

Venturing Wilderness Survival

The Crew 27 Syllabus

Instructors Guide

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General Course Description and Philosophy-

The Wilderness Survival core requirements of the Ranger Program are not really a Wilderness Survival Course. The structure of the requirements suggest that they are intended to be the capstone of the training of the young outdoorsman. They are, in our opinion, designed to use competence in Wilderness Survival and Wilderness Survival related skills as a demonstration of the mastery of the basic skills necessary to: lead a group onto the outdoor environment; manage all normal functions on an outdoor trek; and to be able to cope when something goes wrong for your group or for a group you encounter that is less well prepared or has had bad luck.

We believe that if you have done it the "hard way" and survived, the "normal way" looks easy. As a corollary, the harder the things you have done in training, the more ready you are to handle what comes up when things go wrong in the real world. Also, adversity builds character and camaraderie and, overcoming adversity builds competence, self confidence, and a feeling of team. The capstone training experience should be difficult but should not actually be, or appear to the student to be, out of reach.

We meet these requirements by first building the prerequisite general skills in cooking, camping, navigation, and first aid. Only when the student has a firm grasp of these fundamentals are they ready for this course. Within the course, we emphasize the following core areas as learning modules: planning; attitude, knowledge and equipment; cordage and knots; field first aid; search and rescue; signaling (radio and visual); natural foods; and primitive camping (shelters, fires, water, food preparation).

Our course is built around four main elements. The first of these is preparing and then screening candidates to insure that they are ready in both skills and attitude to undertake the course. It is unwise to take a person into this course who lacks the correct attitude and fundamental skills. A marginal student could be allowed to undertake the classroom and homework preparation and, based on their successful performance in that portion, be allowed to take the field exercise.

The course itself is the three remaining elements: the homework (reading and reports); the classes; and the field exercise which we call the Wilderness Survival Field Exercise. Ideally, the instructors are older youth who are graduates of the course. They should be assisted and mentored by knowledgeable adults. This course material was first tested in the 2000 V27 course and updated in the 2002 and 2005 courses.

Instructor Preparation -

In a perfect world, each member of staff would be a highly trained, motivated, wilderness survival expert. The more likely reality is that each member of staff is familiar with all the basic course materials and has also read enough to have some additional depth. There is a bibliography attached which indicates books and materials which are in the "must read" category and others which are in the "useful" category. Not all staff need to have mastered all the materials but some staff member(s) must have mastered each part of the required materials.

All staff should be able to:

- do all the knots and lashings;
- build fires using all the course methods and styles;
- build both a hasty shelter and a debris shelter;
- cook without utensils; lead and critique a search;
- understand and use clear radio procedure;

- handle all normal field first aid situations;
- find and purify water;
- key out and identify relevant plants; identify and know how to prepare food from the "big four" plus some supplements; and
- be clear on the philosophy of Wilderness Survival and the importance of planning, preparation, attitude and correct decisions in the survival process.

Staff must also have a positive attitude about the training and the process of primitive camping. Although there is room for humor in the course, there is no room for a lack of focus or the safety lapses which result from failing to take the essence of the course seriously. People in the hands of too casual instructor staffs can be, and have been, seriously injured, and even killed, in acquiring and practicing these skills. Hypo- and Hyperthermia, anaphylaxis, dehydration, poisoning, and sanitation induced problems are all real threats in this training environment. Staff vigilance is the key to avoidance.

What We Teach and How We Teach It -

In the course of this training, we meet all the requirements for the section except those which require making a presentation to another group (c, k4). We do the equivalent of these requirements in the field by having students explain what they have learned to each other and to staff and we require the students to present the materials in (c) to a Scout Troop. To the degree practical, the focus of this training is on the field exercise. The homework and classroom sections are intended to prepare the student so that competence can be demonstrated in the field exercise.

The structure of the course is found in the attached student syllabus (Wilderness Survival Training Syllabus). Each teaching section shows the references for the student from their required readings. Module by module, this is the material we try to cover, how we cover it, supplemental instructor resources, and the requirement it is linked to:

Planning –

In the classroom, the following points are made: The concept of a Risk Management Plan is introduced and the sections of a complete plan are discussed. It is made clear that, although every written Risk Management Plan may not contain all these elements, every element here is considered as part of every plan and only the ones that do not apply are omitted. Although a written plan is not appropriate for every outing, the outing leader needs to have considered, and planned for, all these elements on any outing. Students are then advised to read the references and, using the outline we provide, write a risk management plan for a High Adventure outing. The plan is submitted to, and critiqued by, staff. Each student is expected to have an approved plan by the first day of the field exercise. This section meets requirement (a). In the classroom we also discuss the impacts of environment on planning and the possibility of environmentally induced aborted trips. This discussion includes the importance of weather. Students, in their homework, learn the basics of weather and gaining weather information. This meets requirement (g).

Attitude, Knowledge and Equipment –

In the classroom it is emphasized that knowledge and attitude are more important than equipment in managing a survival situation. It is then pointed out that certain minimal equipment makes a considerable difference in your survival chances and comfort. The importance of carrying the right stuff, knowing how to use what you carry, and being able to improvise from what you have and what you can find is noted. A staff member will go through a "Ten Essentials plus" by showing their hiking "Fanny Pack" and talking about what they carry and why. Candidate items for an emergency kit are listed in the student handouts/syllabus and in the readings. Comment is made about situational choice where your kit might be quite different for a winter outing than for summer or for the back country as opposed to a kayak trip.

The students prepare a personal equipment list and prepare an equipment kit for the field exercise. Both are presented to staff for inspection and comment at the second class meeting. Deficiencies are to be cured before the field exercise. The students are also expected to memorize, and to understand the rationale for, survival priorities. We use the "Rule of 3s" and the "LAW" (Least Amount of Work) principle to help them remember what is important. This module addresses requirements (b) and (j).

Cordage and Knots –

In the classroom we do a brief overview of the types of rope material focusing on sisal, manila, dacron, nylon, and polypropylene. We briefly discuss the advantages and disadvantages of each in terms of knot holding, stretch, breaking strength, UV resistance and aging. We then discuss common techniques for laying up rope including traditional braid, surface or hollow braid (with or without straight fibers), and twisted and laid ropes from binder twine to multipart. These are related to examples used by our Crew for aquatic, camping, lashing, climbing, swimming, and general tasks.

In the homework, we expect each student to attempt all of the required knots and ask for help on the ones they have trouble with. We extend the requirement list to include round and diagonal lashing, and the square knot, figure eight knot, overhand knot, and butterfly (Alpine) knot. In the field exercise, we have each student tie the "knots of the meal" during meal preparation to show they have learned the knots and how to apply them. This module meets requirements (h) and (k2).

Field First Aid –

In the classroom we quickly review basic first aid considerations including ABC. We extend this with a more in depth discussion of the types of problem common in a camping or Wilderness Survival Situation. These include the "Exposure" group and dehydration. We also discuss the decision process and options for evacuation from the back country.

In the field exercise we conduct a search for "Oscar" who is found with injuries which require evacuation (typically a dislocated knee with swelling which is inhibiting blood flow to the lower extremity). We apply first aid including splints and cold packs and package Oscar for transport to a site where he can be picked up by helicopter. This includes making a hasty stretcher from poles and a tarp. This meets requirements (d), (e1), and (c3).

Search and Rescue –

In the classroom we review the philosophy, decision process and the progression of searches. In the homework, students become familiar with the basic types of search and search party organization. They also should become familiar with avoiding conflicts between search types (e.g. destroying scent trails or tracking clues).

In the field exercise we conduct a search which uses the techniques learned to find a lost hiker. Search teams use map and compass and radio coordination to conduct a hasty search and an open sweep. If time allows, the successful conclusion of the search and evacuation is followed by a field demonstration of visual signals. This meets the requirements of (d) except for teaching others and for the use of mirrors, flares, whistles, guns, fires etc. and the rule of 3 (c1).

Signaling (Radio and Visual) –

In the classroom we discuss radio discipline and use. We also review quickly methods for calling attention to ones self in an emergency including sound and sight signals.

Natural Foods –

In the classroom we introduce the "Big Four" (Oak, Cattails, Pine, and Grass). We indicate that they are found widely and that, once you learn to identify them, it is very hard to make a mistake in the field. We also indicate that true compound berries (e.g. raspberries, blackberries) are almost always safe to eat. We point out that there are many other plants which can be eaten, but that most other plants have "look-a-likes" which can be poisonous and that one must be certain of identification before eating them. We also discuss why one should delay eating gathered foods as long as practical and point out that even non-poisonous foods that we are unaccustomed to can cause gastric distress. We also discuss the difficulty in catching animals and the balance between calories used to gather and calories obtained from consumption.

In the field exercise we gather from the wild and process to eat whatever representative samples of the big four we can find. The venue should be selected to offer at least two of them. We supplement the field gathering with commercially available equivalents of wild foods. This typically includes berries, pine nuts, spinach, and dandelion greens. Notes on preparing the big four are attached to the training syllabus. This meets requirement (i).

Primitive Camping (Shelters, Fires, Water, Food Preparation) –

This is reasonably broken down into subsections.

Shelters - In the classroom we emphasize the debris shelter as the shelter of choice. We discuss dead air space as the available insulation and identify materials which have useful loft. We then discuss materials that shed water and how they should be used. Then we extend this discussion to include the use of clothing, garbage bags, tarps, and emergency blankets in combination with naturally occurring materials to make insulated clothing, sleeping bags, and shelters. In the field exercise, each student makes an individual shelter which they sleep in for two nights. Mentoring is provided as necessary during this process.

Fires - In the classroom we discuss fire building and fire lays. We emphasize fire starting by flint and steel and by magnifying glass. We also discuss fuels and the tinder, kindling, fuel progression and the use of punk wood to maintain fires for long periods of time. For fire lays we focus on teepee, log cabin, and parallel log.

Water - In the classroom we discuss the methods for obtaining and purifying water. This includes standing and running water, springs, shallow wells, rain gathering, dew, succulents, and other plants. We cover filtration by cloth, sand, and fine filters. We cover purification by boiling and chemical treatment (iodine, chlorine).

Food Preparation - In the classroom we discuss the traditional utensil free ways to prepare food including foil, paper bag/cup, rock fry, spit, mound bake, wet wrap, boiling, leaching, steaming, and earth oven. We relate these to the types of food likely on the outing and urge the students to research and understand these methods before the field exercise.

Wilderness Survival Field Exercise

Food - Typical Menu Plan

Day 1

Lunch BYO Paper Bag Lunch

Evening Hamburger in Onion or Bell Pepper, Stick Bread, Corn on the Cob

Day 2

Breakfast Eggs in Oranges or Onions, Bacon on a Stick, Ash Cakes
or Eggs and Bacon in a Paper Bag, Ash Cakes. Wild honey

Lunch Fish, Pine Nuts, Berries, Wild Greens (Dandelion)

Evening Cornish Game Hen, Potato (White or Yam), Apples

Day 3

Breakfast Bannock (or Biscuit in Orange), Bacon

Lunch Gather Food (Pine Tea, Grass, Pine Nuts, Cattails, Acorn, Bark, Honey)

All these meals are cooked over natural wood fires. Preparation hints follow:

Training philosophy of the menu choice is shown at the *.

Recipes:

Hamburger – Hamburger is cooked by putting it inside a high moisture content vegetable. In this case you have a choice of using a green pepper or an onion. If you take the green pepper option, you cut the top off a green pepper and then remove all the seeds. The hamburger is stuffed inside and the lid is replaced. The green pepper is placed on coals (not in flames) and the hamburger bakes until done to taste. With an onion, the procedure is much the same except the onion is cut in half and the inner layers are removed to form a bowl to stuff with burger. At least two layers of onion must remain in the bowl to avoid burning the hamburger. *This general method of cooking works for all meats and eggs. Many times in a real situation the wrapping is a vegetable, a tuber (like potato) or wet leaves.

Stick Bread – Stick Bread is made by taking biscuit dough and either wrapping it around or cupping it on the end of a stick. It is then baked by the radiant heat of the fire. In our case, water will be added to Bisquick to make a stiff dough and the dough will be wrapped around a stick of the student's choice. *This cooking method works for all leavened and unleavened flours, whether they be made from nuts, roots (e.g. Cattail), or ground seeds.

Corn on the Cob – This will be cooked in the husk. The husk will be peeled back and the silk removed. The husk will then be pulled over the ear and soaked in water. The soaked ear will be buried under hot dirt and ash and allowed to steam until it is done (5 to 20 minutes depending on the ripeness of the corn and the heat of the fire). *Ground or mound baking is a standard utensil free way of cooking a large variety of foods including fish, meats, tubers, and green and yellow vegetables.

Eggs in Orange or Onion – The eggs will be cooked by cutting the top off of the orange about 1/3 of the way down from the stem. The fruit will be removed and eaten. The egg(s) are then cracked and placed into the orange, the top replaced, and the orange placed on coals to cook the egg. If onion is used, the same general process is used except the top of the onion is cut off and the inner layers are removed to form a cup to hold the egg. *Birds eggs are frequently available in survival situations (especially near the sea shore) and this is a good way to cook them.

Eggs and Bacon in a Paper Bag – The bacon slabs are placed on the bottom of the bag and the eggs are cracked and placed on top of the bacon. The top of the bag is then rolled down and a dangle stick is driven through the top roll. The bag is suspended over the fire, well clear of the flames and the bacon and eggs cook. When done, they are eaten from the bag. *This exercise illustrates the idea that things that seem of little value (a paper lunch bag) can be used as survival aids. Similar exercises could be done by boiling an egg in a paper cup or in a paper bag. The paper will not burn if it is kept below its combustion temperature. Done properly, the water or the cooking food draws the heat away from the paper maintain it at too low a temperature to burn.

Bacon on a Stick – Bacon is either wrapped around the stick or skewered and dangled over the fire to cook. *A standard primitive meat cooking method. Easily remembered and easily done.

Ash Cakes – Ash cakes are made by taking stiff biscuit dough and patting it into thin cakes. These are baked by placing them right on hot ash from the fire and letting them cook golden brown on each side. They are often eaten in pairs with honey, jam or brown sugar in between the cakes. * This is an alternative way to prepare any leavened and unleavened flours, whether they be made from nuts, roots (e.g. Cattail), or ground seeds.

Whole Fish – Gutted with scales on. This is cooked by either laying it right on the coals and turning occasionally until done or by spitting and turning every five minutes until done. Fish is generally done when the flesh is flaky. * Both of these are traditional primitive cooking methods.

Pine nuts, Berries, Wild Greens – These are eaten raw (the nuts may be roasted). * These are on the menu to illustrate the types of food which are "easily" gathered in the wild under favorable conditions. When available blue berries and compound berries (raspberries and blackberries) are both used. There are few, if any, poisonous compound berries.

Cornish Game Hen – These are cooked by spitting and cooking over coals, turning every five minutes or so. They may be stuffed with apple, or the apple may be eaten raw. *This is a standard way to cook small birds in the wild.

Potato – Potatoes are cooked by burying them in hot dirt and then covering them with hot coals or active flame. They will bake for about an hour. *Ground or mound baking is a standard utensil free way of cooking a large variety of foods including fish, meats, tubers, and green and yellow vegetables.

Bannock Bread – The bread is made from 2 Cups of corn meal to $\frac{3}{4}$ Cup water to 5 tablespoons of melted fat or oil. Berries and/or honey are added to taste. The bread may be baked like ash cakes or fried or deep fat fried. If fat fried, it takes about five minutes per side. *This is another recipe which parallels native American practice and exposes the student to both food stuffs and cooking methods which are useful in survival situations. Bannock can be made from any of the flour substitutes.

Gather Foods – Gathered foods will be prepared by primitive methods. We typically have oak, pine and cattails available. For oak, we gather and leach the acorns. We typically leach by boiling in water until the bitterness of the tannic acid is gone. We then roast or eat them raw. For pine we normally prepare the inner bark and also brew tea from the needles. For cattails, we concentrate on the roots. We always demonstrate how grass can be peeled back to reveal the sweet area and then show the utility of sucking and chewing on the stems. We have not harvested grass seed in class as this is a very tedious way to gather food.

Overall Food Philosophy – We intend the student to become familiar with cooking methods which can be used under most conditions. The commercial foods selected provide reasonable equivalents to foods which can be obtained in the wild and let the students experience both the amount of energy necessary for preparation from scratch and the type of diet which results from restricted food choices. We concentrate on the "Big Four" in edible plants (Oak, Pine, Grass, Cattails) because one or more of them are found almost everywhere. We do not spend much time on animals as learning to properly gather them and prepare them for consumption is a major task for modern youth and because many states have prohibitions on the taking of animals for survival training.

Schedule

The schedule for the outing:

Day 1 – Arrive. Begin shelter construction. Pre-dinner break, review fire lays and fire starting methods. Dinner. Discuss finding and purifying water. Knots of the meal – Lashings, Square, Shear, Round, Diagonal.
Evening Campfire and Sing Along

Day 2 – Rise and repair shelters as necessary. Morning fire crew starts cook fire. Breakfast. Knots of the meal – Square Knot, Sheet Bend, Figure Eight
Food Identification, Search and Gather. Staff places "Oscar" for afternoon search.
Lunch. Discuss food preparation problems. Knots of the meal – Fisherman's Knot, Clove Hitch, Two Half Hitches.
Start leaching of acorns.
Search for and rescue "Oscar". Demonstrate radio call for Helo evac. Demonstrate ground to air visual signals.
Improvement of shelters if needed.
Throwing sticks, digging sticks, spears, fire hardening of wood.
Dinner. Instruction and remediation of gaps. Knots of the meal – Bowline, Bowline on a Bight.
Evening Campfire and Sing Along

Day 3 – Rise and begin shelter teardown
Breakfast. Discussion of water sources and purification. Knots of the meal – Butterfly, Timber Hitch, Tautline Hitch.
Begin Lunch Preparation.
Lunch. Recap and evaluation.
Pack Out and depart.

Bibliography -

Student Required Reading

Boy Scout Publications:

The basic materials for this course are fundamentally Boy Scout publications. The key text is:

The Boy Scout "Field Book". Every attendee is required to have and read a copy. We build the cost into the course (and reduce the course cost for those who already have the text).

The required readings include chapters 7, 8, 10, 11, 12, 15, 26, and 34. (Third Edition 1994 Printing). Chapters 4, 5, 6, 8, 12, 26, 30 (old [1994] 12) Fourth Edition.

Every attendee is expected to read selected sections from the Merit Badge Pamphlets (MBPs) for "Wilderness Survival" and "Emergency Preparedness".

There are also student handouts. One is the training syllabus titled, "Wilderness Survival Training Syllabus". The other is an excerpt from "Tom Brown's Field Guide to Wilderness Survival" which deals with debris shelters.

Staff Preparation

Must Read

Staff must read all the student materials. In addition, staff are expected to be familiar with all the material in those MBPs plus the contents of "First Aid", "Cooking", "Camping", and "Pioneering" MBPs.

Staff should also read:

General Survival -

Outdoor Survival Handbook for Kids, Willie Whitefeather, 1997, Roberts Reinhart Pub.

Tom Brown's Field Guide to Wilderness Survival, Tom Brown, Jr., 1983, Berkley Books

Improve Your Survival Skills, Lucy Smith, 1987, Usborne Publishing

Complete Wilderness Training Book, Hugh McManners, 1998, DK Publishing

Food -

Sections on Pine, Cattails, Oak, and Grasses from:

Tom Brown's Field Guide to Wild Edible and Medicinal Plants, Tom Brown, Jr., 1983, Berkley Books

Stalking the Wild Asparagus, Euell Gibbons, 1970, David McKay Company

Wild Foods Field Guide and Cook Book, Billy Joe Tatum, 1976, Workman Publishing

Native Harvests, Barrie Kavasch, 1979, Vintage Books

Eating Wild Plants, Kim Williams, 1977, Mountain Press Publishing

First Aid -

Wilderness First Aid, William Forgey, 1999, Globe Pequot Press

or Wilderness Medicine, William Forgey, 1994, Globe Pequot Press

Wilderness and Travel Medicine, Eric Weiss, 1997, Adventure Medical Kits

Useful Supplemental Materials -

United States Air Force Search and Rescue Survival Training (AF Regulation 64-4) Reprinted by MetroBooks.

(This is, in my opinion, the best general Wilderness Survival fieldcraft book ever produced. If you have only one book for field craft, this is my first choice. I use the 1985 edition. DDF)