



Photo by Ian Shanahan

Defining Ecological Identity

Living a more purposeful ecological life

By **Tim Goodwin**

YOU MOST LIKELY ARE not familiar with the term *ecological identity*. I am hoping this article will prompt thinking about yourself as an ecological citizen, teacher, and then what it could mean for your students. The 50th Earth Day was April 22nd, 2020. For the past 50 years, the primary strategy for addressing environmental issues was built on the assumption that increasing awareness and knowledge will enhance greater action. Despite such legislative successes as the Clean Air and Water Acts, among others; addressing ozone depletion; and shifting some behavioral norms regarding recycling, we still face environmental crises — more significant than ever before — in such issues as climate change and loss of biodiversity. This cause-and-effect assumption underscoring Earth Day did not result in the necessary changes in collective attitudes and behaviors regarding environmental issues among the general public¹. Relying on a broad understanding of ecological principles and awareness of issues is not adequate for collective behavioral and legislative action and change. To affect widespread, sustainable change, individuals must operate from a deep understanding built on a solid knowledge base. There must also be a paradigm shift in the general public regarding one's relationship to the natural world.

Moving from simple, rote-learned, reactionary behaviors, which only *slow* environmental degradation to proactive, sustainable policies and practices that *prevent* environmental damage requires broadening efforts beyond academic and/or intellectual understanding of topics and

issues. It is also important to foster exploration, understanding, and development of individual's emotional, philosophical, and/or even spiritual connection to where they live. This means facilitating an individual's exploration of their ecological identity.

Why ecological identity?

Mitchell Thomashow, who first used the term, explains that “ecological identity refers to all the different ways people construe themselves in relationship to the earth as manifested in personality, values, actions, and sense of self”². Accordingly, ecological identity “refers to how people perceive themselves in reference to nature, as living and breathing beings connected to the rhythms of the earth, the biogeochemical cycles, the grand and complex diversity of ecological systems”².

Discovering one's ecological identity involves digging deeper than identifying what one knows about the place in which they live — which is always embedded in the natural world — to include what is important to them and why. An ecological identity is like a fingerprint. Everyone has one. Even though most individuals may not regularly think about their emotional, philosophical, or spiritual connection to their place, it is essential to facilitate an individual's understanding of this concept. This can then lead to more sustainable and long-term environmental action.

This attitudinal shift requires a person's knowledge — rooted in personal connection to one's ecological place — to translate into how one thinks about, reacts to, and interconnects with their place and responsibility as a citizen of an ecosystem. To that end, I break *ecological identity* (EI) into

two broad categories: Knowledge and Responsibility. The first category, Knowledge, is what one knows about the biological or ecological world around them (their ecological literacy); the environmental issues that exist; and, how they categorize and think about that information. I identify three components of this category: ecological literacy, environmental literacy, and ecological thinking (based on systems thinking). The second category, Responsibility, has two components: one identifies how people perceive their place in the world; the other addresses how that leads to action (or inaction), or their Responsibility. I believe these components can be utilized to frame an individual's understanding of their ecological identity. They can also be used by educators to evaluate curriculum and then structure educational opportunities to increase each student's awareness of their own ecological identity.

Knowledge

The first component of the Knowledge category of EI is **ecological literacy** — a measurement of one's understanding of how all living things play a role within natural systems³. Think of this as an individual's answer to, "What do I know about the natural world?" This requires an understanding of the intersection of the biological and ecological concepts as they relate to how the human body and human behaviors interact with the systems in which they reside. This, accordingly, addresses their participation in the regulation and movement matter — including cellular biology, cellular respiration in particular, photosynthesis, and decomposition. Geochemical cycles such as the carbon, nitrogen, and phosphorous cycles should be included in the answer to the above question as well. Another aspect of ecological literacy is an understanding of energy flow through an ecosystem, including, among other elements, the study of the interaction of whole organisms in predator-prey relationships and symbiotic relationships. The last aspect of ecological literacy is the interaction of individuals within a population and then the interaction between populations of different species in an ecosystem. Also crucial to the subject (as applied to ecological identity) are the biological concepts of genetics and evolution. Livings systems help to maintain the homeostasis of the biosphere through the exchange of information from generation to generation and the systematic adaptation to the changing biosphere which, in turn, changes the biosphere. The resulting outcome is an ongoing biologic and geologic dance. This is the type of knowledge that one must "own" to understand their role in current environmental science issues, such as climate science and biodiversity loss.

The second Knowledge component of EI is **environmental literacy**. This is an individual's answer to, "What do I know about the 'environment?'" This is the degree to which an individual understands and is aware of human activity in connection to the health and stability of ecosystems. These can range from issues of a specific cause and effect, such as endocrine disrupters like bi-phenyl A (BPA), which affect individual cells and organisms, to such economic issues as natural resource extraction, allocation, and consumption in manufacturing and purchasing (reduce, reuse, and recycling — the three Rs of environmental action).

The final Knowledge component of one's EI is ecological thinking — the ability to use systemic thinking to make

sense of what one knows about the natural world and environmental issues. This might include an individual's answer to "how do I think about the natural world and 'environment around me?'" I visualize this component as understanding concentric circles of interaction (Figure 1), with the individual cell at the center in the smallest circle and the biosphere in the outermost circle. Understanding the movement of matter through these concentric circles can be studied from outside in, or inside out. The key is an understanding of the interactions among the components of the circles as being interconnected through the exchange of matter. Such awareness intersects with an understanding of the cycling of energy through the environment, as the collection, burning, and then passing of energy through the system that drives the organizing, decomposing, and recomposing of matter within livings systems.

Thinking ecologically involves first and foremost using scientific terminology properly, followed then by applying that terminology to the proper description of the living systems within these concentric circles. Most importantly, however, is the ability to go a step deeper and describe how the interaction of the individual components of these concentric circles are not only interconnected, but are part of nested systems that allow for maintaining the homeostasis of the ecosystems and/or entire biosphere. This begins with one's own role in those systems. Viewing the above principles through a more holistic lens illustrates the interconnectedness of the concepts, provides a deeper understanding of ecological and environmental literacy, and directly impacts one's ecological identity.

Responsibility

One's EI is more than just what one knows about the natural world. The second half of EI's meaning can be answered by asking how one perceives their role and responsibility (or lack thereof) in the biosphere. This first requires understanding of one's **place in the ecosystem** — that is, where one "fits" in the environment. A sense of place is one's worldview as rooted in their scientific literacy, family and societal values, senses of morality, and possibly their spiritual or religious traditions. This understanding moves us to consider how one's philosophy, worldview, emotions, or spirituality are connected to their ecological and environmental literacy. This question directly connects to how one sees humans (as a species) in relation to the rest of the life on Earth. One may identify humans as unique and inherently different from, and, therefore, separated from other organisms in nature. For others, the human species is simply another organism within the context of ecological systems, which exists in an evolutionary relationship with other species inhabiting the biosphere. Whether purposefully considered or not, these definitions of humanity provide the foundation for one's understanding of their individual place within a biosphere as well as their part in the collective role of the human species within the biosphere.

The final component of Ecological Literacy is a measure of one's **desire to take action** about environmental issues (their sense of **obligation**), which is rooted in one's sense of place. The action or obligation to act answers the question, "Then, how ought I to live?" Sustained action requires more than simple knowledge of environmental issues; it also

requires an emotional connection to one's place. Considering the concentric circles of interaction, the further out one feels a kinship, the greater their sensitivity and responsiveness to more distant or abstract environmental issues and empathy for other humans and other species⁴. The addition of this element of connectedness elevates and separates the concept of ecological identity from the more common ecological and environmental literacy^{5,6}.

The interaction of one's sense of place and obligation determine a person's sense of responsibility aspect of their ecological identity. A sense of humanity's "specialness" could result in feeling entitled to utilize the Earth's resources to the fullest extent, even an obligation to do so to raise the "standard of living" as much as possible — an ecological manifest destiny of sorts. Conversely, that same sense of "specialness" might prompt an obligation of stewardship for other species, resulting in a strong desire for action or even simply a recognition of the human species' dominance as the ultimate keystone species on the planet. Such individuals might recognize our biological mass and technological power to greatly influence the homeostasis of the biosphere and by extension, then, the survival of a great majority of the Earth's living systems comes with an obligation to minimize the impact of the human species.

This sense of responsibility results in a spectrum of behaviors. For example, it might involve believing one should do something to "help" the environment, leading to behaviors around the three Rs of environmental action. Individuals who believe this often operate under the belief that they *are* doing their part to "help" the environment, not realizing they are only reducing their deleterious impact on their ecosystem and the other species sharing that space. This accurately describes the majority of individuals with whom I have experience and, I think, demonstrates our collective deficiency in ecological and environmental literacy. Others may have a generalized notion that we need societal norms or governmental regulations for individuals to easily participate in the three Rs of environmental action and also for corporations to reduce pollution, but maybe cannot specify how to make this occur, or how to take ownership as citizens in these changes. In such a case, the problems are left for others to rectify. Still others may have a desire to see collective societal action along with individual behaviors to reduce the deleterious impact on the ecosystems. The latter case might include changes in behaviors to reduce energy consumption, investment in alternative energy sources, and reduction of waste produced from daily living, and purposeful purchasing practices to buy locally sourced goods/food. Others may feel an urgent need for all of the above to happen as quickly as possible (believing the crisis requires immediate, urgent attention). An individual at this extreme might also desire specific action to be taken to facilitate both changes in individual and collective conservation behaviors as well as sweeping societal changes in our collective relationship with the natural world.

At the other extreme, one might feel humans are like every other species and therefore too insignificant to have an impact on the environment. Just like a sense of special entitlement, this too could result in a lack obligation for action, feeling that we as a species are too insignificant to have an impact. No matter where on the spectrum of action

one might be, it is likely that most people of all ages have not even considered their responsibility and the implications of their actions. The lack of purposeful, deep thinking about these fundamental questions is why we continue to face ever-increasing environmental problems and ecological instability.

An individual's ecological identity can be described within the context of five components ([Appendix](#)). I contend that thinking about, understanding, and purposefully developing our individual and collective ecological identity is foundational to long-term viability of our species. The [Appendix](#) includes a template for a tool to measure the five components of one's ecological identity. This template could be refined to provide a quantifiable and/or qualitative summation of a person's ecological identity based on, among other factors, written responses to specific writing questions; observations of comments during a discussion; responses to a questionnaire developed around these five categories; and, even simply one's self-identification on each scale. From this, individuals could further understand their own ecological identity as a first step to living a more purposeful ecological life.

My intention is to develop age-appropriate educational tools to measure students' positioning in the five components of ecological identity, thus allowing for curriculum modification and adjustment. Without interjecting ecological terminology and deeper thinking about one's physical and emotional connection to the land, I believe that we stand little chance of an attitudinal shift upon which we can build a foundation for long-term responsible ecological and environmental citizenship. The goal is to create a default paradigm in which individuals have a connection with, and therefore a renewing and reciprocal relationship to, the natural world instead of a disconnected and destructive relationship⁷.

Tim Goodwin, Ed.D, is an associate professor of education at [Bemidji State University](#). His research focuses on pedagogy, science education, and ecological identity/environmental education. He has published three books, [Within These Woods](#), [Ecological Identity: Finding Your Place in a Biological World](#), and [Consider, Construct, Confirm: A New Framework for Teaching and Learning](#). He writes primarily for two subject areas: teaching and learning, and ecological identity/environmental literacy. More about Tim can be at <https://timothygoodwin.net>.

Endnotes:

1. Bruyere, B L. 2008. "The effect of environmental education on the ecological literacy of first-year college students." *Journal of Natural Resources and Life Science* 37: 20-26.
2. Thomashow, Mitchell. 1995. *Ecological identity: becoming a reflective environmentalist*. Cambridge, Massachusetts: MIT Press.
3. Quammen, David. 1994. "E is for ecosystem: ecological literacy in the wonder years." *Outside* 19 (8): 37-39.
4. Rifkin, Jeremy. 2009. *The empathic civilization: The race to global consciousness in a world in crisis*. New York: Penguin Books Ltd.
5. Chawla, Louise. 1999. "Life paths into effective environmental action." *The Journal of Environmental Education* 31 (1).
6. Goodwin, Timothy. 2016. "Educating for Ecological Literacy." *The American Biology Teacher* 78 (4).
7. Kimmerer, Robin Wall. 2013. *Braving sweetgrass: Indigenous wisdom, scientific knowledge, and the teachings of plants*. Minneapolis: Milkweed Editions.

Defining Ecological Identity

Living a more purposeful ecological life

By **Tim Goodwin**

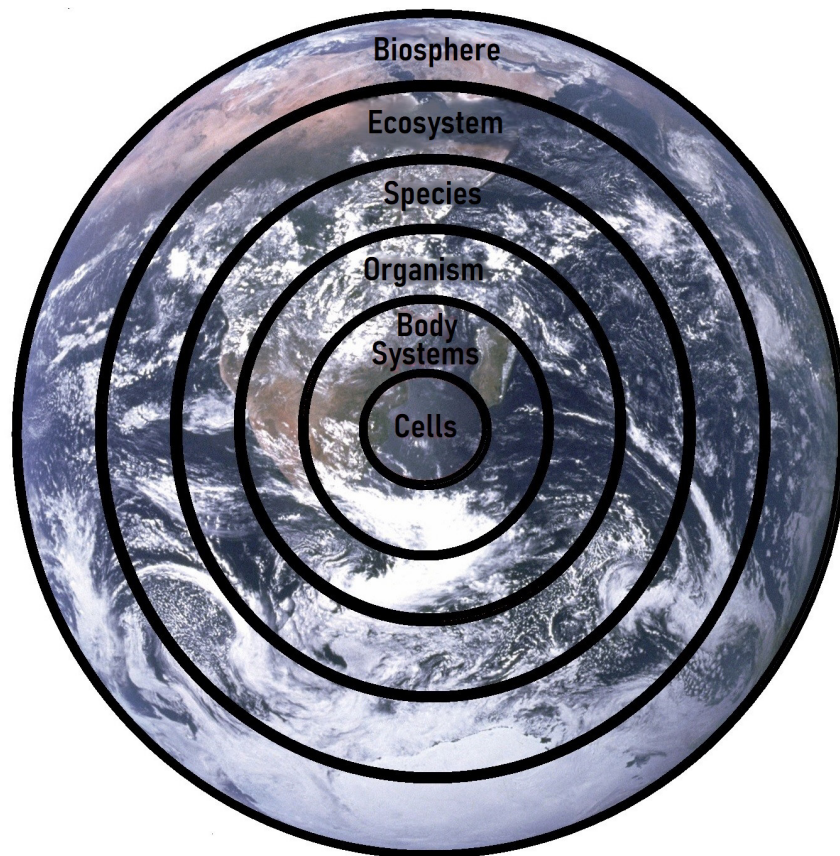


Figure 1

Defining Ecological Identity

Living a more purposeful ecological life

By **Tim Goodwin**

Appendix: Ecological Identity Individual Assessment Tool

Knowledge

1. **Biological / Ecological literacy:** Measure of what one knows about biology and ecology and the ability to use and apply terms and concepts

I have...

Minimal Knowledge	Basic Knowledge	Comprehensive Knowledge	Comprehensive Applied Knowledge
Minimal correct term & concept understanding and/or usage, possibly with multiple misconceptions.	Some correct term & concept understanding and/or application, possibly some misconceptions.	Many examples of specific correct term & concept understanding and/or usage with minor misconceptions.	Exhaustive examples of correct term & concept understanding and/or usage and application; few if any errors in terms and concepts.

2. **Environmental Literacy:** Measure of what one knows about environmental issues or “the environment”

I am/have...

Minimal Knowledge	Basic Knowledge	Comprehensive Knowledge	Comprehensive Applied Knowledge
Unable or unwilling to identify environmental issues, or only minimally acknowledge them as broad concepts.	Able or willing to identify some specific environmental issues in addition to broad concepts.	Able or willing to identify multiple specific environmental issues.	Able to identify and apply multiple environmental issues that are connected to the correct biological / ecological concepts.

3. **Ecological Thinking:** Categorization of one’s ability to make connections among the separate biological and ecological concepts to describe interconnectedness of natural systems

I am/have...

Lacking Ecological Thinking	Emerging Ecological Thinking	Comprehensive Ecological Thinking	Comprehensive Applied Ecological Thinking
Only able to understand and describe (or attempt to describe) concepts in isolation.	Able to understand and describe concepts in terms of systems (possibly maintaining homeostasis), but still in isolation from other systems.	Able to understand and describe concepts as systems and connected to (or attempted to connect to) other systems, possibly to maintain homeostasis of (a) larger system.	Able to understand and describe concepts as nested systems to maintain homeostasis of (a) larger system(s).

Defining Ecological Identity

Living a more purposeful ecological life

By **Tim Goodwin**

Responsibility

4. Place in Ecosystem: Identification of one's sense of belonging in the natural world

I am...

Inherently Unique and Separate	Outside / Separate from Natural World	A Part of Natural World	Interconnected with Natural World
Identify humans as fundamentally unique and separated from biological / ecological systems (nature).	Describe or understand biological / ecological systems as if from an outside observer.	Describe or understand human / individual role in the context of biological / ecological systems, possibly including dependence on the natural world.	Describe or understand human / individual role in the context of biological / ecological systems including an evolutionary relationship between humans and other organisms.

5. Desire to Take Action (Obligation): Identification of one's willingness, ability, or desire to take action regarding environmental issues.

I...

No Obligation	Generalized "Sense" of an Obligation	Recognized Specific Obligation	Urgency to Obligation
Have no desire or need for action to be taken regarding environmental issues.	Identify a general desire to "help" the environment either individually or societally.	Identify desire for action with some specific societal or individual actions to be taken.	Identify urgent need (or obligation) for specific action to be taken to facilitate broader change.