*Information for Participants in:*

**Ecological Methods**

### &

**Research in Reptile Ecology**

### *Summer 2018*

**Course Instructor:**

# Roger Anderson

**Department of Biology**

**Western Washington University**

**Accommodations:**

When we are camping near Fields, Oregon, everyone is expected to be an industrious camper; that is, chores, including preparation of delectable meals and digging deep latrines, must be performed by each person without any prompting by the course instructor.

**Travel during the Course**

You may want to take along some traveling amusements: roadside geology field guides, other field guides, geographical-historical guides, novels, musical instrument, traveling board & card games, walkman or i-pod, postcards & stamps. Note, however, that driving in the Alvord Basin is dusty and bumpy, and camp living can be dusty, thus electronic devices are at risk.

If you use your own vehicle for transport during the course it is likely that you will be not be reimbursed for your costs; if other students are willing to ride with you and share the cost of gasoline purchases with you, then the financial expense may not be prohibitive. Depending on the number of students in the course, however, it may be economically beneficial for the course budget to pay for your gas on the trip if you take two or more passengers with you. If so, it is necessary that your vehicle have relatively low mileage and be very well maintained; we simply cannot take the time to accommodate someone’s car troubles.

We will use a rental van from the motor pool. Legal and cautious driving is mandatory. A *Van Safety Course* is required for all students. We can fit only 12 passengers in the van. Damages to the vehicles are charged to the field course ($500 deductible) or driver. We also may rideshare. Dr Anderson will drive his Ford Explorer and haul the field trailer. We need to keep the mileage traveled as low as practical (typically the van drives about 2800 miles on the field trip, and the Explorer drives 3300 miles), so we must consolidate our trips to Fields for supplies and phone calls. We must be attentive to fuel level, oil pressure level, cooling system temperatures, and tire pressures. We also need to be sure to avoid running down the vehicle battery when in camp.

**Meals:**

We will have quasi-planned group meals at the field site; we do our best to accommodate vegetarians, even vegans. On our drive from Bellingham to the Alvord Basin and on the return trip, you should pack snacks and drinks to help sustain you during the 12-14 hr car trip (675 miles). It is not uncommon for individuals to stop at a restaurant, but they pay for their own meals. On the drive back, however, students are generally eager to get home, and we usually pack sandwich foods, and we eat on the fly. If you are finicky about the type of coffee you drink, then you will want to pack the amount you will consume during the field trip.

Often, the only fully cooked meal we will have time for each day will be dinner. We do heat water in the morning, so coffee and oatmeal and cold cereal are generally available for breakfast. Sandwiches, chips, apples, carrots, are some typical lunch foods. Powdered drinks such as Gatorade (in the desert, we drink 1 L of sports drink for every 4 L of plain water), lemonade, ice tea will be provided. There will be no room for personal coolers (unless you take your own vehicle). We have room in the vehicles only for the group water coolers and food coolers.

**General Comments on the Daily Field Routine**

Field research occurs on a fairly tight schedule. Each day we will arise no later than 0700 and begin fieldwork by 0745. On hot days some of you may have to retreat for a little while from your field work, to avoid the heat of the early-mid afternoon. For some students on some days dinnertime may not happen until close to 2030 hrs. Others may have the opportunity to eat earlier. On especially hot days we may eat dinner early and spend the last 2-3 hours before sunset in the field. We will be in primitive camping conditions in desert scrub, so creature comforts are minimal: refrigeration is limited to ice-coolers, and taking showers daily is possible, but it takes more than minimal effort. We lose at least three afternoons of research because of the trips to Burns, Winnemucca, and the driving tours of Steens Mountain and Sheldon National Wildlife Refuge. About four evenings (one may coincide with late afternoon tour of SNWR) during the trip we will drive to hot springs and soak in the alkaline waters.

**Caveats:**

Please be aware of the following field hazards: sunburn, painfully dry lips, dry, bleeding nasal passages, and dehydration and muscle cramps; hypernatremia; heatstroke and sunstroke; sun blindness; stings of hymenopterans, centipedes, and scorpions; bites from mosquitoes (a vector of West Nile virus, perhaps), ticks, spiders and rattlesnakes; itching nettles, poison oak (on Steens), and chiggers; mine shafts and cliffs (in nearby mts); wild fire, flash flood, lightning; thorns, barbed wire, and grouchy or loquacious colleagues. There are several good field safety and desert safety guides; it would be prudent to buy or borrow one of these books so that you know the first aid procedures for field hazards.

Most of these field hazards are relatively easy to avoid or ameliorate, given a modicum of "good sense." The greatest hazard is driving at night where open range cattle are munching on plants near the roadside. Hence, driving at night during the field course is kept to a minimum.

**Drugs:**

You may want to bring along some topical pain reliever for stings and punctures, and Benadryl or Allegra for allergic reactions. If you know or suspect that you are allergic to bee, wasp, or hornet stings, it is recommended you obtain a prescription for 2 epi-pens, and know how to use them; it is recommended that you would inform others about where the pens are and how to use them. Your favorite headache remedy may be good to take with you. If you are on prescription drugs, we need to know potential side effects, and how they affect your driving.

If you have a private vehicle and transport yourself and fellow students, we strongly suggest you avoid drinking any alcohol. Reaction time and rapid decision making are impaired even by small amounts of alcohol in your system; driving on open range on unfamiliar roads is particularly dangerous because cattle (and other large mammals) can enter the roadway into your lane in an instant. Inebriation will not be countenanced. Moreover, severe dehydration is an inevitable consequence of drinking alcohol to excess in the desert, hence inebriation in the desert is life threatening.

**Staying in contact with the University and others while in the field:**

Dr. Anderson will have his cellular phone (360-383-7878. Every couple of days Dr. Anderson will check in with the Biology Department to see if any important messages have been relayed by friends or family via the Biology Department office (Mary Ann at 360 650 3628 or office support staff at 360 650 3627) or the Biology Department stockroom (Peter Thut 360 650 3644). You may be able to receive mail, via general delivery at Fields, OR 97710, but this is not a practice I encourage. As of 2016, the proprietors of the Fields Station (gas station-store-restaurant-motel) were Tom and Sandy Downs (541 495 2275). We have internet access, and both ATT & Verizon phones work in camp.

**Checklist of personal tasks to attend to before you leave**

**No later than two days before you leave:**

* Inform family, friends, and associates with copies of your trip details: itinerary, directions, and maps.
* Document the phone numbers and addresses of family, friends, and associates.
* Take note of any birthdays, anniversaries and other events that may happen in your absence.
* Attend to all routine, prophylactic health, dental, and eye care. Make sure your prescriptions are filled.
* Be sure you attend to all insurance, business, and legal affairs before you leave. Pay all bills, including tuition and fees before you leave; avoid late fees!
* Be sure water heater has been inspected recently; perhaps ensure that refrigerator/freezer, and the air-handling units also have been inspected or repaired recently. Be sure the car battery is in good shape. It is not fun to discover preventable problems greeting you upon your return.
* Be sure primary and back-up persons are scheduled for pet, potted plant, and lawn care.
* Be sure caregivers have access to house keys and your car keys in two separate locations.
* Make sure arrangements are made for your mail and newspaper (e.g., hold delivery).
* Be sure routine household tasks (e.g., trash bins and recycles) are performed on schedule.
* Return library books, videos, and any other rented items.
* Set e-mail for automatic out-of-town reply, given that e-mail contact on trip will be minimal.
* Perhaps change your phone machine message.
* Recharge any electronics and their batteries that you intend to take with you.
* Wear in your new boots or shoes
* Perhaps get a mild, defensive tan, to reduce probability of sunburn in the first couple of field days
* Go running and work up a sweat 8-10 times in the last couple of weeks before you leave; handling the heat then should be easier for you when you first arrive in the desert.

**Minutes before you leave:**

* Park your automobile safely off the street; empty it of any tempting objects for thieves. Take your bicycle indoors and out of sight and place valuable house-hold items out of window view.
* Perhaps turn off or turn down phone ringer.
* Unplug alarm clock, computer, television, coffee maker, and any other electronics.
* Be sure thermostat is set so energy costs are minimal in your absence.
* Empty refrigerator of perishable goods; pack a lunch, bring along your prescription medications.
* Attend to your automatic lights and alarms.
* Perhaps draw blinds, especially on south side of house to prevent overheating or sun-bleaching.
* Check all windows and doors before you leave.
* Have spare keys vehicle for the vehicle you are to be riding in; know the auto license numbers of other trip vehicles; have cell phone numbers of others on trip; have en route itinerary, maps, and directions.

**Dr. A’s suggested list of items that individuals should either take along or that the class, collectively, has on the Oregon field trip:**

* **Money: debit card and cash: enough for several dollars per day on snacks, drinks, laundry, and mementos.**
* **Credit Card & Debit Card (*e.g.* Visa or Mastercard): it is advisable to have at least one card for unanticipated expenses, and perhaps a second if the first does not work.**
* **Medical Data (be sure sheet was filled in) Health Insurance Card, and Telephone.**
* **List of Addresses and Phone Numbers of family, friends, associates, WWU offices & personnel.**
* **Cell Phone, cables, chargers.**
* **Spare car keys for the vehicle in which you will be riding, along with maps & travel directions.**
* **UV-blocking sunglasses, 2 pair (if you wear corrective lenses, beware dust on your contacts, have back-up eyewear); sunglasses with side shields (e.g. glare goggles) are good on hardpan at midday.**
* **Sunscreen (at least 25 spf, without PABA), and UV-blocking lip balm, perhaps some insect repellent with DEET; make sure you have your required medications, and two epi-pens if you have severe allergies to insect stings.**
* **Hat, with 3-inch wide, 360o brim and with chin-strap (light or mesh fabric), or at least a baseball cap (light or mesh fabric).**
* **Lightweight work boots, 8-inch minimum height, with “soft” soles; although heavy-treaded, hard, vibram-type soles help keep underside of foot cool, they are not recommended because these soles tear up the ground surface on the field site; thus, softer, flatter soles are preferred. Suede, nubuck, or porous, non-waterproofed leather foot coverings are good, but nylon or goretex or canvas “uppers” covering ankle & lower leg may be preferable for staying cool; note that canvas uppers may be less effective for avoiding snakebite. Military-style, desert boots from US, Great Britain, and Australia may be useful.  *Wear in your boots prior to the trip!***
* **Sneakers or low-top hiking shoes with tops made of canvas or similar “breathable” material; note that the typical running shoes can become too hot on the foot sole when walking on the hot ground at midday, but neoprene or foam insert helps retard heat flow into your foot bottom; note also that low tops easily fill with sand and grass awns. You also may want “approach shoes” or trail running shoes or light hiking shoes for brief hikes on Steens Mt. Many brands of shoes will be subject to the penetration by cheatgrass awns, and thus you will need to be wary of what you bring to the Alvord with you.**
* **Gaiters (desert type, porous nylon) for cheatgrass or socks that reach to mid-calf and/or duct tape (bring 1 full roll) over boot & sock interface to prevent cheatgrass from entering boots and penetrating socks. Although cheatgrass has been an annoyance in only 3 of 18 years on the primary site, it is commonly a problem on the east rim of the Alvord Basin. Note that this year could be a cheatgrass challenge even on main study site.**
* **Gaiters (desert type, porous nylon) to protect from rattlesnake bite when seeking the lizards *Sceloporus occidentalis* and *Crotaphytus bicinctores* on the east rim of the Alvord Basin (not on the primary field site). We have a few, but not enough gaiters for all who seek lizards on the east rim of the Alvord Basin. Students rarely choose to use these, as rattlesnakes are not abundant.**
* **LED headlamp & higher intensity flashlight, perhaps a small hand-held lantern, especially for the tent; be sure to have spare batteries. You may wish to obtain an LED light with red or green light to illuminate animals without disturbing them & to allow you to retain night vision.**
* **Strap-sandals or flip-flops (for walking to hot springs and for the shower) and swim suit.**
* **Bandana or cool rag (a water-retaining tube with cotton outer & synthetic inner, worn on neck).**
* **Lightweight, loose-fitting, (nylon or equivalent sunscreen-rated synthetic material are good, khaki is ok) field pants, 2 pair (please, no blue jeans). Synthetics are easy to wash and dry.**
* **Field short-pants made of nylon or equivalent sunscreen-rated synthetic material (much better than khaki for dry & wet conditions, but note that when exposed to flames, synthetics may burn or melt easily, unlike khaki), 2 pair. Synthetics are easy to wash and dry.**
* **Front-button, short-sleeve shirts or loose fitting t-shirts. Shirts made of khaki or sunscreen-rated synthetic material such as nylon are good, but the heavier cotton t-shirts work ok, especially because t-shirts don’t have such large arm openings that tend to catch bees & wasps in the sleeve; also some synthetics have the disagreeable tendency to retain underarm odors. Bring 4 or more shirts because dusty, sandy shirts irritate the skin; expect 8 days between launderings.**
* **UV blocking, lightweight front-button *long-sleeve* shirt (preferably the sunscreen-rated synthetic shirts that freely wick sweat). These shirts reflect heat well and are particularly good at preventing sunburn and protecting sunburned skin from further damage, moreover they are easy to wash and dry in camp.**
* **Wicking underwear; these are expensive, but better than cotton briefs which tend to keep moisture in and can cause peri-anal skin irritations (but briefs do keep ants from your privates; no underwear or boxer shorts help with the moisture but do not keep out the bugs); sports bras seem to be popular.**
* **Socks: wicking inner socks (polypro or silk) are helpful, and wool-synthetic socks are great for boots. Enough socks and underwear for 8 days; with our access to the laundry in Burns and Winnemucca, it is not necessary to have more than 8 days worth of clothing.**
* **Light “goretex” rain parka *or* windbreaker and fleece vest or pull-over (cool nights are 5oC).**
* **One set of semi-respectable evening clothes for when we are at dinner, in town (Burns or Winnemucca).**
* **Bedding: sleepwear (polypro tops & bottoms) & pillow; sleeping bag liner or two sheets, 1 thin blanket & a light-to-medium weight, 3-season sleeping bag (nighttime lows can be 5oC or 20oC), self-inflatable air mattress or sleeping pad, ground cloth.**
* **Two-person back-packing tent, with extra cord and long stakes (see next bullet). Note that an abundance of uncovered screen on upper sidewalls (a common tent design) lets in too much dust and sand on windy days; the fly does not keep out sand. A low-profile tent designed for cold, windy winter weather actually works quite well on the desert floor where winds are likely to exceed 60 kph at some time during the trip.**
* **Stakes: long, sturdy (2-sided forged aluminum or larger plastic stakes used for larger structures) to hold well in sand & hardpan; stake hammer (we have enough hammers).**
* **Laundry bag, for dirty clothes.**
* **Duffle bag to hold all of the above items (try to travel somewhat "light," there may not much luggage space in the vehicles).**
* **Toiletries: at least 1 synthetic camp towel, bring 1 bath towel, 1 hand towel, 1 washcloth, facial tissue, lotion soap, shampoo & conditioner, comb, sturdy hand mirror, tooth brush & paste, floss, deodorant, shave cream and safety razor, feminine care products, extra hair ties, a small amount of biodegradable toilet paper, hand sanitizer, and a large, full box of hypoallergenic baby wipes.**
* **Eyeglass cleaner and lens cloth or paper for sunglasses and corrective lenses; and an extra pair of corrective lenses is advisable, along with an eyeglass repair kit.**
* **If you use contact lenses, bring extra lenses and extra lens holders and extra contact lens solution.**
* **Belt-attaching water bottles (two) or collapsible water back-pack (e.g., camelbak); perhaps a water-filter pump.**
* **Health care items that you typically use or are likely to use (we do have some of all of these items in the field course med-kit and toiletries kit): sun-block, skin moisturizing lotion, lip balm, foot balm, anti-itch ointment, analgesics, anti-histamines, antibiotic ointment, topical pain relievers (skin and mouth), small, one-use bottles of eye drops, anti-fungal cream (not powder, if you have goretex boots), mole skin, gauze, waterproof tape & bandages, tweezers, fingernail clipper, scissors, toothache drops, venom extractor kit; oral rehydration salts. Again, some of these items will also reside in a group first-aid kit.**

**Recommended, but less necessary items**

 ***(These are among the field course supplies already, but we may not always have enough of them)***

* **GPS Unit, cables, chargers (we may not have enough, so bring one if you have it).**
* **Digital wrist watch with chronometer.**
* **Sewing kit, tent sealer & repair kit, extra tent pole & nylon cord, matches or lighter (melts cord).**
* **Pocket knife, with several blades (*Swiss* army knife) or multipurpose tool (e.g. combination knife pliers, screwdriver, saw), in carrying sheath; be sure the large blade can be locked into position; a small honing steel or small sharpening stone is useful: keeping a sharp knife is an imperative.**
* **Tarp: one-side reflective silver, UV-resistant & opaque; this type of tarp will provide extra shade over tent, although this optional set-up requires at least two poles, more rope, stakes, & bungee cords to help prevent the tarp from ripping in strong winds. Practice setting up before trip; but really, you will not need this, as you are up and working before the heat drives you out of the tent. The tarp is useful, however, for reducing sun damage to the tent and keeping items in tent from overheating (could burst or cause leak of bottles and tubes of liquids and gels).**
* **Belt pack or daypack or field belt with field pouches.**
* **Folding hand trowel (*e.g.,* U-dig it brand).**
* **Travel alarm clock (thus, you do not need to keep your phone on overnight)**
* **Folding stool or folding chair (small, compact if you are not driving your own car).**
* **Other basic means to contact others: envelopes, post cards, and postage stamps & calling card.**
* **Zip lock bags, both quart and gallon size for protecting electronic gear and for isolating containers of fluids and creams that tend to leak from their containers in hot weather and at high elevations.**
* **Rubber bands, # 10 size and larger and longer for various purposes.**
* **Duct tape & super glue gel.**
* **Waterproof (= dust proof) field boxes or bags (2, in different sizes), to protect your electronic gear.**
* **12 megapixel (or better) digital camera and/or perhaps a single lens reflex digital camera with**
	+ - **Lenses: telephoto, wide-angle, and macro.**
		- **Complete set of extra camera batteries & car-plug recharger for batteries.**
		- **Two lens filters, one UV, one polarizing.**
		- **Lens brush, lens cleaner, Q-tips, car vacuum (do not used compressed air).**
		- **Two digital memory cards.**
		- **USB memory card reader and cables to connect to portable computer.**
		- **Flash unit.**
		- **DVD disks on which to save digital photos.**
		- **For film cameras, have plenty of film, but be sure you can keep it cool.**
		- **Tripod or bean bag.**
		- **Operating manual for camera.**
		- **Cushioning, dust-resistant bag(s) for camera and lenses.**
		- **Battery or unit charger/cord**
* **Field guides and charts (*e.g.,* plants, insects, reptiles, birds, mammals, stars).**
* **Orienteering-mapping compass & quad maps or state atlas & gazetteers; perhaps an Altimeter.**
* **Signaling mirror (also works well for reflecting sunlight into burrows) & strobe signaling light.**
* **Walkie-Talkies: palm-size, 2-way, amateur band radios, transmitting up to 5 miles, straight-line.**
* **Monocular or binoculars or spotting scope with tripod (we have a couple on hand).**
* **Magnifying hand lens (7X or 10X, small, foldable).**
* Hand calculator or small laptop computer, but know that heat and dust can damage the units.
* Field notebook (Dura-rite or Rite-in-the-rain) to use as a trip journal.
* **Waterproof ink pen (*e.g.,* Rite-in-the-rain or Fisher Space pen or Staedtler pen: 0.03 or 0.05), pencils and erasers.**
* **Standard items for team research: lined, graph, and tracing paper, 8 ½ by 11 Vellum, clip board, binder clips, and slim, 3-ring binder notebook for field data sheets, colored pens or pencils, 15 cm ruler, protractor (most of these are available field course supplies).**
* **Lizard noose pole (stiff, 2-meter, 2-piece fiberglass or graphite fishing rod) and waxed dental floss or synthetic surgical thread (or equivalent) for lizard nooses. Although lizard catching supplies are provided as field course supplies, you may prefer your own equipment.**
* Fabric Field Pouch (e.g., check Kooter’s Geology Tools, on-line, or other field suppliers, below).
* **Belt: 2” wide, heavy-duty leather (or heavy-web belt), sturdy enough to attach heavy tools upon.**
* **Work gloves (leather is better) and gardening knee pads.**
* **Novels, magazines, cards, simple board games with few parts, and cd player or i-pod. Note that *none* of these items (and neither are cell phones) to be used when working in the field on the study site, except for limited periods; that is, in designated off-hours.**

**Note that a number of the foregoing items that easily can be shared are already available for class use; so it is not expected that you obtain all of the listed items.**

**Field Gear Companies (this is a partial list, there are others that you may encounter on-line):**

**Ben Meadows Co. Forestry Suppliers Inc. Cabela’s REI**