



The Naturalist's Journal



image courtesy of the American Museum of Natural History

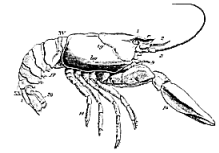
Dr. Tom Howick
Director of Education
Master Naturalist Coordinator
Chattahoochee Nature Center
770-992-2055 x235
t.howick@chattnaturecenter.org
www.chattnaturecenter.org

© 2021 Howick, Dirnberger, & McCullagh (I would also like to thank Drs. Joe Dirnberger, Professor Emeritus of Biology & Steven McCullagh, Associate Professor Emeritus of Biology, Department of Biological & Physical Sciences at Kennesaw State University for their contribution of this scholarship & handout. Also, I would like to give thanks to Clare Walker Leslie for her ideas, books, friendship, and continued support...)

Why keep a journal?

The goal of the journal is to help you develop a broader understanding of the natural history of the world around you.

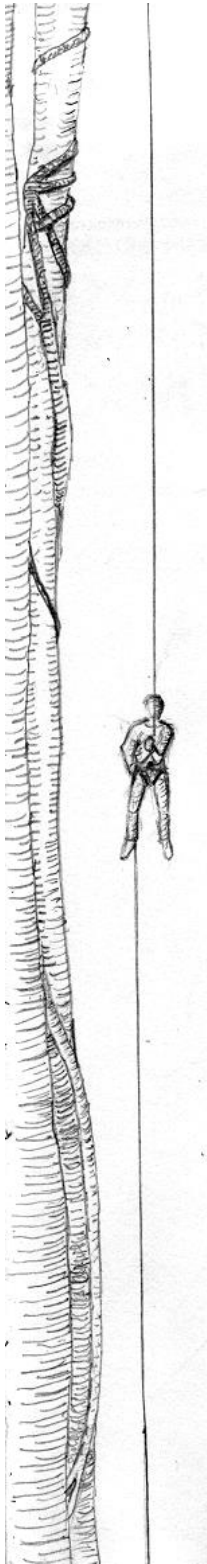
'Natural history' requires extensive observation as its raw material and yields meaningful and expansive synthesis as a final product. For centuries the naturalist's journal has been a tool to accomplish this goal. Benefits of keeping a journal include:



- **increasing powers of observation** (*"It would take a lifetime to explore your own backyard"*; Brown 1983)
- **improving retention of experiences** Noss (1996) states that *"scientific abstraction and fancy technologies are no substitutes for the wisdom that springs from knowing the world and its creatures in intimate, loving detail"*.
- **documenting observations for future reference by yourself and by others** (An old Chinese proverb states that *the palest ink is better than the best memory*) (Thomas Jefferson commanded Lewis and Clark to keep journals and make multiple copies in case of loss, and he instructed that their observations *"be taken with great pain and accuracy"* (Herman 1980)).
- **providing opportunity to be creative and to use skills from other disciplines** – *"Keeping the journal fosters a variety of skills including observational skills, critical and creative reasoning, communication skills, and drawing skills."*(Leslie & Roth, 2000).
- **providing opportunity to synthesize your observations and to integrate this synthesis with your knowledge from other fields of biology and from other disciplines outside of biology.** Over the last century, disciplines within science have become more splintered and specialized, where researchers obtain the bulk of their observations from narrowly focused publications. Throughout this trend in specialization, the importance and preservation of the naturalist approach has continued to be advocated (e.g., Noss 1996).

In technical work a man of this age must specialize, but in a reconnaissance of a part of the earth's face, whether soil or sea, I want my comprehension, like that of Charles Darwin, to be able to interpret the underlying significance of clouds, hailstones, argillaceous rock, hot springs, cacti, land planarians, ice-bourne boulders, carrion beetles, wingless flies, graminivorous birds, nest-building fish, viviparous reptiles, dodders, omnivorous rodents, sessile-eyed crustaceans, insect-eating plants, and foraminiferous protozoans!"

Robert Cushman Murphy, in *Logbook for Grace* (1947), from a journal on a voyage to the Antarctic in 1912 (Herman, 1980)



Why draw and write?

Drawings are extremely useful even if you have no artistic ability. Drawing **enhances observation and retention**. To draw requires attention to both detail and overall composition. The tactile act of transferring this to paper forces one to use different sets of neural pathways that enhance the learning experience (kinesthetic learning). An organism or landscape drawn re-enforces a memory far better than does snapping a photograph. In addition, drawing **captures large amounts of information** (the old cliché 'a picture is worth a thousand words'). An example might be a simple sketch of topography that might otherwise be difficult to describe in few words. A quick sketch of key morphological characteristics of an unidentified organism is often useful upon return where more reference materials and keys are available; particularly if the organism is not collected or if key characteristics are lost in preservation.

Like drawing, writing allows you to use additional parts of your brain. One must re-live the experience when writing, **improving retention**. People who study how humans learn suggest that most of us don't learn effectively from experience alone. In order to learn from our experiences we have to do something to **help make sense** of them. Writing is a particularly effective way to make an experience our own and to learn from it. Much of our thinking and communicating is, after all, through language. Writing typically requires association of the experience with past experiences and knowledge, providing **opportunity for synthesis**. You will find that new thoughts occur to you as you write your notes. Further, the field experience and writing of one day can become the raw material for even more significant insights, when you have many such days.

Nature Journaling - ways to get started...

Nature Journaling includes both writing and/or sketching/drawing your observations of the natural world. The goal is to "focus, observe, record and reflect" on your experiences outdoors. Some suggested on ways to flow thru this process...

- **Focus:** Concentrate and pay attention to what you are experiencing (sit quietly and close your eyes to help relax for a few minutes...become more centered in your place...then open your eyes slowly to "focus" on your surroundings)
- **Observe:** Use all of your senses (sight, sound, smell, touch, and hearing)
- **Record:** Write & sketch/draw your observations
- **Reflect:** Share your thoughts, with words or sketches/drawings, about what you have experienced in your journal...

What to Include on Your Nature Journal Page

Your journals are unique to YOU. Create them and include information that is important to you. When you first start out, you should get into the habit of including certain information each time. This will help you focus on everything you are experiencing outside. **On each page include:**

- Date
- Location (Where exactly are you? Be specific.)
- Temperatures (Even if you don't have a thermometer, go ahead and guess the temperature based on how it feels outside to you.)
- Weather (Is it sunny? Cloudy? Rainy? Windy? Etc.)
- Time of Day (Is it morning? Afternoon? Evening? Nighttime?)
- Sunrise & Sunset
- Phase of the Moon
- What other "observations" can you make about what you are experiencing?
- Ways to "record" & "reflect"
 - Sketch/Draw
 - Sound maps
 - Poems (Haiku, Cinquain, or Free Verse)
 - Writings - narrative description, creative, questions



➤ Sound Map

- Listen to and record the sounds of nature around you.

of people: 1 or more
 Ages: 5 years and up
 Props: Index card & pencil for each person
 From: Sharing Nature with Children II by Joseph Cornell

Select a site where your group is likely to hear a variety of nature sounds, such as a meadow, forest or marsh. Each child finds a special listening spot nearby and settles down with their pencils and index cards.

Have the children mark an X in the center of the card. This marks where they're sitting on the sound map. When they hear a sound they should make a mark on the card to symbolize the sound (for example: wavy lines for wind,

musical note for a bird, etc.). The mark's location on the map should indicate roughly the direction and distance of the sound.

After explaining the sound map activity, have everyone listen for five to 10 minutes. After the time is over, have everyone gather together and share their sound maps

Tips for Sketching & Drawing

Drawing, like most anything else, takes lots of practice. Don't worry if you are not happy with your sketches or drawings. Just keep working at it. With practice, you will improve. Here are a few tips to help you out:

- Not everyone can draw everything well. It is good to pick a subject you enjoy (e.g., leaves, animals or plants, etc.) and practice that a lot. Try your hand at everything, but learn what you are good at and work at becoming even better.
- Don't be afraid to use a field guide to help draw in more detail later. This is a fun and useful way to get to know birds, plants, and wildlife in more detail.

Equipment for the beginning Nature Journal

Beginning a nature journal for younger ages up to High School:

- Sheets of 8 x 11" smooth, white copy paper.
- Firm backing - make your own "clipboard" using recycled cardboard and a rubber band or paper clips
- #2 pencil with an eraser

Or make your own nature journal using separate sheets of paper... Wildlife Projects for Kids: Making a Nature Journal - <http://www.greatstems.com/2013/05/wildlife-projects-for-kids-making-a-nature-journal.html>

Later go to a blank bound book...ranging from 2 x 3, 7 $\frac{1}{2}$ x 8 $\frac{1}{2}$, 6 x 9, or 8 $\frac{1}{2}$ x 11"

Drawing Media At the very least, you will need in the field a #2 pencil and eraser (mechanical pencils eliminate the need for a sharpener & eraser). In addition, you may incorporate other media:

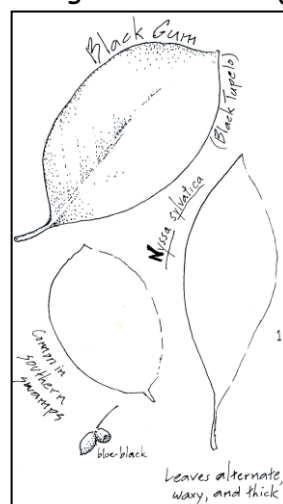
- Pencils - #2 (is similar to a HB drawing pencil)
 - Permanent ink pen (fine tip) [e.g., Prismacolor]
 - Kneaded eraser
 - Field watercolor kit or color pencils (colors can add important information).
 - Niji - Waterbrush - brush & water container in one (Yasutomo)
- <http://www.dickblick.com/products/niji-waterbrush/>

Ideas for Sketching/Drawing in Journals

Some tips on drawing in the field:

I would suggest you begin by trying some of the drawing exercises for field sketching, from "Keeping a Nature Journal, (Leslie & Roth, 2000)... pages 140-143 or refer to the separate sheet provided with this workshop... "Beginning drawing exercises for field sketching"...use small objects (e.g., leaves)

- Blind Contours
- Modified contours
- Quick gestures
- Diagrammatic drawing
- The finished drawing...

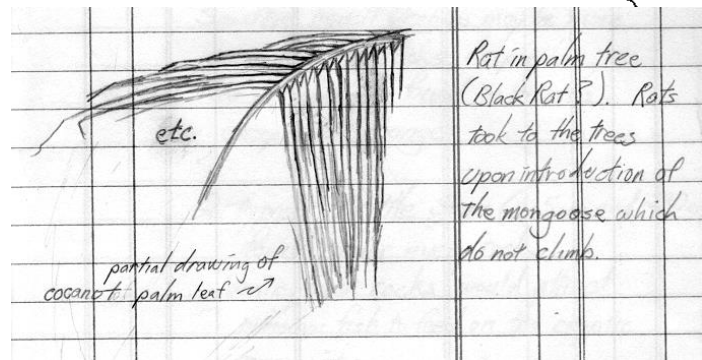
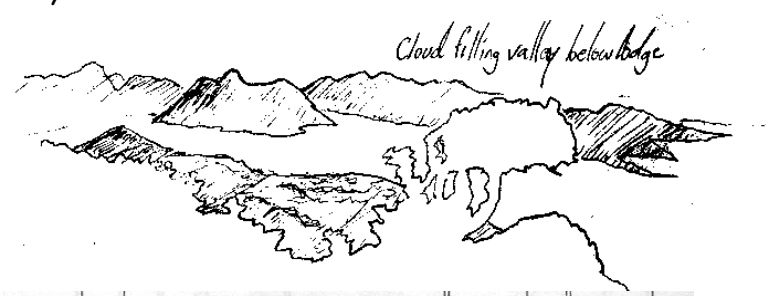
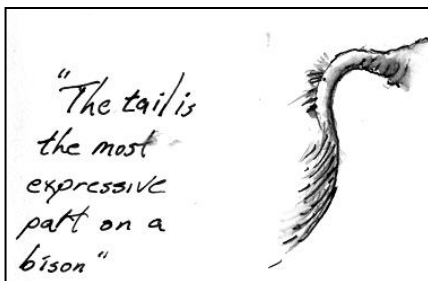


Drawings should be labeled as to what they are, their scale (e.g., 2x), and with relevant structures and other information. Write on only one side of the page to reduce smearing.

Capturing information quickly in the field

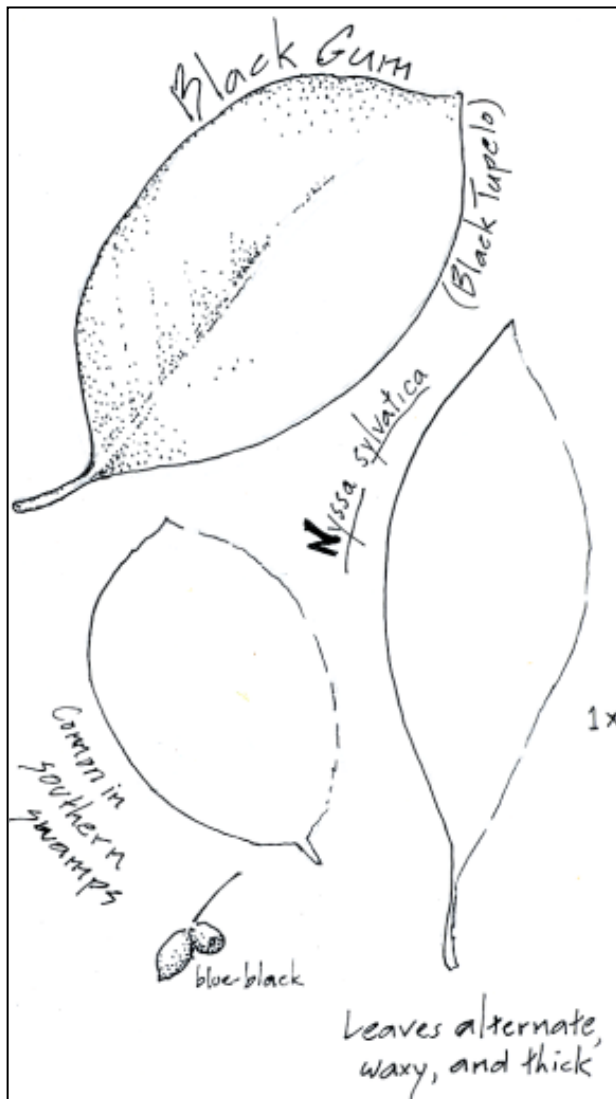
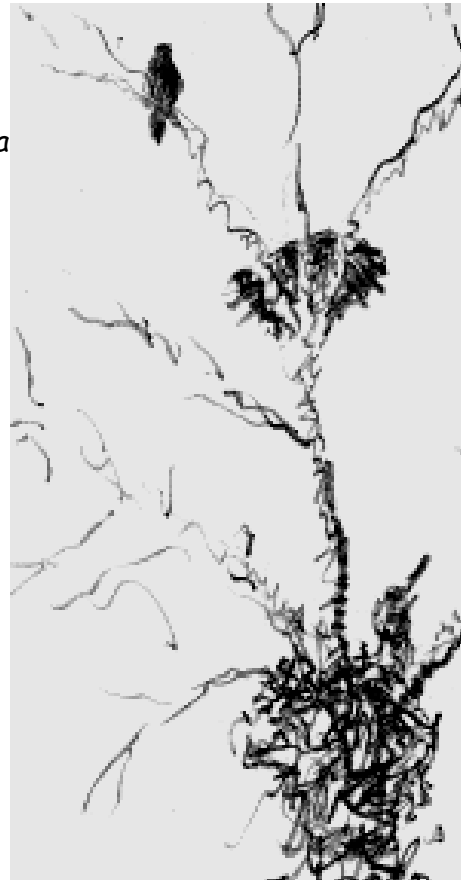
Because time is limited in the field, you may wish to make partial field sketches then add detail upon return to the car, camp, or home. Quick notes in pencil on colors, textures and detail along side partial sketches will make this easier upon your return. However, often a quick field sketch alone will suffice in conveying information.

Because time is limited in the field, sketches of parts of organisms and quick outlines capture information efficiently.



A scribbling stroke is also a useful technique for rapid sketches in the field. The image on the right is enlarged from the 'hawks in the tree' drawing on a following page. Note the pencil has rarely been lifted from the page in parts of the picture.

Also note that the pencil was lifted when drawing finer branches, though in reality all branches on the tree are connected, it is not necessary (or even desirable) to do this in the drawing.



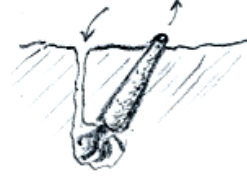
Take advantage of lighter spaces and lack of clear edges. Your mind spends a lot of effort in interpreting edges that in many cases your eyes do not see. By leaving light space and subtle edges blank, time is saved in the field sketch and often the sketch appears more "realistic". Avoid continuous lines. You'll be surprised.

Note on the leaf drawing (left) that detail on veins is only drawn on part of one leaf, yet the drawing conveys the needed information. Time was also saved because this drawing was made by laying the leaf on the paper and lightly tracing the outer margin. An ink pen was used later to add detail.

Some ideas on what to draw

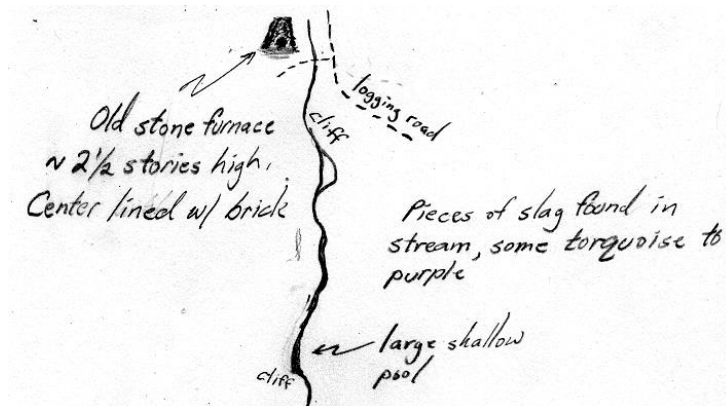
Drawings should not necessarily be of whole specimens or entire landscape. For example, you might sketch:

- an outline of the organism (contours)
- an unusual or distinguishing part of an organism
- traces left behind such as tracks or nests
- stick figures representing a behavior
- a diagram of the sampling device
- the habitat
- topography (e.g., the shapes of boulders, tree lines, ridges, and mountain tops)
- a map of the study site (a carefully labeled map can tell a story)

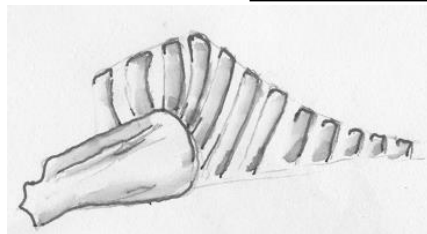
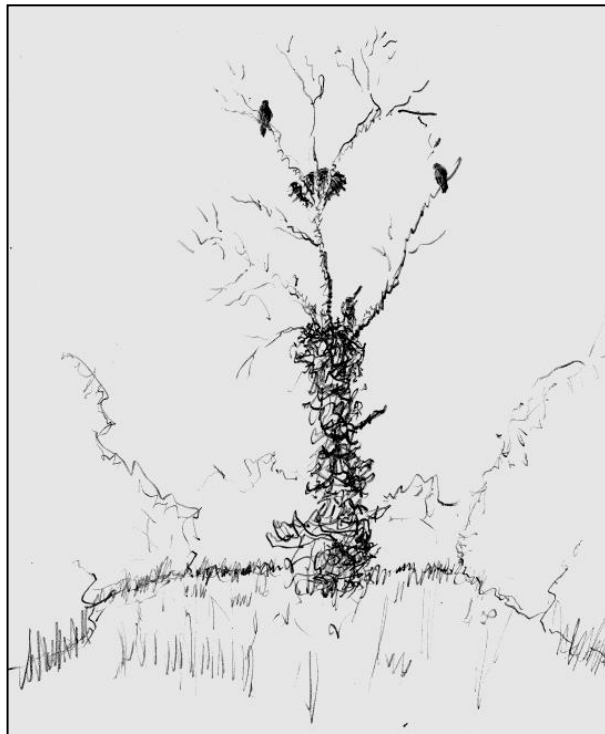
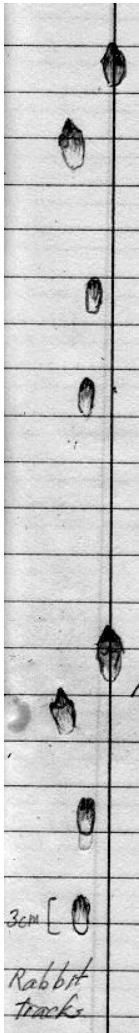


Be Creative. Not all observations need to be immediately relevant to the study subjects (great ideas in science often arise from incidental observations).

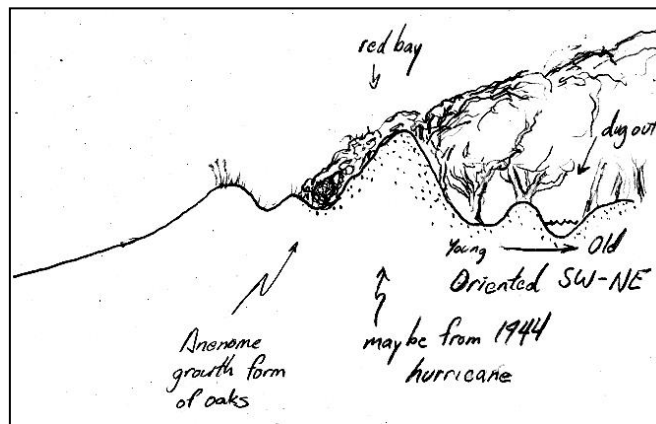
Maps are important both for future reference and because they can convey an experience or process.



The organism itself often does not tell the whole story. Indirect traces of organisms abound in the field. An organism's place within its habitat should also be noted.



Not everything one draws must be "as you see it". Observations can be synthesized in conceptual illustrations that summarize information.



Ideas for Writing in Journals

Basically, the journalistic formula can apply here. Answer simple questions such as who, what, when, where, why and how. Some of these will be more obvious. Identifying the study site and locating it relative to other landmarks, describing the environmental conditions as well as the time and date are easy (if we remember to do them). Why and how type questions may be more speculative, as you note such things as the relevant relationships between organisms and the environment or the evolutionarily adaptive nature of structures, behaviors or relationships.

- Use the most precise language you can.
- Generally, your writing style will be straightforward, simple declarative sentences. Full sentences are best, except where a list or other such convention is appropriate.
- Asking questions is one of the generative activities of science, and your field journal is the place to record your questions. While many questions may arise during the field experience, many of them can, and should, be answered by further observations or by consulting field guides or other resources... You may also want to leave some room in the field journal so you can respond further to those questions as you have additional experiences and insights.

As your understanding and experience grows, you will be increasingly able to notice that which you do not see directly, but might expect. In one of the Sherlock Holmes mysteries, Holmes remarks on the barking of the dog at the scene of the crime. When his colleague Dr. Watson responds, "...what barking? None of the witnesses mentioned the dog barking," Holmes clarifies his insight. The absence of barking from the dog when the crime was committed is the pivotal clue in solving the mystery (i.e., it was an inside job).

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Internet Sites

Blind Contour Drawing: Drawing by Touch - Carol Rosinski

http://www.toadhollowstudio.com/Blind_Contour_Drawing.html

Drawing on the Right Side of the Brain Inc. <http://www.drawright.com/>

Field Sketching and keeping a nature journal (Cathy Johnson) -

<http://www.cathyjohnson.info/tips/tip50.pdf>

Keeping a Nature Journal - http://www.sierraclub.org/education/nature_journal.asp

Cathy Johnson Art Tips... <http://www.cathyjohnson.info/tips.html>

John Muir Laws - <http://www.johnmuirlaws.com/>

[http://sdchildrenandnature.org/wp/wp-](http://sdchildrenandnature.org/wp/wp-content/uploads/2013/05/CNPS_NatureJournaling_JMuirLaws_96p_2012.pdf)

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JOHN MUIR LAWS
NATURE STEWARDSHIP THROUGH
SCIENCE, EDUCATION, AND ART

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"The fairest thing we can experience is the mysterious. It is the fundamental emotion that stands at the cradle of true art and true science. He who does not know it and can no longer wonder, no longer feel amazement is as good as dead- a snuffed out candle"

—Albert Einstein

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<https://johnmuirlaws.com/> world of infinite beauty and discovery waits just beyond the point where we usually stop paying attention.

Claire Leslie Walker - *The Nature Connection* on - YouTube...

<http://www.youtube.com/watch?v=aUcYEOE7feM>

<http://clarewalkerleslie.com/>

http://www.morning-earth.org/ARTISTNATURALISTS/AN_Hinchman.html#top

<http://www.natureworkspress.com/index.html>

<http://www.sharingnature.com/activities.pdf>