INTO THE FIELD

A Guide to Locally Focused Teaching

CLARE WALKER LESLIE
Teaching Nature Journaling and Observation

JOHN TALLMADGE
Writing as a Window into Nature

TOM WESSELS
Reading the Landscape's History

Introduction by Ann Zwinger

NATURE LITERACY SERIES NUMBER 3

THE ORION SOCIETY'S NATURE LITERACY SERIES offers fresh educational ideas and strategies for cultivating "nature literacy"—the ability to learn from and respond to direct experience of nature. Nature literacy is not information gathered from a series of isolated, external "facts," but a deep understanding of natural and human communities. As such, it demands a far more integrated and intimate educational approach. Nature literacy means seeing nature as a connected, inclusive whole. Furthermore, it means redefining community as an interwoven web of nature and culture, a relationship marked by mutual dependence and one enriched and sustained by love. The materials presented in this series are directed to teachers, parents, and others concerned with creating an education that nurtures informed and active stewards of the natural world.

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TABLE OF CONTENTS

WRITING AS A WINDOW INTO NATURE

by John Tallmadge

Thoreau, in a joyous moment, once exclaimed, "I had no idea that there was so much going on in Heywood's meadow!" But how did he know? It would have been easy to feel that way if he had been visiting, say, Yellowstone or Yosemite, whose exotic location and scenic grandeur would make anyone snap to attention. But Thoreau specialized in humble, near-at-hand places that his contemporaries often ignored, and his luminous works reveal the sort of wealth such places contain. As students and teachers, we can learn much from him in an era of TV, air travel, and superhighways that make the exotic accessible and the nearby seem trivial or plain. Thoreau was a self-taught naturalist and writer, accomplished from long practice, and he had learned how to use both his learning and his imagination to uncover the hidden life of places. For him writing was a form of discovery as well as expression, and like him we can learn to use writing as a window into nature, a way to help ourselves and our students discover the variety, intricacy, and wonder of our home landscapes.

The Invisible Landscape

To most people living in urbanized North America near the end of the twentieth century, the natural world remains largely outside the range of perception. We often behave as if it were invisible. Although we may notice the presence of certain creatures or landforms, we have little idea of what's really going on. Consider the language in common use:

driving along or taking a walk in the neighborhood, we might notice "birds," "weeds," "woods," a "brushed-in" field, a "vacant" lot, or a "patch of wild flowers." Such abstractions—including the word "nature" itself—suggest a simplicity of values and knowledge in contrast to the actual variety and complexity of the landscape.

But language is only one aspect of this problem. Consider ecological relationships, which, although never directly perceptible, largely determine the character of any landscape. In the Boundary Waters Canoe Area of Minnesota, for instance, animals and plants have adapted to periodic forest fires. Jack pines have developed a cone that opens only to searing heat, insuring that the seeds will fall on open, mineral soil; aspens have learned to sprout from underground roots that can survive a swift burn; blueberries and raspberries spring up on burned areas, creating abundant food for bear and deer. The fire cycle gives the ecosystem its character, but its hundred-year period exceeds the span of a human life, and so it remains invisible to us. Likewise, in the deciduous forests of southern Ohio, trees have evolved symbiotic relationships with fungi that grow intertwined with their roots, freeing nutrients from the soil for the trees to absorb. The health of Ohio forests depends to a great extent upon this unseen relationship. As teachers of environmental values and ideas, we need to convey to our students the importance of ecological concepts and realities. Writing can help engage their imaginations with the local landscape to reveal these hidden, intangible relations.

Perception is also a matter of scale. It's easy to register things that are nearly our size or bigger: we might notice a deer crossing the backyard, but not the dozens of different beetles that also live there, nor, for that matter the smaller insects, mites, spiders, nematodes, rotifers, molds, slime molds, yeasts, algae, and bacteria that inhabit thousands of hospitable niches, from the fissures of tree bark to the interstices of the soil. The great naturalist E. O. Wilson dreamed of taking "a Magellanic voyage around the trunk of a single tree." And it's no different with the scale of time. We humans measure our day in hours, our work in days, our school year in weeks and months, our

average home residency in five-year periods. Lives and processes untrammeled by such time frames may well escape our notice—for instance, the sequence of migrating birds, blooming flowers, or fruiting fungi, not to mention the seventeen-year cycle of periodic cicadas, the proverbial hundred-year flood, or the burst of desert blossoms in a year of El Niño rain. As teachers, we can use writing to help our students imagine and thus entertain a more capacious and revealing sense of ecological time.

The human past, too, leaves stories embedded in the landscape, and their faint traces suggest another unseen dimension. Near my home in Cincinnati there is a house with a dozen white pines in the backyard. Those trees are not native to this area, so someone must have planted them. There is a story behind them. Perhaps someone who lived here when the house was young loved the North Woods and wanted to be reminded of them, living in exile in this southern land. I will never know for sure, but whenever I walk by, their soft whispering, their resiny fragrance, and the cooler air beneath their sweeping, oriental boughs take me back unfailingly to the Boundary Waters, and I half expect to see the glimmer of a lake. To unearth or imagine such stories is a writer's gift—to interpret the lilac or apple tree in the midst of Vermont woods, to recognize the odd flowers in the triangular corner of an Iowa graveyard as a swatch of original prairie, to read from the layered sediments beside a Utah arroyo the sequence of Anasazi, Mormon, and Bureau of Land Management agricultural practices. Fortunately, this is a gift that can be passed on by teaching and strengthened by writing practice.

As teachers of environmental values and ideas, we need to convey to our students the importance of ecological concepts and realities.

Denial, too, plays a role in creating invisible landscapes. Those of us with an active environmental conscience often

yearn for the "unspoiled nature" embodied in national parks or official wilderness areas. We can reach such edenic places with ease by car or plane, bathe in feelings of sublimity, purity, and remoteness, then return detoxified and refreshed, at least for a while, to the homely, half-ruined landscapes in which we actually live. With shrines like Yosemite glowing on our mental horizon, it's easier to ignore the natural world at our doorstep, which serves as a constant reminder of how deeply industrial culture has savaged original ecosystems. Guilt fosters denial, and denial diverts attention; we don't see, in short, because we don't want to see, for seeing might embarrass us into action, or at least into learning, which always takes work. But part of the writer's and the teacher's duty is bearing witness.

Finally, we may disregard near-at-hand nature because we have not been taught how to appreciate certain types of landscape. Glance at a list of the great national parks and you will see that most are located in mountain or desert regions with sweeping vistas and soaring rock formations. Generations of artists and aestheticians, from Edmund Burke and John Ruskin to John Muir and Ansel Adams, have taught us to value such scenery. There is even a term for it: the natural sublime. But what about landscapes of other kinds, those of the Great Basin, for instance, the Chesapeake Bay, or the High Plains, not to mention those urban landscapes that we have long regarded as outside the realm of nature? It is hard to know what or how to think of them. Is the strip of woods at the back of my yard a wilderness (I found a deer track the other day), a garden (English ivy has naturalized among the jewel weed and mayapples), a park (it is owned by the city, abuts a soccer field, and is designated as a bird refuge), or a waste land (there are plenty of beer cans and broken bottles)? These woods are both unkempt and domesticated, full of life yet all mixed up, with native and non-native species jostling together and marks of human activity interwoven with natural processes like seasonal bloom, ecological succession, and decay. I don't know what to make of them, at least not yet, but by writing about them I hope one day to find out.

These are some of the dimensions of landscape that remain

invisible even to its inhabitants. And writing can make them visible. We have always looked to the nature writers to reveal stories in the land, but how did the stories first emerge for the writers? We think of writing as a means of expression, but it can also be used, as Thoreau knew, for exploration and discovery. An attentive writing practice can extend perception like a microscope or an ultraviolet light to reveal the unseen dimensions of our home places. And eventually, it can create stories that communicate those realities and their significance to other people.

To show how this process works, I'll discuss ways to get started: the nature and difficulty of writing, the role of imagination, the use of freewriting exercises to access the unconscious, where all writing originates, and the study of exemplary work by accomplished nature writers. Then, we will move into the field, discussing techniques of observation and note-taking along with exercises to engage the landscape and practice various writing techniques. Finally, we will return from the field to the study, discussing ways of processing the raw material of notes and memories into finished essays and stories. These three kinds of activity support the imaginative practice that will enlarge our students' vision and understanding of the natural world.

Getting Started

Writing is difficult. This fact must be recognized and dealt with before one can even think about using writing to see into nature. That is why I usually begin by engaging students in a discussion of how they feel about writing. I remind them that not only their peers, but also adults, teachers, and even professional writers tend to regard it with fear and loathing. Writing has produced more anxiety, procrastination, and despair than almost any other form of human activity. Why should this be so, when we can all speak clearly and easily enough? Aren't writing and speech both made of words? Don't they follow the same rules of grammar and syntax?

Yes, but when we speak we can use a whole array of nonverbal signs to clarify meaning, such as tone of voice, emphasis,

gesture, facial expression, and pacing. We can also adjust our delivery to the response of the listener. But in writing, neither speaker nor audience are physically present. The writer must compensate for the loss of nonverbal cues by employing a richer vocabulary and syntax; as for the audience, it must be imagined, and there is no correcting a false start or dropped line. The writer often feels like a performer blinded by footlights, behind which the audience sits in invisible, pitiless judgment. Performance anxiety rules, and stage fright is an occupational hazard. We feel exposed by what we write, spread out on paper for any and all to see, our weakness and awkwardness pathetically revealed. How easy it is to regard the work of accomplished writers with awe: surely writing this smooth and assured must have sprung full-blown from an inspired mind. And, as if such mystifications were not enough, the culture has privileged writing as the vehicle for contracts, scripture, and laws: "Get it in writing," we hear, "It is written," and so forth. The written word has a kind of monumentality, a feeling of permanence, as if it were carved in stone; when we write something, we feel committed by it, much more so than by a mere utterance, which one can always take back or, in a pinch, deny.

All this is profoundly challenging to the ego, particularly the student ego, and generations of well-meaning English teachers have made matters worse by insisting that if we just think through what we want to say, the right words will come and the essay will flow out sounding like, oh, say, Hemingway. But it never worked like this, not even for Hemingway—though they never told us, being unused to writing themselves—and when we got our papers back, they looked as if they were bleeding. Is it any wonder that students lost heart, and still do, when asked to take up the pen?

To help students get started, I remind them that writing is a deliberate but largely unconscious act: words and ideas originate in the subconscious and are brought to the surface by noting them down. Imagination, which is the ability to manipulate reality at a distance by means of symbols, resides in the subconscious and is a survival adaptation of our species. We all have it, and it operates all the time, even when we are asleep. People who are called "creative" or "imaginative" are just more in touch with their subconscious, better listeners as it were. The subconscious works by connecting things, creating mental networks by association. This nonlinear and nonrational process is inherently playful, unpredictable, and very disturbing to the rational ego, which is painfully attuned to the performance aspects of writing. Every writer, in fact, carries in his or her head a personal editor, a sort of internalized English teacher with a wagging finger who embodies the ego's fear of embarrassment. The editor wants to save us from bad writing, which is an admirable goal, but unfortunately he or she often intervenes too soon, before the words actually get down on the page. The result is writer's block. It helps to remember, then, that the capital difficulty of writing is simply the failure to start.

Getting started means temporarily disarming or outwitting the editor, just long enough for the subconscious to begin pouring its products onto the page. (Later, when you have something to revise, the editor can be called back in.) As a first step, it helps to focus on the process of writing rather than on its end result, to visualize writing as a journey rather than as a performance, as a practice rather than as a production, as play rather than work. Peter Elbow, author of *Writing Without Teachers*, suggests thinking of writing as a way to "grow and cook a message." The master in Eugen Herrigel's *Zen and the Art of Archery* advises his pupil that if the process is followed, the target will be struck. Focusing on process rather than performance disarms the editor and allows the writer to follow the lead of the subconscious: you give up control in order to gain power, in the form of ideas and words that come welling up. Encourage students to believe that a good process will lead to good, if unpredictable, outcomes. This is called living by faith.

To help students remember the process view of writing, here are three useful maxims:

- The secret of writing is: to write. (Because you must start at all costs.)
- Don't get it right; get it written. (Because the editor should get involved later.)
- Inspiration is bunk. (Because imagination always works, all of the time.)

The best exercise I know for teaching and practicing the above is Peter Elbow's "freewriting." A freewriting is exactly that: it's short, spontaneous, easy, ungraded, and disposable. The rules are quite simple: you write for a set time (three to five minutes) on anything that comes into your head. You can't stop to think, you can't correct anything, and you must use complete sentences. If you get stuck, write about feeling stuck; anything goes, as long as you keep writing. It is best to use a disposable medium, such as a sheet of filler paper, rather than a bound notebook. Be sure that you, as the teacher, do a freewriting along with your students. As the time limit approaches, ask the students to bring their writings to a close. When everyone is finished, have them shake out their hands, which will probably be stiff. Ask them to read over their writings and underline the strongest word or phrase. Then ask them to write this at the top of another blank sheet and do another freewriting. Repeat the process a third time.

By now everyone will have produced three pages of writing in about fifteen minutes, which is a lot even for professional writers. Now ask what they experienced while doing this exercise. I have found the responses to be unfailingly rich and provocative. Students are usually surprised at the things they wrote about; many report a feeling of going deeper into the material; often they are surprised at how much was going on in their heads. Some report frustration when time was called—they were just getting warmed up—while others feel they were spinning their wheels. After everyone has contributed, invite volunteers to read. This may cause shock and discomfort

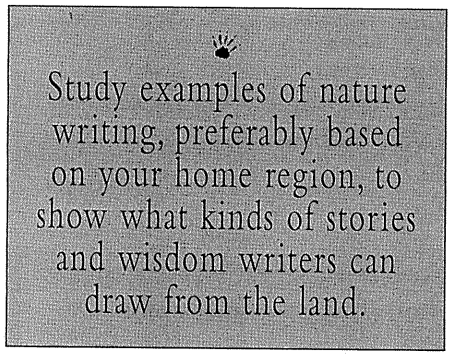
at first, but reassure them that these writings are free and that no one expects great things. You, as the teacher, should also be willing to read. Four or five specimens ought to be enough. Here are two examples of freewritings, the first from a neighborhood walk, the second from a wilderness seminar:

1.) The ice has finally melted from our street, leaving runnels of dirty water and swirls of sand deposits along the way. The piles of old snow, frozen and refrozen to corny, granular heaps along the grassy edges, are encrusted with black, oily deposits of urban grime, a combination of dust and debris that's part industrial, part natural: bits of tires, gravel, soot, paper, etc. mixed with torn leaves, grass clippings, seed husks, bits of bark, insect wings, feathers, spores etc. Just as glaciers pick up all manner of soil and rock, scouring the landscape to bedrock as they plow up river beds and soil layers, so this melting concentrates all elements of the landscape. These deposits resemble glacial moraines. Thus the history of the land still lives in present behavior. I can visit the Ice Age by walking out my front door.

2.) I feel the sand on my books as I sit crosslegged on a cheat grass bench, under a great red alcove of Harris Wash. Stream clatter echoes against the soaring walls, curved like a woman's bones, so high that I cannot see the top without toppling backward. We sit in a cup of shadow, a cool goblet of darkness, writing and listening. Perhaps writing itself can be a form of listening, like prayer. Plants pray for water, listening as it percolates through sand. I listen to "meaning flowing through" the unconscious, drinking, putting forth leaves.

Now ask the students what they thought of the writings. In my experience, the pieces tend to be clear, coherent, and succinct, much better than one would expect from something dashed off in five minutes. The students will murmur in surprise and appreciation, and the readers will bask in the moment.

This exercise reveals the creativity and coherence of the unconscious and demonstrates that students can produce a large quantity of good writing in a short time if they trust the process. Once learned, freewriting can be used to explore ideas and practice composition skills. It is a versatile, portable, and highly effective technique that works in the field as well as in the classroom or study (though it is best learned indoors). Students should be encouraged to freewrite every day as the foundation of their writing practice. They can keep a freewriting journal using a folder or loose-leaf notebook. It is important, however, to stress that freewritings are just practice and raw material; the journal should not be regarded as a work in its own right, and it should never be graded.



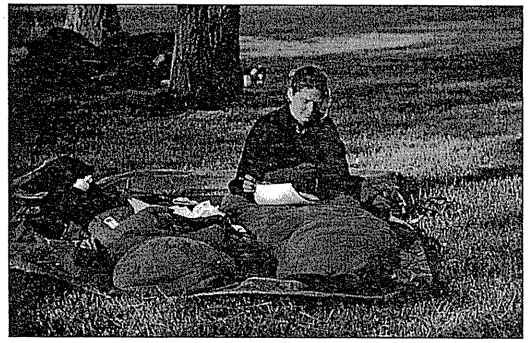
After summing up these points in a final discussion, I like to conclude with a dramatic and empowering gesture. I ask the students to choose the best of their three freewritings; then, slowly and deliberately, I tear my own to pieces and challenge them to do likewise. After all, these writings were free, and there will always be more where they came from.

Once the students have developed a practice of freewriting, which will give them confidence in their imaginations and comfort with the physical act of writing, it is time to begin preparing for excursions into the field. This involves studying examples of nature writing, preferably based on your home region, to show what kinds of stories and wisdom writers can draw from the land. It also involves choosing appropriate times and locations for outdoor work, and learning techniques of observation that can be applied both to encounters with the landscape and to processing the notes and memories that result. If you are not conversant with local natural history, pick up a field guide or two; those in the Peterson series are especially useful. Ignorance in this area can even work to a

teacher's advantage, for learning along with students always increases rapport.

In choosing pieces of nature writing to study in class, it helps to think of the distinctive features of your own bioregion. What are the landforms? What sorts of trees and plants do you have? What is your climate? What sort of ecosystems (estuary, prairie, hardwood forest, sagebrush desert, river bottom) do you encounter? If there are no good books or articles about your particular place, you can choose works from other regions that deal with similar features. Alternatively, works from the same part of the country can be used, even if they don't deal specifically with your place. There are also a number of fine anthologies, including *Being in the World,* edited by Scott Slovic and Terrill Dixon, which is designed for writers and has multiple cross-indexes and useful study questions. (See bibliographic section for details.) After studying a representative sample of essays in class, you can refer to them as examples of various writing techniques once the students begin turning their memories, field notes, and freewritings into actual compositions.

Generally speaking, nature writing deals with transformative encounters between humans and other beings in nature. The mode is frequently autobiographical, and the plot often turns on a moment of revelation or insight. Although nature writing focuses on the natural world and its creatures, it always has some human truth at the center, and it always concerns the relations between people and the rest of creation. Every aspect of a piece of nature writing serves to connect the familiar human world with the less familiar (although often close-at-hand) world of nature, and it is this facility of connection and insight that we are trying to cultivate in our students. Therefore, in choosing pieces for study, look for a fine, healthy balance between fact and



meaning; avoid the merely technical as well as the sentimental or effusive. Thoreau advised his readers to "respect the fact, for it may one day flower into a truth." The best nature writing gives us the facts in bloom.

Into the Field

Although nature writers, like all writers, work in the study, they get their material from out in the field. Thoreau was accustomed to taking a four-hour walk each day, in any weather and often with no fixed destination. Later, he recorded his observations and reflections in a journal that eventually grew to seventeen volumes, providing the raw matter for most of his published work. Although such assiduous habits go far beyond the scope of most classes, we can imitate their structure to good effect.

Planning for excursions should take into account the teaching opportunities presented by features at particular sites, the sequence of course material, and the amount of time you can spend in the field. Excursions fall into three classes based roughly on time and distance from home. First is the neighborhood walk, which can take an hour or two and begins at the edge of the school yard. Next is the day trip to a park or preserve, which takes four to six hours and requires transportation. Finally there is the overnight trip lasting two to ten days or more and requiring the students to camp out, with backcountry travel by foot, horseback, kayak, raft, or canoe. The greater the time and distance from home, the greater the students' sense of adventure and attentiveness to landscape, which will appear more exotic and interesting. They will be more open to discovery and more attentive, at least initially, to what's around them. Conversely, distance and time complicate both logistics and lesson planning. Longer trips require sophisticated management, leadership, and outdoor skills, but the payoffs are excellent in terms of unforgettable adventures and deep engagement with nature.

The short neighborhood walk is great for introducing students to the invisible dimensions of landscape, because near-at-

hand nature is most easily taken for granted, underappreciated, or simply ignored. Usually, all the preparation you need is a quick preliminary walk-through to scope out the teachable features. Sometimes, however, seeing the route for the first time along with the students is equally valuable, as you get to model observation, insight, and wonder yourself. Everything you encounter poses a question. How did these stones get here? Why are some rounded and others sharp-edged? Which are local and which came from afar? Why are these trees growing here? Can you imagine the human stories behind them? What sorts of animals might be found here and why? During what times of the year? Asking questions like these, I have covered no more than thirty feet in as many minutes; the students soon get the idea and begin taking over. Short walks can also be used to practice close observation and description, and to revisit a spot to note seasonal changes.

The day trip is still relatively simple in terms of logistics but offers a more dramatic change from classroom routine, more contact with wildness, and an opportunity to consider large-scale features of your bioregion such as geology, topography, biome, soils, migrations, ecological succession, and human history. Lessons need to be planned with variety and movement in mind, and with attention to the site's teachable features, both human and natural. The same is true to an even greater degree of overnight trips, where the main challenge for the teacher is balancing adventure with academics. Student interest runs to social life, physical activity, and food, in that order, with academics dead last. Therefore, the trip must be carefully planned to emphasize exploration, adventure, and group bonding during the first day or two, with academics increasingly worked in as the journey progresses. Water breaks, meal stops, portages, passes, stream crossings, and other natural check points provide excellent opportunities for interpretive and imaginative exercises as well as the essential practice of regular journal writing.

I have found that the best overnight trips capitalize on student leadership and responsibility. So, while I choose the route and handle logistics (permits, transportation, agenda), I give the

students responsibility for food and equipment. (Obviously, we are talking here about high school and college courses only.)

> When writing in the field, attention always goes back and forth between the world and the page.

Early in the term we hold an organizational meeting out on the lawn. When everyone's settled, I ask them to split up into groups of four; I walk away, out of sight, then return five minutes later and ask each group who's in charge. This request, which must come as a surprise in order to work, quickly identifies the students with outdoor experience and natural leadership. I distribute lists of individual and group equipment as well as guidelines for meals, explaining that each group will be responsible for planning and purchasing its own food and contributing, buying, or borrowing the necessary gear; the leaders are expected to organize the preparations and keep track of their groups once we get on the trail. I then attach myself to the least experienced group as a plain member. An equipment check with the leaders two days before we leave completes the process.

I have found that this method works very well. It frees me, as teacher, from the anxiety and burden of handling food and equipment and allows me to concentrate on the academic side. Students thrive on the responsibility and come up with all sorts of creative solutions. The small groups make for more engaging travel and facilitate social interactions and bonding, while at the same time promoting self-discipline and increasing safety. Best of all, no one can legitimately complain about the food!

For writing in the field, have students bring both a small memo pad for field notes and a larger notebook for freewritings, assigned exercises, and daily journal entries. The latter can also be used for writing in the classroom; either loose-leaf or spiral bound is fine. The memo pad should fit in a shirt pocket. I explain how to jot down field notes: words, images, or sentence fragments that will spark memories after they return from the field. Set aside time each day for converting field notes into coherent journal entries; this was Darwin's practice during his

five years aboard the Beagle, and it works just as well for aspiring natural historians. The journals can be shared or collected but should never be graded; the field notes likewise. It helps to explain the process by which practicing nature writers convert field notes to journals and thence to finished essays and stories.

Here are two examples of field notes, one from a wilderness trip and one from an urban excursion:

FROM HARRIS WASH, ESCALANTE REGION, SOUTHERN UTAH: Sand on dry bars finer than sugar, soft & silky betw fingers, very inviting, caressing even. Boots crunch on pebbles; willows, bent downstream by spring flood, slap & whip against bare legs. Sweat dries to varnish. Pack heaves & creaks, legs pound, hips & shoulders ache. Clear & hot all day, pass close to Harris Gate where walls close to 10 ft.—how?—and just beyond the Great Alcove where last time saw white flaring trumpets of Datura Ken & Dave repairing broken pack. A white-faced Ibis in the stream wading ahead of us, curved bill, unconcerned, probing shallows, Y-shaped tracks on sand bar: peace sign....

FROM MILL CREEK, CINCINNATI: Down to dam thru brushed-in clearing. Red poison ivy, purple & white fall asters. On lake bed—drained—curling mud flats—lots of weeds—small cottonwoods, pencil thin, thick grown, thigh high. Lake silted up twice as fast as expected. Gauging tower & outflow 15 story concrete. Hi water mark—bathtub ring ~15 ft above flats where we stand. Very shallow. Tracks of heron, deer, raccoon. Stan: 50-60 ft. of mud beneath us! You always build dam across deepest valley. All vegetation is this yr's—lake drained ~1 yr. ago....

When writing in the field, attention always goes back and forth between the world and the page. It is important not to focus too much on the page, on the writing, on getting it right, so to speak, for then the mind wanders inward, away from the landscape at hand. The memo pad's narrow format helps keep your mind on the outer world, attuned to the process of observation that is a natural historian's most important skill.

I have found it useful to think of observation as a three-stage process of description, interpretation, and speculation. This approach was originally developed by professor Bryan Wolf of Yale University, who used it to analyze paintings, but it works just as well for natural landscapes. In addition to guiding the eye and the imagination out in the field, it can facilitate the processing of notes and memories as well as the actual design of the final essay.

In the descriptive phase of observation you try to depict what is there, as accurately and objectively as you can. Show, don't tell; look, don't judge. Pure and simple. Description asks: what is it like? what are its distinctive features? what does it do? how would I recognize it? how does it look, feel, taste, smell, move, sound, change, behave, present itself? who is it? where is it? if it could talk, what would it say? In the interpretive phase you focus on relations in space and time, asking: how did it get this way? why is it here? who are its neighbors? how does it get along with them? what are its ultimate concerns? where did it come from? what was here before and what will come after? in what patterns and processes does it participate? what invisible dimensions of the place does this thing reveal? And finally, in speculation you ask: what does this thing have to teach us? how does it speak to the human world? to culture? to spirit? to the divine? what truths does it embody, suggest, or betoken? how does it address me? what can I learn from it? what is a fitting response? how should I act toward it? what mystery does it hold? why does it fascinate or repel me?

As students immerse themselves in this process, they will realize that it moves logically from concentration on a single

creature or object to both a wider view and a deeper engagement of the mind, from "naked eye" to "seeing eye" to "inward eye," as it were. At the same time, ideas for all three stages can occur at any time, for the unconscious does not operate in a linear way, but in fits, starts, and startling leaps. Just note it all down and elaborate later in the journal. Things may have to be rearranged, developed, or abandoned along the road to a finished essay.

Exercises in description, interpretation, and speculation can be designed to work either in the field or in the classroom as "thought experiments" or practiced using familiar objects. Here are some examples.

EXERCISES FOR DESCRIPTION

Colors

Ask the students, "What color is a Coke can?" Red, of course, but what kind of red? Urge them to try for accuracy. Blood red? Too icky, too dark. Brick red? Too dull, too rough. Flame red? A can isn't a gas, is cool not hot, doesn't flicker or glow. It is, however, shiny and smooth. How about red as a Christmas ball? This exercise shows that describing a color accurately involves more than just hue; it includes qualities such as texture, sheen, and density. Similes help evoke these qualities by connecting the object at hand with the familiar world, and so are particularly useful in nature writing.

Now ask the students, "What color is the sky?" They'll know it must be a trick question, but most will want to say, "Blue, duh." Give them a few moments to start brainstorming. You can ask, "Yes, but what kind of blue? How blue, exactly?" Is it sea blue, chalk blue, milky blue, china blue? Is it always blue? What other colors can it be, and when? How about green, lavender, purple, orange, gray, black, or white? What does it feel like when the sky is one of these colors? And so forth. Exercises like these give students a vivid sense of particularity and help them avoid clichés, the best antidote for which is accurate observation and precise thinking.

Shifting the Frame

Once the power of simile and accuracy have been demonstrated, try moving beyond the visual. Which sense is best for knowing a given object or place? Have students try to describe without reference to appearance. Have them write a description without using adjectives, or ask them to describe how something looks using verbs. It is interesting to take different stances for observation: lie on your side, go nose to nose, sit in a tree. Or, try moving: observe from a gliding canoe, for instance, while riding in a car, or during a hike or climb. Night walks or blindfolded walks can also be very illuminating.

Simple to Complex

It is easiest to begin descriptive practice with simple, familiar, static objects: the sort of thing painters call "still life." But soon you may find it interesting to move to more complex objects such as plants, animals, or even whole landscapes. Encourage students to experiment with ways of describing behavior, change, and movement as well. Have them think about changes over time: describe something in a morning state, an afternoon state, an evening state; imagine what happens when the temperature or humidity changes; follow an object, creature, or place through the seasons.

Giving Voice to the Voiceless

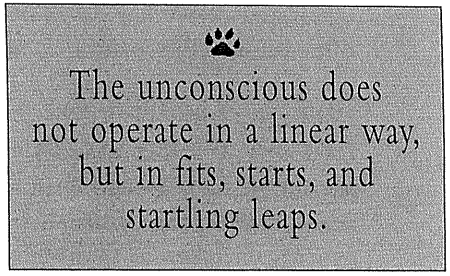
This gestalt exercise works very well with groups in the field. Have students wander about till they find something that speaks to them (it may be something small enough to pick up, like a pine cone, or something big like a mountain). Then go around the circle and have them speak as if they were that thing, telling the group who they are and what they do. Here is an example from a seminar in the Wind River Mountains:

> I am a lodgepole pine growing out of a crack in a granite ledge. I flourish because no one else grows near me. My roots grope toward the center of the earth; each of my buds seeks a place in the sun. I grow, though I cannot move. My grace consists of reaching. Water and wind move me. I weave them with light and rock to create my history. The years have taught me how much can be gained by being committed to one place. I do not speak, yet I hide nothing.

EXERCISES FOR INTERPRETATION

Reading the Land

The great ecologist Aldo Leopold, who taught at the University of Wisconsin, was famous for this sort of exercise. According to *National Geographic*, he would test his students by describing a small piece of landscape—"A road flanked on one side by a subsiding telephone pole, then a pink granitic boulder, bluestem, oat stubble bearing ragweed; on the other side a Silphium, double-forked sumac, another pink rock, a fence post, and a bit of corn stubble. A rabbit lay dead in the road."—and then posing a series of pointed questions: "How long ago was the last hard winter? (Two years—the sumac's double fork.) What sex is the rabbit? (Male—females stay close to home in spring.)"



You can design such exercises for students at any level of ecological literacy. It is remarkable how much students can learn and puzzle out simply by looking closely and using their analytic skills, once they are set on the path by a few leading questions. The ideal site is a place that shows various relationships between ecological and topographic factors such as soil type, slope, surface and subsurface water, climate, plant succession, and human activity. Evidence of catastrophic events such as glaciers, volcanic eruptions, earthquake faults, floods, and forest fires is always a plus. Students can work in teams or as an entire class. Start from the most obvious and concrete clues, and work toward an overall interpretation. Students are always amazed at how much information of this kind they can puzzle out with a minimum of natural history training. (Tom

Wessels gives examples of reading the land in the third section of *Into the Field*.)

Ecological Role Playing

Imagine yourself as a creature inhabiting this landscape; now describe your typical day. How would things appear if you were a bird? a snail? a mink? a dragonfly? a small-mouth bass? Where would you hang out? What would you eat? Who would be after you? What time of day would you be out and about? Who'd be a helper and who'd be an enemy? What would the human world look like to you? The works of Sally Carrighar (*One Day at Teton Marsh*, *One Day on Beetle Rock*) offer outstanding examples of this sort of exercise.

Ecological Powers of Ten

Find a place where the class can spread out; then have each person go off and find a spot that he or she feels drawn to. Ask them to visualize their spot five hours from now, then five days from now, then five months, five years, fifty years, five hundred years, five thousand years, fifty thousand years, five hundred thousand years, five million years, fifty million years, and so on. The scenarios can be presented orally or written down, shared in small groups or with the class as a whole; they can be savored individually or synthesized into a composite interpretation.

Here are examples of ecological powers of ten from two different landscapes:

ABOVE WAUGH LAKE, JOHN MUIR WILDERNESS, HIGH SIERRA: I sit in a small flat at 9,600 feet among lodgepole pines growing in thin soil above glaciated granite bedrock.

In five months the snow will lie five to ten feet deep. In five years the trees will be a half-inch thicker, a few more dead limbs will litter the ground. In fifty years some trees will have toppled; bighorn sheep will have returned. In five hundred years fire will have come through several times, spreading charcoal; the soil islands will have spread by several inches; none of these trees will remain; perhaps there will be fewer trees due to global warming; earthquakes will have shifted some of the rocks; the elevation may have risen by ten feet or more. In five thousand years a climate change will be in progress, perhaps cooler and drier; in fifty thousand, a new glaciation; in five hundred thousand, ice will again fill this valley.

IN MCEVOY PARK, CINCINNATI. I sit at the edge of a strip of woods at 760 feet, among hickories, oaks, beeches, and box elder thirty years old. In five months it will be spring, the woods green and opaque, birds singing, flowers blooming along the ground, the soil soft and wet. In five years the trees will be 18 inches taller and an inch thicker; some will have died and others fallen; the seventeen year cicadas will have emerged, and the trees will be scarred with their egg incisions. In fifty years the silver maples will all have died and blown or been cut down; the big oaks will all be dying; the beech will be fully grown, and the hickories; there will be many perennial wildflowers on the forest floor; the glass bottles and aluminum cans I see now will be buried beneath a half-inch of soil yet still intact. In five hundred years none of the houses I see will be standing; the woods will either be much wilder or else destroyed to make way for some other human construction, but the migratory birds will still pass over head, the geese and ducks and warblers. In five thousand years the composition of the forest will have changed due to global warming; the city will have vanished or been replaced; humans may have disappeared altogether; but the plants they imported from all over the world will continue to hang on: English plantain, dandelion, Amur honeysuckle.

EXERCISES FOR SPECULATION

Speculation is the most varied and personal stage of observation, and the possibilities for exercises are correspondingly diverse. Imagine you are dedicating this place as a national park. What would you say to the people, the media, and your government colleagues? What would you say to the animals, the rocks, and the trees? Imagine yourself as a historian. What would you want future generations to know and remember about this place? What does this place mean to the human story? Imagine that you are a lawyer defending this place and its creatures from the death sentence of development. What arguments would you use? Preach a sermon on this place. If this were your native ground, what sort of person would you be? What can you learn here that you can't learn anywhere else? The richest speculation often occurs while pondering the results of field work, that is, in the evening, in odd moments of calm during travel, while resting, or especially when back home in the study working toward a finished piece of writing. Speculation grows in the soil of transformative experience recollected in tranquillity. It comes naturally and in good time, provided the mind has been aerated and fertilized with description and interpretation.

Combined Exercise: Power Spot

An excellent way to practice all three of these phases is to have students wander about the landscape until they find a spot that draws them, and then to visit that place regularly, spending a half-hour in observation and writing. This exercise works equally well in neighborhood, park, or wilderness areas, over periods of a day, a weekend, a week, or longer. Many people report fascinating results from observing over the course of a whole year. Students can share the fruits either as raw journals or in the form of essays at any degree of polish. Here is an example from a weekend workshop, illustrating how a single session can take one through all three phases of observation:

> NEAR JAMESTOWN, NEW YORK: Here is a hemlock grove, open and empty as a room. Curled, yellow leaves litter the floor. Sunlight burns through the orange maples growing along the edge, where the creek makes a boggy pause before sliding under the road. The flickering light beats on my closed eyes like sundazzle flung up from a summer lake. At ground level the afternoon light glints silvery along the edges and surfaces of cast-off things. It's a thin, papery light, like the kind that shines through fingernails or thin seashells. One curled maple leaf cups a half dozen brown hemlock needles. Everything feels warm and dry, the scent of a dying garden in September. I feel the acquiescence of all things, a deep contentment like the sound of cellos.
>
> ...Fall is the time that the trees give up making sugar and wood from air, water, soil, and light. They send all their sweetness down into their roots. In winter all life—all plant life—goes on underground, communing with the soil. The mind, too, seeks a return to its origins after great labors. It craves a slower chemistry.
>
> Amid such litter I feel no sense of waste or uncleanliness. It's comforting to sit on the ground. Where I come from, one can't sit on the ground without feeling unclean, "soiled" we say because we do not live with the soil. Any uncleanness here I bring myself. This is a piece of land neglected by the developers, a place going its own way. No doubt the floor will eventually grow more ferns, bunchberry, cushion moss, and lilies of the valley, but these things need as much time as trees. Time and age seem to impart cleanliness—and character—to natural systems....

From the Field to the Study: Writing about Your Place

Whether conducted in the field, in the classroom, or in the study, writing exercises such as the foregoing help focus attention, sharpen perception, and engage imagination with the natural world. You may not want to take things any further. Some students will find short essays or descriptive pieces challenging and rewarding enough; others may wish to

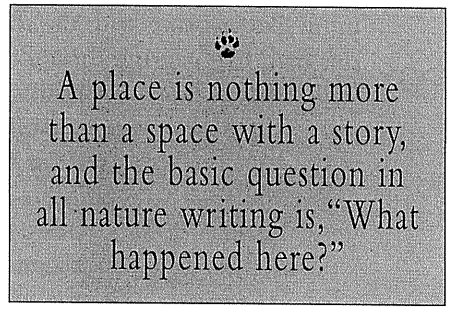
experiment with more sustained and complex narratives involving creatures, people, and ideas. The range of possibilities for finished work allows students to reach varying levels of engagement and understanding. Nevertheless, it is always true that a regular writing practice pays bigger dividends than momentary or occasional exercises. And the discipline, concentration, and attention required to produce a finished story or essay carry perception and understanding deeper than is possible through journal entries or freewritings alone. Therefore, we now turn to the next stage in the writing process: completing and sharing coherent, free-standing work.

Regardless of form, nature writing is always bound up with place. One never observes in the abstract, but always at a certain time, with a certain intent, viewpoint, or mindset. One never perceives things in general, but particular things, and these things manifest themselves in place, not floating free in some conceptual ether but grounded, embodied, rooted in a particular space and time. But specifications are not enough; there has to be meaning as well. A place is nothing more than a space with a story, and the basic question in all nature writing is, "What happened here?" The place itself can be either the setting, that is, the background for significant action such as an encounter with animals, or an actual character, that is, a source of and participant in the action. Sometimes the shift in a place's role from setting to character can become the basis for an entire story, as in Thoreau's famous account of climbing Mt. Katahdin in *The Maine Woods*. Either way, the writer's task is to make the place real for the reader by describing the details that create its immediate character and telling the story that explains why it matters.

Both students and professional nature writers begin with the same kind of raw material—memories, field notes, and journal entries—and both, in my experience, follow a similar path in their creative processes. The most important aspect of any story is the plot, the logical pattern that connects the events and reveals their meaning. Plot makes the difference between a real story and other collections of information or events, such as a chronicle, a diary, or a news report. And the plot turns on a

single event, the climax, which makes sense out of everything else. Other features of the story such as character (who?), action (what?), setting (where?), and point of view (who's talking?) are all affected by plot, and the plot depends most on the climax, the "moment of truth" at the logical center of the story. Therefore, creating a story based on your own experiences and observations means identifying the climax, developing the plot, and organizing and describing events so that both are revealed.

If this sounds like a daunting task, reassure the students that it is also a journey of memory and imagination, a process full of creativity and discovery. It may help to remind them that writing is a moral act: when we write, we are seeking the meaning in experience, attempting though utterance to marry experience with values and thereby discover coherences in the world. This is perhaps the fundamental gesture of human culture. Remind them that writing is also a means of exploration and inquiry, a form of goalless travel. The great English poet W. H. Auden said, "How can I know what I mean until I see what I say?" Each draft is a trace of the mind's passage across the dark, creative waters of the unconscious; successive drafts create a "map of the unconscious," achieving clarity and coherence as its wisdom and meaning are brought to light.



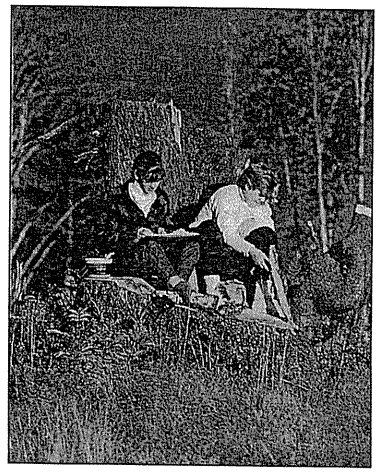
It may also help to point out that the reader and the writer always work in opposite directions at first. The reader encounters the events in a story one at a time, from beginning through middle to end. To the reader, a story begins with an attention-grabbing opener, proceeds through events that raise questions and increase tension ("rising action"), reaches a pinnacle of clarity or truth (the climax), and moves toward a clear and satisfying conclusion through a series of events that release tension and resolve lingering questions ("falling action" or

denouement). This "story line" looks rather like a mountain ridge: the basic pattern is up and down, with various false summits, depending on the story's complexity, but always one highest point and an eventual safe descent. (The classic essays of John Muir, Loren Eiseley, and Annie Dillard illustrate various types of plots that engage, move, and enlighten the reader.)

To the writer, however, things look much different. All he or she has at the start is a confusing mass of notes, memories, and ideas, some of which may feel "stronger" than others for reasons not at all clear. This feeling of strength or significance offers the best chance of making a start, for it suggests a potential climax and a story hidden within the welter of experience. The writer ruminates on the material (notes and memories) to identify the climactic events; it's a tactile, intuitive process, more like savoring with the tongue or groping with the fingertips than like peering through a microscope. In nature writing, which often deals with transformative experience, climactic events usually involve a change in the narrator's consciousness: a moment when the mind is arrested or surprised, a moment of discovery, fear, or danger, a sudden insight, a brush with a powerful animal. Its meaning may not be clear, but the event will still feel strong and magnetic. Freewriting is a good way to work over material and feel your way into it, probing for climaxes.

With the climax in view, the writer can work backwards to discover the logical sequence of events leading up to it. Life, of course, does not present itself as a coherent story, but as a stream of experiences that often seem random or disconnected. Everyday life seems more like a skein of many colored strands than the bright, consistent thread of a well-plotted story. If you sliced through this skein at a given moment, you would see a mosaic of many colors, for our life consists of many stories going on simultaneously, and the same event may belong to more than one possible story. The writer's task is to tease out the events that belong to the story at hand, the story defined by the climax, and then lay these out in such a way that the reader can follow them easily, like Theseus following Ariadne's thread out of the Labyrinth. Again, freewriting is an excellent way to discover significant events and explore the relations between them.

With the story line mapped out, one can begin to compose a draft. Freewritings are useful in working out ideas and angles for description, action, and exposition. Students will gain confidence if you encourage them to think of everything they do as a draft, even if it's typed and turned in; as the great French writer Paul Valéry said of poems, a piece of nature writing is never finished, it is only abandoned. Nevertheless, once a partial or complete draft has taken shape, it's time to call the editor in from the cold. There are a number of common pitfalls that beginning nature writers experience: awareness of these can guide both the composing and the editing process.



- Including events just because they happened: Not everything that happened on a particular trip is meaningful in terms of the story, though it may be important to the writer personally. Remind students that only events that advance the plot toward or away from the climax should be described. Distinguishing superfluous from necessary events is a major task of the rumination and composing process. Freewritings can help.

- Superfluous detail: Nature writing contains a lot of description, and one is always tempted to include favorite details that may not speak to the story at hand. Encourage the students to think in terms of "telling" details, that is, details that convey meaningful information and so work to advance the plot. Practice telling details by asking the students to pick out a classmate and find the one feature of their dress or appearance that tells the most about them; do

the same thing with an animal, plant, or landscape. Writing descriptions without adjectives is good practice as well.

- Clichés in action, description, or idea: There may be nothing new under the sun, but the writer's task is to make us think otherwise. Since nature has been one of humanity's favorite subjects for writing, students' heads are already stuffed with received images and ideas. These have all the flavor of day-old french fries. Help students avoid clichés by identifying them in published writing (this can be lots of fun as a group activity; best-sellers are an excellent source). Remind them that, once they have been sensitized to clichés, the best way to avoid them in their own writing is to practice accuracy. Using another person's canned phrase is never the way to say what you really mean.

Freewriting, again, is an excellent way to practice the narrative skills that will save students from the aforementioned pitfalls. Description, interpretation, or speculation can be used as a guide to types of freewritings. In addition, it is useful to practice writing "dramatic encounters," a type of freewriting that uses action and character. In this exercise you focus on a climactic event and try to describe it as succinctly and objectively as you can, leaving out your own feelings or ideas (except as they constitute events, e.g., a sudden revelation or change of heart). Try to let the events speak for themselves. Once you have written down a dramatic encounter, do a freewriting on what you learned from it. Continue this process two or three times to explore the material, until you have a sense of the meaning of this climactic event, then freewrite on what you would need to tell the reader in order to convey that meaning. Repeat as many times as you like. These dramatic encounters and freewritings can be shared in small groups or discussed with the class as a whole to call attention to the importance of concreteness, accuracy, and telling details.

Editing, revision, and publication constitute the final stages in the writing process, and all offer excellent opportunities to extend the perception of nature while building community in

the class. Editing is always a collaborative venture between the writer and a real or imagined reader; hence it can be done in pairs or small groups. Sharing work in progress helps build confidence and reduces performance anxiety. And editing someone else's draft can increase the skill and objectivity you bring to bear on your own compositions.

Students can be encouraged to share finished work by reading aloud, either in small groups or to the class as a whole. A campfire-like circle can enhance intimacy and listening. Producing a class publication can be a satisfying and instructive project: an anthology of stories and essays or a natural history guide to the neighborhood can make valuable contributions to class understanding and pride. Finally, there are a number of magazines that publish student writing at various grade levels, and talented writers can be encouraged to submit their work.

* * *

Empowered by a wise practice of observation and writing such as the one described here, students can create stories that reveal the unseen mysteries and riches of their home places. Because a story is more complex than a simile, metaphor, or sentence, it can engage, convey, and illuminate many more dimensions of the natural world than philosophic or expository discourse. I like to point out that for thousands of years story has been the principal medium for the preservation and transmission of human knowledge. Therefore, when students practice natural history—that is, when they tell stories about people and nature—they are participating in one of the oldest arts. They are helping to create culture.

For most of our species' history people lived in intimate ecological relationship to their local landscapes, depending on them for food, clothing, shelter, medicine, energy, water, and all other necessities of life. They had no sense of "nature" or "wilderness" apart from the human world. Our use of such terms reveals the dismal fact of our own separation from the sustaining land. To become native once more, we must learn intimacy all over again, using such tools as our own culture

provides, and paying renewed attention to our home landscapes. Writing offers a promising path toward the intimacy we seek, by deepening perception and understanding, by throwing the light of attentive imagination upon the green world we normally take for granted.

Resources and Books

WRITING PROCESS AND PRACTICE:

Dorothea Brande, *Becoming a Writer*. Los Angeles: J. P. Tarcher, 1981.

Annie Dillard, *The Writing Life*. New York: Harper, 1989.

Peter Elbow, *Writing Without Teachers*. New York: Oxford University Press, 1973.

Natalie Goldberg, *Writing Down the Bones: Freeing the Writer Within*. Boston: Shambhala Publications, 1986.

Anne Lamott, *Bird by Bird: Some Instructions on Writing and Life*. New York: Doubleday, 1994.

John A. Murray, *The Sierra Club Nature Writing Handbook*. San Francisco: Sierra Club Books, 1995.

Gabriele Rico, *Writing the Natural Way*. Los Angeles: J. P. Tarcher, 1983.

William Strunk Jr. & E. B. White, *The Elements of Style*. New York: Macmillan, 1979.

Brenda Ueland, *If You Want to Write: A Book about Art, Independence, and Spirit*. St. Paul: Graywolf Press, 1987.

William Zinsser, *On Writing Well: An Informal Guide to Writing Nonfiction*. New York: Harper, 1994.

READERS AND COMMENTARIES:

Barry Lopez, "Landscape and Narrative," in *Crossing Open Ground*, New York: Vintage, 1989.

Edward Lueders, ed., *Writing Natural History: Dialogues with Authors*, Salt Lake City, UT: University of Utah Press, 1989.

Scott Slovic & Terrill Dixon, eds., *Being in the World: An Environmental Reader for Writers*. New York: Macmillan, 1993.

Mitchell Thomashow, *Ecological Identity*. Cambridge, MA: MIT Press, 1995.

Stephen Trimble, ed., *Words from the Land*. Reno, NV: University of Nevada Press, 1995.

SOURCE BOOKS AND NATURE WRITING ANTHOLOGIES:

Lorraine Anderson, ed., *Sisters of the Earth: Women's Prose and Poetry About Nature*. New York: Vintage, 1991.

John Elder, ed., *American Nature Writers*. New York: Scribner's Reference, 1996, 2 vols.

John Elder & Hertha D. Wong, eds., *Family of Earth and Sky: Indigenous Tales of Nature from Around the World*. Boston: Beacon Press, 1994.

Robert Finch & John Elder, eds., *The Norton Book of Nature Writing*. New York: W. W. Norton, 1990.

Thomas J. Lyon, ed., *This Incomparable Land: A Book of American Nature Writing*. Boston: Houghton Mifflin, 1989.

REPRESENTATIVE WRITERS BY REGION:

Northeast: Henry Beston, John Burroughs, Rachel Carson, Robert Finch, John Hay, John McPhee, John Hanson Mitchell, Henry David Thoreau

Middle Atlantic: Annie Dillard, Thomas Jefferson, John McPhee, Donald Culross Peattie, William Warner

South: William Bartram, Wendell Berry, Marjory Stoneman Douglas, Peter Matthiessen, Mark Twain

Midwest: John James Audubon, Aldo Leopold, Scott Russell Sanders

Great Plains: Loren Eiseley, John Janovy Jr., John Madson, Peter Matthiessen, William Least Heat Moon, Theodore Roosevelt

North Woods: Sigurd Olson

Southwest: Edward Abbey, Joseph Wood Krutch, N. Scott Momaday, Gary Paul Nabhan, John Wesley Powell, Leslie Marmon Silko, Ann Zwinger

Great Basin: Mary Austin, Steve Trimble, Mark Twain, Terry Tempest Williams

Rocky Mountains: Rick Bass, Sally Carrighar, Gretel Ehrlich, William Kittredge, John McPhee, Enos Mills, John Muir, C. L. Rawlins

West Coast: Robinson Jeffers, Clarence King, Barry Lopez, John Muir, Gary Snyder, Susan Zwinger

Alaska: John Haines, John Muir, Richard Nelson

Arctic America: Barry Lopez