

## ENVS 15 – NATURAL HISTORY OF THE UCSC CAMPUS

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Class time and location: Tuesdays 8:30-12:30, Natural Sciences 2 room 229

Class Webpage: eCommons ENVS 15

Office Hours: Mon 1:30-3:00 pm or by appt.

Office: Nat Sci 2 463

### **Course Description:**

This course will address different aspects of the natural history (geology, ecology, plants, animals, human history) of this amazing campus. By practicing skills of observation and awareness, this course aims to further develop your ability to learn about the natural history of any place as well as to further develop your appreciation and respect for the natural world.

“To explain why anyone is a conservationist and what motivates him... means going back to the very beginning of his involvement with the natural scene. I believe one of the basic tenets... is to have a love for the land, which comes through a long intimacy with natural beauty and living things. Only if there is understanding can there be reverence and only where there is deep emotional feeling is anyone willing to do battle.” Sigurd Olson, *Open Horizons*

### **Grading/Evaluations:**

- **50% Attendance and participation.** We go out EVERY WEEK, rain (ha!) or shine.
- **45% Field Journal Assignments and Final Project.** Each week I will give you two field assignments that will take ~4 hours and are intended to help develop your observation skills.
- **5% Quizzes.** Identification, theory, species we've seen in class.

### **Course Materials: (Bring these with you every week)**

- ***The Natural History of the UC Santa Cruz Campus:*** 2008; 2<sup>nd</sup> edition edited by Tonya Haff, Martha Brown, and Breck Tyler, for sale at the Baytree Bookstore. We will read nearly the entire book. Expect quiz questions based on the reading and be prepared to discuss. It's great.
- **One field guide:** Choose one from a list given out at the beginning of the Quarter.
- **Small notepad:** For taking notes during class.
- **Field journal and pen/pencil:** Though the best are stitched or hard bound and smaller than standard paper, (but not too small, as tiny notebooks are difficult to draw & press plants in), please pick one where you can tear out the pages because you'll be turning them in for your weekly journal assignment.
- **A hand-lens/loupe:** Can be purchased from Bay Tree Bookstore—ask to purchase one at the register; ~\$8.
- **Binoculars:** STRONGLY recommended. The UCSC Museum of Natural History may have a few pairs for loan—come see me after class. You will need a pair when we go birding. Please beg to borrow them if you can't buy a pair. If you're interested in purchasing a pair, eagleoptics.com has great ones.
- **Backpack:** To put all this stuff into.
- **OPTIONAL:** Digital camera—nice for taking pictures of specimens.

### **You will need for ALL class meetings:**

- **Appropriate clothing, etc.:**
  - Dress warmly and in layers and be prepared for all kinds of conditions.
  - Wear comfortable walking/hiking shoes.
  - Bring snacks and water if you tend to get hungry/thirsty.
  - Be prepared for poison oak and insects – we will be off trail often.
  - Camouflage: Earth tones are best; shoes that allow you to walk quietly.
- **Jungle Etiquette:**
  - “Be here now”: avoid talking about people or events that are not here and now. Talk quietly if you must and remember that silence is sacred.
  - I have no patience for cell phones etc.
  - Following jungle etiquette has its rewards

## DEETS

- **Weekly class time:** We will spend the majority of class time exploring various parts of our wild campus, including the southern, core, and northern areas. Time in the field will focus on direct observation and interpretation of various elements and organisms within the natural world. Expect a mix of focused group and individual activities as well as ample time for exploration. We will likely move slowly as we settle into Mountain Time. We will name things. We won't be satisfied with just naming things—we will want to move past mere introductions and get to know the lives and stories around us. We'll inquire about what we're seeing, hearing, smelling, touching, and tasting. We will start each class at either our regular Museum classroom in Natural Sciences 2 room 229 or alternative sites listed in the syllabus. These will be announced in class the week prior and also posted as an announcement on eCommons. Class will usually begin with announcements and sometimes a short lecture and quiz. Quizzes may also happen in the field during class or near the end of class time. Each week we'll wrap up with a reminder about the week's journal and reading assignments. I think we'll enjoy all this.
- **Field Journal Exercises:** These assignments are designed to allow you ample time with a specific place on campus—a place you'll adopt as your own (or that will adopt you), a place, or spot, you'll sit on: Your sit spot. By the end of the Quarter this one location, and please don't stress about finding the perfect site, will prove to you that you can learn an incredible amount about the world (and about yourself) by looking closely at what's going on in one (in any) spot. Weekly assignments will have you focus on a different aspect of your sit spot, including its topography; its vegetation; its animal inhabitants; its trails big and small, faint and worn; and will ask you to stretch your awareness and to question, question, question. Pictures (drawings, etc.) say a thousand words. A thousand words say a thousand words. Most entries will be less than a thousand words. Lose yourself in your place, in your writing, sketching, documenting and speculating, come-to hours (2, or more if you fall asleep) later, look forward to the next time. Weekly journal assignments will be posted on eCommons.
- **Quizzes:** Weekly quizzes, beginning in Week 2, will allow us to review and reckon with the in-class observations we'll be making. Quizzes will be cumulative in content—for example, a quiz during Week 5 could cover species and habitats we've seen in the field during Weeks 1-4. These quizzes are not designed to destroy you. These quizzes will allow you to practice the names of things. They will include extra credit questions that will encourage you to do the readings (which are great, and from which you'll learn quite a bit). The quizzes will encourage you to pay close attention to the world around you, if you're into that whole external motivation thing. They might even be enjoyable. Be present in class, take your learning seriously, read the book, and your performance on the quizzes will merely demonstrate your level of interest and your desire to learn more about the world around you.
- **Readings:** Your textbook, *Natural History of the UC Santa Cruz Campus* (Haff et al. 2008), is great. The fact that it exists for a college campus—your college campus—is incredible, and is a genuine testament to all there is to discover daily as you walk from class to class to dorm to dining hall to meadow to forest to class to Wilder Ranch to the ocean and back to class. Weekly readings will prepare you for the next week's class topic and will hopefully get you excited to learn more. I call these readings “recommended”---you will not be quizzed on their content beyond the joy of extra credit questions. I do this only because Summer Session is so short, and I want to maximize the time you spend in the field at your sit spot doing your Field Journal Exercises. There also may be occasional supplemental readings, such as peer-reviewed literature, species or group-specific terminology/diagram sheets, poetry, whatnot. These supplemental readings will be posted on eCommons and announced in class.
- **Final Project:** This will be something you work on as part of your field journal assignments for the last couple weeks of the session. Essentially you will be creating field guide content (a page or several pages) for a species or small object that you're readily able to observe at your sit spot—something that won't scamper, scurry, bolt, disappear, go subterranean or stratospheric after you look at it for a moment; something that you can really get to know first-hand. We will compile all our field guide pages into a single class field guide that will be available in pdf form at the inevitable end. More details to come, in class and on eCommons. **Due by 5 pm on Friday, July 24<sup>th</sup>. Scan and email to Alex at [ajones@ucsc.edu](mailto:ajones@ucsc.edu)**
- **Resources:** We have many. The Ken Norris Center for Natural History has its collections, as well as a library of field guides to consult. I will post other resources on eCommons and feel free to come ask me for more.
- **You:** This class is not a blow-off. It is demanding. The more you show up, and I do mean Show Up, the more you will get out of this class, and the less bored you will be for the rest of your life. Bold statement. Not a joke.

## WEEKLY SCHEDULE & ASSIGNMENTS

### Week 1: 6/23 Introduction; Geology and Topography of Campus; Human History

**Meeting time:** 8:30 am-12:30 pm

**Place:** NS2 229

**Quiz:** NONE

**Due at beginning of class:** NOTHING

**Lecture:** Intro to class, logistics; field journaling, geology

**Field Trip:** Limekilns, sinkholes, and outcrops

**HW:**

**Field journal exercises:** #1 and #2

**Recommended Reading Assignment:** Chap 1 Human History pp. 1-32; Chap 2 Geology 37-48; 71-89; Chap 3 Plants 110-131; Plant parts and families handouts (see Resources folder in eCommons)

**Study for QUIZ:** Week 1 class + Week 1 species list (if applicable)

### Week 2: 6/30 Plants; Bryophytes

**Meeting time:** 8:30 am-12:30 pm

**Place:** NS2 229

**Guest lecturer:** Ken Kellman

**Quiz:** Week 1 class + Week 1 species list

**Due at beginning of class:** Field Journal Exercise #1 and #2

**Field Trip:** Upper Campus

**HW:**

**Field journal exercise:** #3 and #4

**Recommended Reading Assignment:** Chap 7 Amphibians: 199-218; Chap 8 Reptiles: 223-239

**Study for QUIZ:** Week 2 class + Week 1-2 species list

### Week 3: 7/7 Reptiles and Amphibians (NOTE CHANGE OF LOCATION)

**Meeting time:** 8:30 am-12:30 pm

**Place:** Porter Squiggle

**Quiz:** Week 2 class + Species list 1-2

**Due at beginning of class:** Field Journal Exercises #3 and #4

**Field Trip:** Arboretum and Cave Gulch

**HW:**

**Field journal exercises:** #5 and #6

**Recommended Reading Assignment:** Chap 10 Mammals: 278-310

**Study for QUIZ:** Week 3 class + Week 1-3 species list

### Week 4: 7/14 Mammals

**Meeting time:** 8:30 am-12:30 pm

**Place:** NS2 229

**Quiz:** Week 3 class + Week 1-3 species list

**Due at beginning of class:** Field Journal Exercise #5 and #6

**Lecture:** Mammals and Tracking/Awareness

**Field Trip:** Mammal sign on campus—locations TBD

**HW:**

**Field journal exercise:** #7 + Final Project

**Recommended Reading Assignment:** Chap 9 Birds: 242-269

**Study for QUIZ:** Week 4 class + Week 1-4 species list

### Week 5: 7/21 Birds (NOTE CHANGE OF LOCATION)

**Meeting time:** 8:30 am-12:30 pm

**Place:** UCSC Arboretum

**Guest Lecturer:** Breck Tyler

**Quiz:** Week 1-4 class + Week 1-4 species list

**Due at beginning of class:** Field Journal Exercise #7

**Lecture:** Birds

**Field Trip:** Arboretum and Lower Moore Creek

**HW: KEEP GOING OUTSIDE!**

\*\*\*Final Project due by 5 pm on Friday, July 24<sup>th</sup>: scanned and email to Alex at [asjones@ucsc.edu](mailto:asjones@ucsc.edu)\*\*\*

## **Official Summer Session and Support biz**

### Support resources

Disabilities Resource Center ([drc.ucsc.edu](http://drc.ucsc.edu)) and Learning Support Services ([www2.ucsc.edu/lss](http://www2.ucsc.edu/lss)) and CAPS (Counseling and Psychological Services; [caps.ucsc.edu](http://caps.ucsc.edu)) are open and active all summer.

### Summer Session Students with Disabilities

If you qualify for classroom accommodations because of a disability, please submit your Accommodation Authorization Letter from the Disability Resource Center (DRC) to me as soon as possible, preferably within the first week of the Summer Session. Contact DRC by phone at **831-459-2089** or by email at [drc@ucsc.edu](mailto:drc@ucsc.edu) for more information.

### Important dates

For all important Summer Session dates, see the Summer Calendar ([summer.ucsc.edu/calendar/calendar-spreadsheet](http://summer.ucsc.edu/calendar/calendar-spreadsheet)). Here's one important date that I hope you don't need:

***Session 1 Drop Deadline - June 29***

### Academic advising

Please make sure your students know academic advising is offered all summer; hours will vary by college.

Students can contact their colleges to find out when advising is being offered or visiting [advising.ucsc.edu](http://advising.ucsc.edu).

### Online Instructor Evaluations

\*\*\*The ENVIS faculty agreed to the recommendation to give students 0.5% on their final grade for completing an evaluation\*\*\*

**The Core Routines of a Naturalist**—modified from *Coyote’s Guide to Connecting with Nature*, by Jon Young, Ellen Haas, Evan McGown

- **Befriend one place.** Find a “sit spot” in the natural world that you visit all the time and get to know it as you would your best friend. Let this be a place where you sit still, alone and quiet and attentive to the world of nature around you.
- **Share your stories with your community.** After spending time in nature, tell your story to others, or by writing or drawing in a journal. Sharing your stories recreates your experience in your “mind’s eye”. You may often remember more of your experience as you tell it. You will motivate others with your stories as well as be motivated by their stories. A tradition of story sharing will inspire you further along your naturalist path.
- **Use and expand all your senses as fully as you can.** Pay attention. Practice the sense meditation—powerfully use your imagination to envision that you have the eyes of an owl, the ears of the deer, the nose of a coyote, the hands of a raccoon. Quiet your thoughts and come to your senses.
- **Be a detective and track everything as a clue to a mystery to be solved.** Ask questions about everything, and push your questions until they yield answers. Like a good scientist, gather evidence, develop hypotheses, test them, refine them...
- **Wander through the landscape without time, destination or agenda.** Be in the present moment. Let curiosity lead you off the beaten path. It is there where you will make many new discoveries that expand your awareness.
- **Draw maps—orient yourself to the compass directions, and use your mind’s eye to perceive the landscape from a bird’s eye view.** Draw maps to locate features of your landscape.
- **Explore Field guides and other reference material.** Go home with questions and use resources to feed your curiosity. Treat field guides as elders, as they are the amalgamation of many great naturalists and their hard work. They are treasure chests of knowledge and experience.
- **Journal your experience.** Keep a regular record, in drawings and in words, of your experience outdoors. Keep sketches, maps, captions, stories that describe your landscape. Keep it up through all the seasons until it is a habit you can’t live without.
- **Listen to the birds.** Notice the vocal signals and body language of birds and other animals, including humans. Every time an animal (including us) moves in the forest, it is like dropping a pebble into the clear surface of a pond. Concentric rings of disturbance go out. It is often birds that react to these concentric rings. They often give us immediate feedback about the whereabouts of other animals as well as our own attitudes and body language.
- **Be thankful.** Find in yourself a grateful heart and express gratitude for any and all aspects of nature and life. Begin any interaction with your world with thanksgiving. See what happens.

## (A Few) Recommended Field Guides (don't get me started)

### Geology/Weather:

- Alt, D.D. and D.W. Hyndman. 2000. *Roadside Geology of Northern and Central California*. Mountain Press Publishing Company.
- Pough, F. 1998. *Peterson Field Guide to Rocks and Minerals*. Houghton Mifflin Company, Boston.
- Day, J.A. and V. Schaefer. 1998. *Peterson Field Guide to the Atmosphere*. Houghton Mifflin Company, Boston.

### Plants:

- Lyons, K., M.B. Cooney-Lazaneo, and H. King. 1988. *Plants of the Coast Redwood Region*. Looking Press, Boulder Creek, CA.
  - Outdated nomenclature and incomplete, but a great introductory guide to local and northern CA flora.
- Collins, S.J. 2013. *Flora of the UC Santa Cruz Campus*. UCSC Natural Reserves.
  - Great little guide to common campus plants produced as an internship project; updated nomenclature. Download a pdf copy from eCommons.
- Baldwin, B.G., D.H. Goldman, D.J. Keil, and R. Patterson. 2012. *The Jepson Manual: Vascular Plants of California* 2<sup>nd</sup> edition. UC Press, Berkeley.
  - This is the ultimate reference for CA plants. It is large and in charge. And heavy. And the best.
- Martin, A.C., H.S. Zim, and R. Freund. 2001. *Wildflowers (Golden Guide)*. St. Martin's Press, New York.
  - Good, colorful, introductory guide to common North American wildflowers. Not comprehensive and nomenclature outdated.

There are also several great mini-guides (4"x6") by the Nature Study Guild: The Redwood Flower Finder, The Fern Finder, and The Pacific Tree Finder, for example. See <http://www.naturestudy.com/pcfindex.html>.

### Fungi & Lichens:

- Arora, D. 1986. *Mushrooms Demystified*. 10 Speed Press, Berkeley, CA.
- Arora, D. 1991. *All that the rain promises, and more*. 10 Speed Press, Berkeley, CA.
- Brodo, I., S.D. Sharnoff, and S. Sharnoff. 2001. *Lichens of North America*. Yale University Press, New Haven, CT.

### Invertebrates:

- Borror, D.J. and R.E. White. 1998. *Peterson Field Guide to Insects*, 2<sup>nd</sup> ed. Houghton Mifflin Company, Boston.
- Kaufman, K. and E. Eaton. 2007. *Field Guide to Insects of North America*. Houghton Mifflin Company, Boston.
- Glassberg, J. 2001. *Butterflies through Binoculars: The West*. Oxford University Press, NY.
- Biggs, K. and R. Bruun. 2009. *Common Dragonflies of California* 2<sup>nd</sup> ed. Azalea Creek Publishing, Sebastopol, CA.
- Powell, J.A. and C.L. Hogue. 1980. *California Insects*. UC Press, Berkeley.

### Herps:

- Stebbins, R.C. 2003. *Peterson Field Guide to Western Reptiles and Amphibians* 3<sup>rd</sup> ed. Houghton Mifflin Company, Boston. [Make sure you get the 3<sup>rd</sup> edition!]

### Birds:

- Dunn, J.L. and J. Alderfer. 2011. *National Geographic Field Guide to the Birds of North America* 6<sup>th</sup> ed. National Geographic, Washington, D.C.
- Sibley, D. A. 200. *The Sibley Guide to Birds*, 1<sup>st</sup> ed. Alfred A. Knopf, New York.
  - Make sure to get 1<sup>st</sup> edition—2<sup>nd</sup> edition's first printing run has some major problems with color and text.
- Crossley, R., J. Liguori, and B. Sullivan. 2013. *The Crossley ID Guide: Raptors*. Princeton University Press, Princeton.
- Ehrlich, P.R., D.S. Dobkin, and D. Wheye. 1988. *The Birder's Handbook*. Simon and Schuster, New York.
  - Not an identification guide, but chock full of excellent natural history information and essays on a huge range of topics.

### Mammals:

- Reid, F.A. 2006. *Peterson Field Guide to Mammals of North America* 4<sup>th</sup> ed. Houghton Mifflin Company, Boston.
- Elbroch, M. 2003. *Mammal Tracks and Sign: A guide to North American species*. Stackpole Books, PA.
- Ingles, L.G. 1990. *Mammals of the Pacific States: California, Oregon, Washington*. Stanford University Press, Palo Alto, CA.
- Murie, O.J. and M. Elbroch 2005. *Peterson Field Guide to Animal Tracks* 3<sup>rd</sup> ed. Houghton Mifflin Harcourt, Boston.
- Russo, R. and P. Olhausen. 1987. *Pacific Coast Mammals: A Guide to Mammals of the Pacific Coast States, Their Tracks, Skulls and Other Signs*. Nature Study Guild, Berkeley, CA.

## ENVS 15: Summer 2015 Field Journal guidelines

As described in the beginning of the syllabus, your field journal is a vital piece of your academic evaluation. More importantly, if you discipline yourself to generate thorough, organized entries using the format that is detailed below, your journal/notebook for this class will be MUCH more useful to you after this class is long over. You should use a spiral bound notebook with perforated edges so you can rip pages out—if you have some other kind of notebook that you can easily tear pages from, that’s fine too. EVERY WEEK, you will rip out and turn in your newly completed journals at the start of class. The following week, I will give them back to you and collect a new set.

### Proper Journal Format: The Grinnell Style

For all entries in your field journal/class notebook, you will use a format developed by Joseph Grinnell, a biologist who founded UC Berkeley’s Museum of Vertebrate Zoology in the early 1900s. His philosophy, which has been adopted by thousands of field scientists today, was that field notes were mainly for the use of *others* and so a standard format was necessary to facilitate fast retrieval of information. Although few others will probably refer to your notes for this particular class, one very important other will: your *future self*. **In order for your notes to be of maximum use to even yourself, it is of paramount importance to include the context of any notes or journal entries you make.** Context covers a broad set of things, such as the date, your location, your name, and the objective of your entry. But context can also include descriptions of the terrain around you, the weather conditions, and the time of day. It may even include your own summary reflections after witnessing an event in nature, or after completing a reading or having a discussion in class.

### Some general journal guidelines.

- Your heading (name/date/location) needs to be written atop **EVERY** new page for multiple page entries. This is the most often overlooked part of keeping good field notes. Try to develop this habit right away. I will remind you of this and ultimately I will deduct points from your journal if you don’t keep this habit up.
- Don’t forget to state the journal entry’s context at the start of each entry (see below)
- Record the date in your journal in an unambiguous way by writing it like this: **3 Apr 2012** (day followed by the three-letter abbreviation for month and a four-digit year). Avoid writing dates like 4/3/12 (in some places this would be interpreted as March 4, not April 3, so please get in the habit of writing dates as described above).

### Observing in the field—the process

Step 1. Slow down, make yourself comfortable, and be patient—the longer you observe, the more detail you see. Focus outward, set aside your preconceptions, and see things as they are rather than how you expect them to be. Unless you are setting out to focus at a particular scale, allow yourself to scan at a variety of scales—from the few square inches of soil at your feet to the entire visible landscape.

Step 2. Observe, describe, and record. Use words, sketches, and maps to produce a snapshot of the ecological story in front of you. Be as *specific*, *descriptive*, and *detailed* as possible. Be patient; it takes practice to balance the looking and the writing.

Step 3. Try to interpret what you see. Don’t speculate wildly, but instead ask questions based on what you see. Then, look back, consider possible answers, or “spin the wheel”—that is, look for different ways to ask questions that can be answered through further observation.

## **Recording field observations**

It is essential to learn to keep clear and accurate records to ensure that your observations have lasting value.

**Style.** It is best to record your field observations first hand, while the subjects are there in front of you. Write in present tense to capture the action as it happens. Use complete sentences or at least complete thoughts; random fragments and phrases are hard to understand later. Minimize use of abbreviations and explain those that you use. The bottom line is: be concise but complete and clear, so that anyone can read and understand what you write. While it is okay, in the context of this class, to include personal reflections on your observations, try to remember that this isn't a diary---focus on looking outward. Finally, all entries must be in dark, waterproof ink and do your best to write legibly!

**Content.** A complete field observation record includes some or all of the following elements:

1. Heading

At the top of each page record the date, location, page number, and your name.

2. Description of the context

*What* are you about to do? What are your objectives and your methods?

At what *scale* are you observing (landscape, stand, organism, single flower)?

*When* are you observing?

*Where* are you observing? (Use words, maps...)

What are the conditions (sky, weather, wind, tide)?

What is the terrain (slope, vegetation, soil, aspect)?

3. The observations themselves

Who is there? Describe and/or identify the species, genders, ages, etc.

How many? Count or estimate the relative numbers or population size.

How are the organisms distributed with respect to habitats & other organisms?

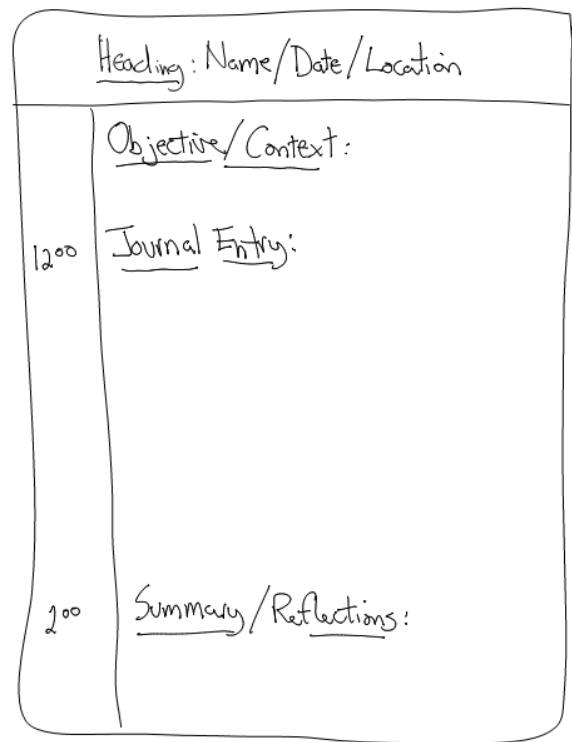
What are they doing? Describe the behaviors.

4. Summary and reflections

What patterns did you notice? What are the possible reasons for these patterns? What questions might you try to answer next time?



Here is a sample generic journal page depicting the basic Grinnellian format as applied to this class



C. Lowy 2 Apr 2012


12:00 CA: SC2 Co.: SC2: UCSC: Arboretum  
Objective: First day of ENVS 179, we're discussing field journal formats  
 The Grinnell-style field journal format is also applicable to taking Class notes.....  
 Context of any entry is hugely important when others refer to your notes (including your future self)  
 .....  
 1:30 Summary: The Grinnell style of field journaling is really useful. I'm really going to discipline myself to use this throughout the whole quarter.

Here is a specific example of how to use Grinnell style for your class notes

Here is a specific example of how to use Grinnell style for your Field Journal Exercises

C. Lowy 5 Apr 2012

CA: SC2: SC2: UCSC: Moore Creek in Willows directly north of back gate of UCSC Arboretum  
Objective: I'm here to find + explore a sit spot that I will frequent throughout the quarter. My first task is to explore this spot, record observations, make sketches of interesting species I find, + sit + be attentive to my senses.  
Weather: Clear skies, Warm-high 60's, slight wind

14:30 There are flowers in the long grass that I didn't notice at first:  

 - The petals are white with purple veins.....

15:00 As I sat quietly listening to the birds, a small green snake appeared + crawled over my foot!

15:30 Reflection: Wow I never thought there would be so much to see in one spot.....