1-2009

RSCN 273.01: Wilderness and Civilization I - Field Studies

Nicky Phear
University of Montana - Missoula, nicky.phear@umontana.edu

Wilderness & Civilization I Field Studies
RSCN 273 Fall 2009
2 Credits, Traditional Grade
Course meets Monday or Wednesday afternoon (3:30-5:00 pm) and most Fridays.

Instructors
Sarah Potenza— 243-6956; Nicky Phear—243-6932

Course Description
The Field Studies class is an experiential course designed to develop your capacity to observe, descry be, and interpret the natural world. The course takes place outdoors during a ten-day wilderness backpacking expedition, weekly naturalist walks, and field trips around Montana. Field journals are used as a forum to describe observations and develop your naturalist skills. The goal of this course is to develop observation skills that will assist you in reading the landscape not only in Montana, but wherever you call home or go from here. Each student on this course will:

- develop a field journal with weekly field notes and species lists,
- record field observations during a ten-day trip in the Bob Marshall Wilderness,
- study grassland and forest ecosystems across Montana,
- identify Montana's common plant and animal species,
- teach an environmental education lesson, and
- complete an Adopt-A-Plant Phenology assignment.

Course Requirements
Evaluation

1.	**Environmental Education Lesson** (Fall Trek)	15%
2.	**Field Journals** (due Sept 23 and Dec. 11) (60%):	
	A) Fall Trek (1 general field note and 6 spp observations)	20%
	B) General Field Notes (3 Friday field trips)	10%
	C) Weekly Walks (7)	25%
	D) Species List	10%
3.	**Adopt-a-Plant Phenology Study**	15%
4.	**Participation**	5%

All students must practice academic honesty. Academic misconduct is subject to an academic penalty by the course instructor and/or a disciplinary sanction by the University. All students need to be familiar with the Student Conduct Code. The Code is available for review online at http://www.umt.edu/SA/VPSA/index.cfm?page?1321.

Participation (5%)
Participation is a critical component of field studies. Your participation will be evaluated on your timeliness and preparedness, careful listening, active engagement, and questions/comments during walks and field trips.

***Absence*:** You are allowed one excused Friday Field trip and one excused Weekly Walk absence during the semester. Your absence must be excused by Nicky or Sarah before the date. Additional absences result in no points for that field note.

1. Environmental Education Lesson (15%)
See guidelines on assignment sheet

2. Field Journals (60% total)

***Due dates**: Wednesday, September 23, and Friday, December 11*

Journal Grading and Evaluation

You will not be marked down for things like artistic ability, but we will be looking for improvement and evidence that you are challenging yourself. Here is a list of the specific categories you will be graded on:

- Completeness (followed the full assignment)
- Observation skills (paid attention to the land, species composition, ecological processes, and instructor)
- Organization (entries organized with clear and thorough Orienting Information)
- Thoughtfulness
- Making connections (exploring the relationships among place, ecology, people, history, etc.)
- **Getting your journal in on time.** Late journals will marked down a ½ grade.

Please Note: We always try to give you some time on the walks and Friday field trips to start your field notes. However, there is not enough time on the trips, and so it is expected that you will finish your journal entries as homework.

Field journals are part of the experiential component of the program and are graded on your demonstrated attention to the natural world, completeness, thoughtfulness, effort, organization, and presence. Journal assignments are NOT lecture notes. Journals can include notes from presentations, but assignments are graded on your PERSONAL observations.

Why keep a field journal?

There are many reasons to keep a field journal that range from recording scientific facts for research to finding inspiration for a piece of art or literature. In general, a field journal is an important tool that will help you to better see and understand the natural world. Below are a few more reasons why field journaling is important:

- Sharpens your observational skills
- Helps you build knowledge of the land (i.e. ecological literacy)
- Documents natural history events
- Slows you down so you can appreciate nature's detail, beauty, and complexity
- Helps you rediscover and/or develop all your senses by engaging with nature
- Transforms you into a better naturalist, artist, poet, writer, scientist, and neighbor
- Make connections between places, critters, and your reflections on them
- Develops your eye--you will never see the world in the same way
- Develops your skills as a naturalist that you can build on for the rest of your life
- Helps you be present in the moment

Field Journal Requirements

Please clearly mark each entry in your journal as one of the following (all described in detail below):

A. **Fall Trek Assignment** (20%)
B. **General Field Notes** (10%)
C. **Weekly Walks Naturalist Field Note** (25%)
D. **Species List (this can be submitted electronically)** (10%)

We will often facilitate field notes in some way, shape or form, in order to help focus your entries as we encounter different environments throughout the year. We provide you with a general outline of what to include in a good field note (see below); however, you are strongly encouraged to add other questions, observations, etc. that interest you and help make your journal more meaningful.

Orienting Information

Each Field Note needs to include the following ***Orienting Information***, be consistent and specific in how you report this information.

Date: Write the date and time out in the following format: "10 January 2009, 10:00 am " in the left hand margin. DATE should be underlined at the top of each entry. Start the underlining under the date and continue straight across the page.

Location/ route: Be as concise as possible without sacrificing accuracy. Order the information so that it goes from the most specific to general, or from local to landscape level. Distances should be straight-line distances, not route distances. If you are in the same place two or more days running the location information can just be "as previous". Ex:

Location: Rattlesnake Creek, 2 miles north of River Corridor Trail, 'South Zone' of Rattlesnake Recreation Area, 4 **miles north of Missoula, Missoula County, western Montana.**

Weather: Essentials to include are temperature, wind speed (in Beaufort Scale or km/hr), cloud cover (in 10ths of the sky covered), and precipitation.

Elevation: Approximate elevation in meters or feet above sea level. (get from topo maps or altimeter)

Habitat: Give a description of the landscape and vegetation type, including dominant or important species where possible. Refer to NOTES ON KEEPING A NATURAL HISTORY FIELD JOURNAL for habitat descriptions. When traveling, give a synopsis of the vegetation types passed through during the day. Such as second growth lodgepole pine forest, young clearcut, mixed large-ponderosa pine mature forest. In addition, please include information such as land ownership, watershed, mountain range, basin/valley, habitat, aspect, elevation, roads, towns, and any other creative way you want to demonstrate location.

Example- Additional info: East bank of Rattlesnake Creek, riparian habitat, heavy trail use. Rattlesnake Creek is a municipal watershed for the city of Missoula. The Rattlesnake flows into the Clark Fork which flows into the Columbia River and to the Pacific Ocean.

Time: Recording time is important for special events, or for describing how long was spent in a particular location or at a particular activity. If you have two or more entries on the same day and location, write a new entry immediately under the previous one, with an updated time.

What was happening: species seen, behaviors, lecture notes, etc

A. Fall Trek Journaling Assignment (20%)

During the *Fall Trek* in the Bob Marshall Wilderness there are specific journaling assignments. During this time, you will need to:

1. Complete one **General Field Note** entry (see below)
2. Document four plants/trees/shrubs/grasses/etc and two critters using the **Species Observations Guidelines** (see below) covering at ***least three different habitat types***.
3. You will need to include **unique orienting information** for each entry unless you are in the same place.

B. General Field Note (10%)

Several of our Friday field trips will focus specifically on the ecology of regional grassland, alpine, forest and other ecosystems. You will need 3 General Field Notes from the ecological-oriented field trips. Document your observations and interpretations from these trips using your own creative style. Be sure to capture what you found to be significant points made by the speakers, in addition to your personal observation. Use creative drawings, diagrams, color, words, and other techniques. In order to encourage you to diversify your field journal and be creative, you are required to include (in addition to orienting information) at least one of the following assignments in each of your field journal entries: (**We encourage you to try all of the above at some point during the semester)**

1. An event map
2. A full page drawing and text spread (a journal entry that takes up both sides of your journal)
3. An original poem or creative writing inspired by being in the field and relating to that experience
4. Species Observations--An entry of two species (plant or critter) according to the outline below

Species Observations Guidelines

Plants/trees/shrubs/grasses/etc.— observations include:

- Common name(s) and Scientific name
- Describe three distinguishing characteristics
- A field sketch of some distinguishing part (cones/fruit/needles/etc.) or the whole plant and label parts if necessary; include the scale that the plant (or part of plant) is drawn at (i.e. 1/2 life size), and reference any guide book used in helping your field sketch
- Describe habitat plant was found growing in (what are the other plants growing with it, wet or dry site, aspect, canopy cover, soil, etc.)
- Explain why you choose these particular plants
- Include any interesting facts, observations, or questions (e.g. plant is native or invasive, Latin name comes from Lewis and Clark, plant has been browsed on by elk or is a favorite food for grizzly bears, etc.)
- Remember to cite any books used in your observation (ie, *Plants of the Rockies*, etc.)

Critters that you see/hear or find signs of— observations include:

- Common name and Scientific name (or general description if name unknown)
- Describe distinguishing characteristics if you saw critter, or describe signs that indicated the critters presence
- Sketch critter or some sign of critter that is relevant and meaningful to the encounter. If you actually saw critter try and draw from memory or use field guides to fill in the blanks. If you saw a track or scat, then sketch that.
- Give a habitat description and include what the animal was doing there, or why you think it was found in particular habitat
- Remember to cite any books used in your observation (ie, *Tracks and Scat*, etc.)

C. Weekly Walk Naturalist Field Note (7 required) (25%)

Weekly Walks provide an opportunity for us to explore the natural world right here in Missoula each week. Consistent observation of what composes our home is something many of us may aspire to but rarely take the opportunity to do; now is your chance! During these walks we will document our observations over time as the seasons change, birds come and go, plants start to flower or drop their leaves, snow falls, and animals wander leaving their tracks. This is also a good time to practice field sketching and other field journaling skills if you get inspired. For walks we will break into two groups. Groups will be determined on Monday, Sept. 14 and will meet weekly through week of Nov. 2. **You are required to complete 7 out of 8 possible *Naturalist Field Notes*.**

For each entry, include:

- Detailed orienting information and
- Detailed notes, sketches and/or observation on the assignment or topic of the walk

D. Semester Species List (10%)

Your *Species List* is a way to document all of the plants and animals that you encounter this semester, whether on our trek, walks, or field trips. By the end of the semester, create an alphabetized species list; with the species first, then where **you** saw it, and the date. Either one list or sub-divided into species types is fine (i.e. trees, shrubs, flower, lichen, critters). Then, if you see it again somewhere else, just add the place and date to the entry. That way you get an idea of the distribution and abundance of the species.

Example: Douglas Fir, *Pseudotsuga menziesii;* Rocky Mtn Front, 9/1-9/8; Lolo Peak, 9/28, etc.

- You can either reserve pages at the back of your journal for you Species List or type it, but it needs to be alphabetical. If you want to 'roughly' alphabetize the list in your journal, that is fine, i.e. have all the 'A's together, all the 'B's together. That way you can set aside pages/ sections of pages in your journal for each letter and add species as you go. Either way is fine, as long as the species are ordered.
- Remember to add in any animals **you** see!
- Check spelling on plants and animals

3. Adopt-A-Plant Phenology Study (15%)

Assignment Due: Friday, December 11, to Sarah Potenza. One Phenology Note due Sept 23rd (see below)

Phenology: The scientific study of cyclical biological events, such as flowering, breeding, and migration, in relation to climatic conditions. Phenological records of the dates on which seasonal phenomena occur provide important information on how climate change affects ecosystems over time.

Each of you will be required to complete a detailed study of a plant species over the semester. *This should be a native plant and must be **approved by Sarah** at the beginning of the semester.* The purpose of this assignment is to hone your observation and research skills, and learn how plants and animals adapt and/ or change over the seasons in response to climatic conditions.

Requirements and grading:

A. **Observations on species (20%)**
B. **Phenology Notes and Specimens (3 total) (30%)**At least one Note is due with journals on Sept 23rd
C. **Library research (30%)**
D. **Creativity and Organization (20%)**

A. General Observations should include a record of the following (20%):

- Appearance
  - Texture/Smell/Color/Shape/Size, overall shape and structure of plant
- Leaves: how arranged, hairiness, color top/bottom, simple or compound, teeth on leaves, lobes, etc.**
- Phenology: developmental stage (flowers, fruit, leaves changing color)**
- Environment
  - Soil (color, texture, moisture, litter/humus layer, depth)
  - Slope (angle) & aspect (direction of slope, north-facing/south-facing etc.)
  - Elevation (look at topographic map or online)
  - Habitat (riparian, conifer forest, wet meadow, road cut, etc.)**
- Associations with other plant species
- Ecological pattern: how common, how widely distributed (keep a look out for this plant on all your travels during the semester to see what it can do and where it can grow, and how different it might look in different places)
- Note: for many species they will be dried up or at least past flowering when you see them. In this case you still should make detailed observations on what they look like in the field and how they change over season.

B. Phenology Notes and Specimens (3 total) (30%): at least one Note due with journals on Sept 23rd

Choose a place to observe your species, and record detailed and descriptive information about it in your journal. Draw or photograph the plant and collect samples (if possible) to press in your journal. Use your Plants of the Rocky Mountains in addition to websites and books/articles, and what you can find in the library to help you with your research.

*Visit your site for at least a half-hour. Make sure you select a spot that you can visit easily and regularly. It should be somewhere with natural biological diversity (i.e. not your backyard). The Clark Fork River trails, Greenough Park, Mt. Sentinel, Mt Jumbo, or any of the other Missoula trails or parks are wonderful locations close by. **You are required to complete five phenology notes, no more than one per week (i.e. spread out the study over the semester).**

For each Note include:

a) **Detailed and/or Updated Orienting information**
b) **Daily observations**: description of what is going on at your site specific to that date. Describe what you see or hear. Describe bird calls, songs, and/or activity. Notice if there are tracks, nests, dens in your area. Note especially changes at your site. When do you first notice frost, ice, or snow? Changes in leaves? Leaf buds? Be as specific as possible to the minute changes you observe over the semester.
c) **Sketch of observations**

d) **A SPECIMEN illustrating phenological change over time.** The specimen can be a small branch, a bud, leaf, etc that is included with Note. Tape, glue, or somehow attach specimen to Note.

e) **Question and research**: Ask questions about what you see and record them. What tracks are nearby? Is the river frozen solid or thawing? Are other trees/shrubs in the area leafing out before yours? **Why? Ask questions with each visit!** Look, listen, and question why things are they way they are. Then later **research the answer** to your question. This can be as simple as finding the average date of the annual thaw of Clark Fork River, or average date of a particular plant to leaf out. Use the internet, books, etc and **remember to cite your source**.

C. Library research (30%)

- Common Name(s) & where they came from
- Genus/Species (Subspp., if it has one). Where do they come from or mean?
- Identification: what are the best characteristics to distinguish this species from similar looking species or other species in this genus? The Vascular Plants of Montana, The Flora of Glacier National Park or the Flora of the Pacific Northwest are particularly good references for this.
- Family
- Reproduction and dispersal: how does it reproduce, how do seeds, spores get distributed; pollinated? (e.g. mammals, birds, insects, which ones?) What do the fruits/cones look like?
- Distribution: where else does it occur a) within northern Rockies and b) North America or the world?
- Requirements: soils, climate, can it grow in shade, full sun, etc., anything known about cultivation? (If your reference is from other geographic areas this needs to be noted, since habitats and growth characteristics are usually quite different in different climatic or geological zones.)
- Habitats**
- Uses for wildlife
- Uses for humans
- Other ecological significance--what species grow with it, interactions with other species, is it locally common, or dominant, or just scattered individuals? Compare this with what you observe in field.
- Cool facts, myths legends, stories involving the organism.

*All facts and ideas must be clearly referenced so that it is clear which are field observations, personal observations or ideas, and ideas or facts that were derived from the published literature. Species names and characteristics must be verified with a reputable source, such as the Vascular Plants of Montana by Dorn or the Flora of the Pacific Northwest by Hitchcock and Chronquist. Books and websites are fine references, but critical ideas and information need to be verified with journal articles or scientific books. The problem is that web sites are not scientifically reviewed, so are not generally a reputable source by themselves, unless they are copies of published articles. Exceptions are websites sponsored by reputable scientific organizations such as the USDA (Plants database) and Kew or Missouri Botanical Gardens.

**See handouts on how to describe plant leaves and arrangements and habitats.

Note: Some species may not be described in sufficient detail in Plants of the Rocky Mountains. For trees, Arno's Northwest Trees is a good reference. Hitchcock's 3-volume set on grasses is the definitive reference for this family. There are several other good books available on medicinal values and ecological characteristics. See references in your reading packet, in Plants of the Rocky Mountains, and the library or ask Sarah.

D. Creativity and ORGANIZATION

Project should be organized clearly into the above sections (Observations, Phenology Notes, Research). Project may be completed as a field journal, or as a typed paper. If a field journal, legibility and neatness are key. Creativity, graphics, quality of specimens, and other materials used in overall project will be counted towards your grade.

Wilderness and Civilization
Fall 2009
Schedule of Field Trips

What to Bring
All weather gear (clothing and shoes), lunch, water, your field journal, and Plants of the Rocky Mountains

Instructors
Nicky Phear—243-6932; Sarah Potenza— 243-6956

Schedule (FN: Field note due)
September 2-12 - Fall Trek: Rocky Mountain Front and Bob Marshall Wilderness (FN)

September 18 Waterworks Hill and Rattlesnake Wilderness with Nicky and Sarah (FN)
9:00 AM Depart from Oval on Bikes (9:00-5:00)

September 25 Alpine Ecology on St. Mary's Peak with Don Beduna and Sarah (FN)
9:00 AM Depart from Motor Pool (9:00-5:00). Optional overnight.

October 2 Road Removal – Federal, Tribal, and NGO cooperation on the Clearwater NF with Nicky
9:00 AM Depart from Motor Pool (9:00-6:00)

October 7 Restoring Wildlife Connectivity – Highway 93 under and overpass with Nicky
1:30 PM Depart from Motor Pool (1:30 - 5:00)

October 9 Forest Fire Ecology and Restoration at Lick Creek with Don Beduna and Sarah (FN)
9:00 AM Depart from Motor Pool (9:00-5:00)

October 12 Forest Restoration – Sawmill Gulch in the Rattlesnake with Nicky
1:30 PM Depart from Motor Pool (1:30 - 5:00)

October 16 No Field Trip

October 23-24 Flathead Indian Reservation and Primitive Skills Overnight with Nicky
9:00 AM- Depart from Motor Pool, return Saturday by6:00 PM

October 30 No Field Trip

November 6-7 Blackfoot Clearwater Stewardship Project and Montana Legacy Project with Nicky
8:00 AM- Depart from Motor Pool, return Saturday by 7:00 PM

November 13 No field trip

November 20 Milltown Dam Removal and Clark Fork River Restoration with Nicky
9:00 AM Depart from Motor Pool (9:00-5:00)

November 27 No Field Trip – Thanksgiving

December 4 No Field Trip

December 16-18 Lubrecht Winter Retreat and Winter Field Studies with Nicky and Sarah
9:00 AM Depart from Motor Pool (return Friday by 2:00)