: ‘I went cross-country with just a compass and I found my way back,’” he said. “To them it is an accomplishment they thought they never would be able to do.”

Belovsky is impressed by the undergrads who apply to study at UNDERC. “I have never taught such a great group of students. I really *have* been impressed by them,” he said. Darkness started to fall on Bay Lake. “Hear that humming?” Belovsky said. The woods did seem to vibrate with a low buzz. Mosquitoes. The hordes were gathering. It was time to go.

The next day would see the arrival of a professor from Utah State University to lecture in the course and conduct research, as well as one more crisis. Another student, a lad of 20, drove off the road and immersed his rear tires in the mud. Once again, Belovsky would have to reach for his strap.

Research Projects

Grasshopper ecology and global warming

Gary Belovsky group (University of Notre Dame)

Pitcher plant ecology

Gary Belovsky group (University of Notre Dame)

Small mammal ecology

Karen Francl (University of Notre Dame)

Bog plant communities

Karen Francl (University of Notre Dame)

Dissolved organic carbon in lakes, streams, and wetlands

Gary Lamberti and David Lodge groups (University of Notre Dame)

Scott Bridgman group (University of Oregon)

Native crayfish ecology

David Lodge group (University of Notre Dame)

Larval salamander ecology

Kerry Yurewitz (University of Notre Dame)

Bog and wetland nutrient cycling

Scott Bridgman group (University of Oregon)

Lake trophic dynamics and production

Stephen Carpenter, James Kitchell (University of Wisconsin)

Michael Pace, Jonathan Cole (Institute of Ecosystem Studies, Millbrook, New York)

Early spring mosquito distributions

Centers for Disease Control and Prevention

Leaf decomposition by stream crustaceans

Todd Crowl (Utah State University)



Gary Belovsky and a healthy 16-inch largemouth bass