

“WELCOME TO THE WORLD OF WOUNDS”

COMMENCEMENT ADDRESS BY MARK VAN PUTTEN

UNIVERSITY OF MICHIGAN SCHOOL OF NATURAL RESOURCES & ENVIRONMENT

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Thank you, Dean Miranda.

SNRE faculty, administrators, staff, students, parents, family and friends, it's a honor to give this commencement address. Although I'm not an alum, I've been closely associated with the school for thirty years and feel part of the SNRE family. I've also had the opportunity through my career to observe a disproportionate number of SNRE grads in critical policy making positions in and out of government. As we say on the Visiting Committee, SNRE definitely punches above its weight class!

Let me begin by congratulating you and your families on your graduation. It's a major accomplishment worthy of celebration ... and also reflection. And that's what I would like to do in the next few minutes – reflect on the significance of this event.

Knowing SNRE and its faculty as well as I do, I know you've received a superb education. As a result of this education, you have joined a distinct minority in the United States – you are environmentally literate!

A few years ago the National Environmental Education and Training Foundation summarized a decade of public opinion surveys by the Roper Organization, and found “a persistent pattern of environmental ignorance [in the United States], even among the most educated and influential members of society.” The report estimated that *only 1% to 2%* of American adults could be considered environmentally literate and found little difference between the average American and government and business leaders.

And, never have we needed to know more.

We face global environmental threats such as climate change, loss of biodiversity, and interference with fundamental ecological processes such as the nitrogen cycle. Yet, today, most Americans don't understand such simple concepts about nature as these:

First, *water runs downhill*. Most people live their lives unaware of the watershed they inhabit. They have no sense of the impacts of what runs off their lawn, what they pour down their drains or flush down their toilets.

Second, *animals need homes too*. Many people, even those who enjoy viewing birds in their backyards or other wildlife in cities or suburbs, don't understand the concepts of an animal's habitat, range and migratory patterns. They don't understand that healthy habitats are required across ecologically meaningful landscapes or those birds and animals will disappear.

Third, *animals and people share the same homes*. In our high-tech society of modern conveniences most people do not understand that their fate is tied to the health of the environment. Many believe that protecting natural landscapes and functioning ecosystems is a luxury.

And, finally, *there is no such thing as away*. Most people don't understand the basics of energy and materials flows or the fundamentals of total life cycle analysis. They have an "out of sight, out of mind" attitude toward the wastes they produce.

Our collective ignorance will be very costly.

A few years ago Scientific American published an article that identified nine "planetary boundaries" or thresholds for our planet's biophysical processes on which our future wellbeing depends. As I alluded to a few moments ago, it concluded we've already exceeded these thresholds for three of them: climate change, biodiversity loss and interference with the nitrogen cycle.

Similarly, the Millennium Ecosystem Assessment involved over 1300 experts and evaluated 24 ecosystem services essential to human well-being. It found that, notwithstanding technological progress, people today depend for survival and well-being on a healthy environment as much as in the past. And it concluded that most of the ecosystem services on which people depend are declining rapidly, stating:

At the heart of this assessment is a stark warning. Human activity is putting such strain on the natural functions of the Earth that the ability of the planet's ecosystems to sustain future generations can no longer be taken for granted.

But, you know this.

You know it thanks to your education at SNRE. You know this because you are among the 1-2% of environmentally literate Americans. And, with this knowledge comes responsibility and that's the message I hope to leave you with today.

Fifty years ago, the noted scientist, author and activist Aldo Leopold wrote: "One of the penalties of an ecological education is that one lives [thereafter] in a world of wounds."

So, *welcome to the world of wounds*.

You will never again be able to walk in the woods, canoe a lake or stream, take a drink of water or even look at a sunset without knowing in the back of your mind the grievous illness of our planet. And there's no turning back. You cannot unlearn what you know about humans' impact on natural systems. You cannot insulate yourself in ignorance from the consequences of knowledge. And you cannot – at least, not ethically – shirk the responsibilities that come with this knowledge.

Now, you have a choice to make.

As Leopold put it, having learned of our world of wounds, one must act “as a doctor who sees the marks of death in a community that believes itself well and does not want to be told otherwise.” The alternative, according to Leopold, is to harden one’s shell and become – as he put it – an “undertaker of the mysteries at which [you] officiate.”

Each of you graduating today – and each faculty member here today – faces a simple choice: *will you be an undertaker or will you be a healer of the Earth?*

What must you do to become a healer? Each of you will find your own path, but here are some general benchmarks by which to navigate your journey.

First, *use your special knowledge to say what the science means.*

You cannot sit on the sidelines watching public policy, unguided by science, go off the rails. Scientists are often uncomfortable with the policy process and fear sacrificing their objectivity if they engage in it. A few years ago *Science* magazine asked eminent scientists if advocacy diminished their credibility. Stuart Pimm, an ecologist involved in Everglades restoration, summed up the sentiments of many of the respondents by saying, “I have a *moral responsibility as a citizen to make people aware of what the science means.*” With the interdisciplinary focus of SNRE, you are especially well trained to become the essential translators of science to public policy and business practices.

Second, *keep the forest in mind even when you’re studying the trees.*

To be a healer you must diagnose and cure the illness, not just treat symptoms. Your specialized knowledge equips you to identify early symptoms of underlying harm to natural ecosystems – the consequences of our modern lifestyles – and to prescribe solutions to treat the disease. As Wendell Berry points out in his book, *Life is a Miracle*, the biggest drawback of science is its inherent reductionism. By reducing the scale of what we study to make it small enough to understand, we ignore most of everything. As Berry said, “an explanation is a bucket, not a well.” And the most dangerous reductionism, he warns, is “thoughtlessness of consequences.”

Third, *once you have the big picture, make it happen on the ground – and, love the ground on which you make it happen.*

Wendell Berry also points out the futility of trying to heal the entire planet; no one can love a planet; it’s an abstract concept. One can only love – and heal – specific places. But, through many people healing their special places we will heal the planet. Aldo Leopold was not content just to be an esteemed scientist, writer and policy maker. He and his family also worked weekends over a lifetime to heal their special place in Sand County, Wisconsin, now known now as “The Shack.”

Fourth, *plan on spending your time with people, not with wildlife.*

If you're pursuing a career in natural resources management because you'd rather spend time with wildlife instead of people, you're in the wrong line of work. The real challenges in natural resources management are managing all the people whose unsustainable behavior determines our planet's future. Making natural resources policy is a messy business because it involves people. You need to be prepared to explain, explain and explain again why sound science-based management matters to an ever-more ecologically illiterate populace.

And, my final guidepost for becoming a healer instead of an undertaker, *share the outdoors with someone you love.*

Better yet, share it with someone you don't love, someone you don't know very well, someone of a different background, race or gender. Don't just teach others your knowledge of the natural world, but also instill in them your passion to heal it.

I'm confident that all of you leave here today determined to be healers of Planet Earth. I hope these few guideposts help you as you embark on your unique journey.

So, welcome to the world of wounds and congratulations on your graduation!