

**PCTA Trail Skills College Curriculum
Instructor Planning Guide**

Course 306. Working with Packers and Packstock

Multi-day projects in the backcountry may seem like an overwhelming burden because of all the food, tools, and gear needed—that is—unless we have the assistance of pack animals. Thankfully, the PCTA has many talented packer friends willing to help. This course, taught by a packer, is meant to take any intimidation out of planning a trip that's going to be pack-supported, especially for those not experienced with equine. Students will learn safety around the stock, and some horseman lingo. They will learn what essential pieces of information need to be discussed with the packer in advance. This course won't make students into packers, but, they will gain a general understanding of the key principles of packing and balancing panniers, coolers, tools, and other trail crew gear.

STUDENT SKILL OUTCOMES:

- Importance of communication with the packer
- Understanding the capabilities and limitations of packstock
- Understanding safe practices around stock
- Understanding of equine body language
- Knowing what to bring and what not to bring
- Understand the fundamentals of packing and balancing loads

KEY TERMS:

packstock, pack string, pack saddle, saddle pad, panniers, bear boxes, manty, top pack, lead rope, highline, tail up, bite/bitter end, tool cans

TRAIL MAXIMS:

“Do not surprise the stock,” “Take only what you need,” “Balance the load,” “No glass,” “No rattles,” “Listen to the packer”

HANDOUTS:

- Job Hazard Analysis (JHA): Working with Pack Stock
- Volunteer Application
- Project Report Form
- PCTA Authorized Volunteer Packer Reimbursement Request Form
- Crew Leader Checklist

TOOLS NEEDED (PER 8 STUDENTS):

One to three pack animals. Brushes and curry combs. A variety of panniers, metal or plastic bear boxes, tool carriers, lidded buckets, coolers, and first aid kit. Scales, duct tape, and markers. Any other pack gear that may help in demonstrations. Backcountry kitchen gear, food (or something

to stand in for food), and trail tools to simulate outfitting a crew of eight for a week.

WORK SITE REQUIREMENTS:

This course has two parts. The first part is discussion, which can be done in any comfortable setting. The second part is a hands-on exercise involving packing gear and packstock. It can be done next to a stock trailer, or anywhere the animals can be tied up properly.

KEY CONCEPTS:

1. Paperwork involved:
 - Job Hazard Analysis (JHA): Working with Pack Stock
 - Volunteer Application
 - Volunteer Agreement
 - Project Report Form
 - PCTA Authorized Volunteer Packer Reimbursement Request Form
2. Communication
 - Start early and keep in touch
 - Essential items to discuss
3. Stock and Packer Capabilities
 - Carrying capacities
 - Each packer and animal are different
4. Safety around stock
 - Vision, body language, danger zones
 - How to approach an animal
 - Passing on the trail
5. What to bring and not to bring
6. Packing up items for transport
 - Pack tightly; avoid items shifting or rattling
 - Balance and weight distribution
 - Different ways to carry tools
7. Loading up the packstock
 - Teamwork is essential
 - Be careful around loaded packstock



BACKGROUND

Packstock are an important part of the Pacific Crest Trail's history and present day use. Unlike other National Scenic Trails such as the Appalachian Trail, the PCT was originally designed and built with trail stock in mind. In fact, many portions of the trail could not have been built, nor could they continue to be maintained, without the assistance of packstock.

Packstock can greatly increase the scope of a trail repair project by carrying materials, tools, camp gear, food and water farther into the backcountry than a trail crew can typically manage on their own. Pack support allows the crew to get to the job site quicker and with less effort. More time and energy can be utilized at the job site, helping to sustain crew morale. Another benefit of working with stock is that trail workers get a chance to observe how an animal travels over a trail segment needing work, as opposed to good terrain. Volunteers generally like working with the animals and seeing what they can do. It adds a whole new dimension to the trail crew experience.

COMMUNICATION

Effective communication between the packer and the crew leader is perhaps the most important outcome of this class. Because the two individuals may have no experience in the other's field and it is necessary to learn each other's needs and expectations. Crew leaders may be working with a first time PCTA volunteer packer and vice a versa, an experienced PCTA volunteer packer may be working with a new crew leader. Communication must begin early and be frequent enough so that all paperwork and logistical details get worked out.

PCTA's Crew Leader Checklist helps with project planning by providing the leader a to-do list from three months prior, up through the last day of the project. Included in this checklist are several reminders specific to a trip that's going to be pack-supported.

Course instructor should convey the following to the crew leader students:

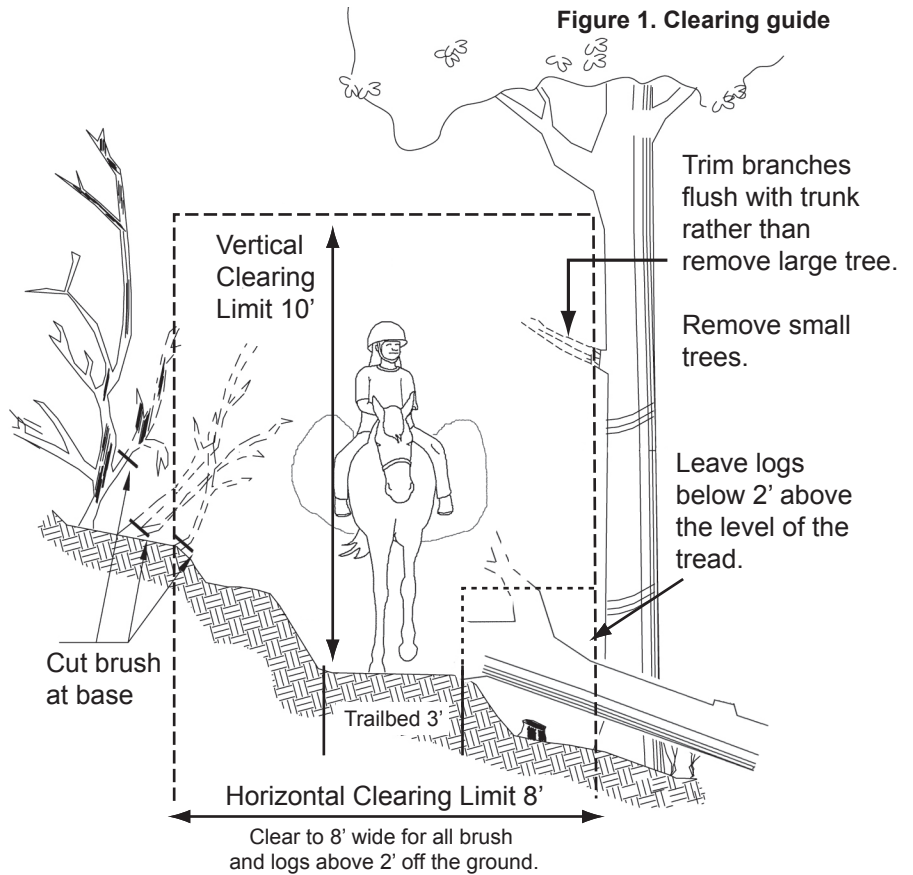
When recruiting a packer for a trip, start by asking an experienced person who has packed for trail crews before. If this person cannot do your trip, they will often be able to recommend other packers whom they trust, or at least direct you to appropriate means for publicizing your request among local packers. When talking with someone new who has not packed for a trail crew before, or not in this area, don't be shy about asking for references. Explain that it is PCTA's responsibility to demonstrate to land managing agencies that we are working with well-qualified volunteer packers.

Volunteer packers are folks who volunteer their time, animals, and equipment. Make sure you clearly understand how many packstock are available. Especially when pack-in is five or more miles, a packer should not be expected to make more than one trip on pack-in day. If more packstock is needed to get the job done then the crew leader and/or their supervisor needs to put the word out and recruit more packers. This is not the responsibility of the packer. If more packstock is not available the crew leader must make arrangements with the packer to prioritize cargo loads and make a second pack-in.

In some cases the packer was recruited for this trip months earlier, during the off-season, by a PCTA supervisor who is not the crew leader. It is essential that the actual crew leader establish personal

contact with the packer, beginning at least two to three weeks prior to job. Phone (or an in-person meeting) is usually better than email for many of the items you'll need to discuss.

Some of the items of information that need to be discussed are brought by the packer, others by the leader. If you are the leader, please remember to keep the following issues in mind during reconnaissance of the work site, and be ready to talk about them. Also keep in mind the packer will often want to pre-ride the trail and assess current trail conditions first-hand, thereby lowering chances of an accident later when they are all loaded up. Trail conditions can change quickly and relying on second hand information can be dangerous.



Essential Items to Discuss:

The following items need to be addressed during a crew leader and packer conversation:

** These are general trail-wide clearing guidelines. Please work with your local land manager to determine if different guidelines are used in your local area.*

Trailhead and Trail Information

- Dates and times of pack-in and pack-out
- Trailhead location
- Trailhead amenities: Turn-around area for trailers? Stock water? Room to **highline** trail stock? Room to camp?
- How many miles is the pack-in?
- GPS coordinates or landmark for campsite or drop site
- Has the trail been cleared to stock standards?
- Are there any potentially difficult fords?
- Is the trail safe for stock? Sometimes the trail seems cleared to stock standards but may still not be safe. Final decisions about whether trail conditions are safe for packstock rest with the packer.
- Do we anticipate the trail and/or site may be boggy?
- Do cell phones work on site? If not, crew leader should ensure packer has a radio to communicate with dispatch when apart from crew.
- Will packer be at the trailhead the night before?
- When will crew leader arrive with cargo? Leader should arrive early enough to ensure enough time for packing up cargo loads. It will take at least two hours to weigh cargo loads and load packstock, even when the cargo is well organized in advance.
- Will the packer be camping in the backcountry with the crew, or returning to the trailhead?
- Time and place for packer's return to pack out at the end of the trip.
- Contingency plans for dramatic weather changes, forest fires or other emergencies.

Paperwork and Protocol

- Volunteer Application: Packer needs to fill one out if they haven't volunteered for PCTA before.
- Agency Partner: Has the packer worked on that district before? Crew leader needs to keep agency

in the loop about who is packing, and be prepared to provide packer's references to agency. Many agency partners will require that the packer sign their own separate volunteer agreement.

- **Trailhead Communication Plan:** To be distributed by crew leader, several days or more in advance of the trip. The packer should be included when the leader sends it to dispatch, agency contact, and supervisors.
- **PCTA Authorized Volunteer Packer Reimbursement Request Form:** PCTA regional representatives need to provide their packer the form. Due to the unique service they provide, PCTA has a volunteer reimbursement policy specific to packers. Packers authorized for reimbursement are identified in the pre-project planning. At that time, the project budget – including the number of packers to be reimbursed, approximate mileage reimbursement, and incidental expenses will be identified. The authorized packer may invite other equestrians to attend the project and assist, noting that only the pre-authorized packers will be reimbursed for expenses.
 - Authorized volunteer packers may be reimbursed for i) Transportation Costs related to hauling stock to the trailhead/work site, and the return trip from the trailhead/work site at the rate of \$0.80/mile; ii) Food/Meals on a per-diem basis during volunteer service in the backcountry; and iii) Incidental Expenses directly related to the service such as supplies, propane, and feed for stock (receipts required).
 - A crew leader can obtain the reimbursement form from a Regional Representative, and provide it to the packer.
 - For more information, see PCTA's Volunteer Packer Reimbursement Policy at https://www.pcta.org/wp-content/uploads/2012/11/Volunteer-Packer-Reimbursement-Policy-v2013_07_251.pdf?x20535
- **Volunteer Hours Reporting:** At the trailhead the crew leader should have the packer sign the Volunteer Sign-in, and ask the packer about prep time, travel time, on-trail time, and take-down time. These hours are submitted to PCTA as part of the overall project report. The packer won't need to submit their own hours report if the crew leader will be submitting the packer's hours to the PCTA as part of the overall project report.
- **Check-in and Check-out:** The packer is often separated from the rest of the crew on the way in and out of the backcountry. They will need to carry a communication device and follow PCTA check-in and check-out procedures as if they were a separate work party.

Packstock and Gear Information

- How many packstock are available?
- Maximum weight per individual packstock?
- Is a **top pack** acceptable?
- Is it acceptable for a crew leader to pack and weigh loads in advance? Or, does packer want to pack and weigh loads?
- What type of containment is to be used for tools? Trash can tool carrier or **manty**?
- Are the metal **bear boxes**/bear box **panniers** acceptable?
- Are square lidded buckets acceptable? Round lidded buckets?
- What is maximum cooler size? Propane tank size?
- How many long rock bars and long crosscut saws are to be packed?

CAPABILITIES AND LIMITATIONS

A typical pack animal can carry 140 to 160 pounds of gear (15% to 20% of their weight). This is 70 to 80 pounds for each side load. Keep in mind that the loads are dead weight on the back of the animal. Imagine trying to carry your backpack without ever readjusting its position on your back. It gets uncomfortable very quickly. That is why we try not to overload our equine friends. If it is too uncomfortable, they might object and stop in the trail, refusing to move. It's important that the packer has enough animals and the crew must take only what they really need.

If your trail and/or site has a tendency to be boggy, try to schedule your pack support during dry weather, or take other precautions to keep stock out of the muck. During periods of extreme wet conditions, packstock could cause collateral damage to the trail and work site. The animals' weight, and the inability of the packer to keep them in a specific spot should be considered.

Packers are all different, and have different ways of accommodating your gear. Don't assume your next packer will bring the same equipment or use the same techniques as your previous packer. For example, some packers won't do top packs, so, don't count on it. Talk to your packer.

SAFE PRACTICES & EQUINE BODY LANGUAGE

Safe practices around stock are extremely important; they are large powerful creatures. Be aware that equine are prey animals. That means they are always on the lookout for predators who want to eat them! Try not to surprise or startle them.

This is a good time to cover equine vision. Like most prey animals, the horse's eyes are set on the sides of its head. This allows a 350° range of monocular vision and a good chance of spotting predators. The wide range of monocular vision has two blind spots: one in front, making a cone that comes to a point 3-4 ft. in front of the horse, and another right behind its head, extending over the back and behind the tail. With this in mind it's best to approach a horse from its side, toward the shoulder area. Remember to speak and watch the ear and eye. The ear travels with the eye so you can easily discern if you've been seen. Your safety is your responsibility so be sure you are seen.

Rule of thumb: Assume the animal has not seen you; therefore make your presence known with a hello or other small talk. When passing the animal's back end, either keep very close (so any potential kick won't get you in the head) or more than six feet away from the rear-end. If you must pass behind an equine start at the shoulder with hand contact and talk to them. Then move slowly to the rear, maintaining hand contact, when moving behind.



Figure 2. Horses are always on the lookout for predators. (IMAGE BY JIM SNOOK RE-PRINTED WITH PERMISSION FROM THE BACKCOUNTRY HORSEMEN OF WASHINGTON.)

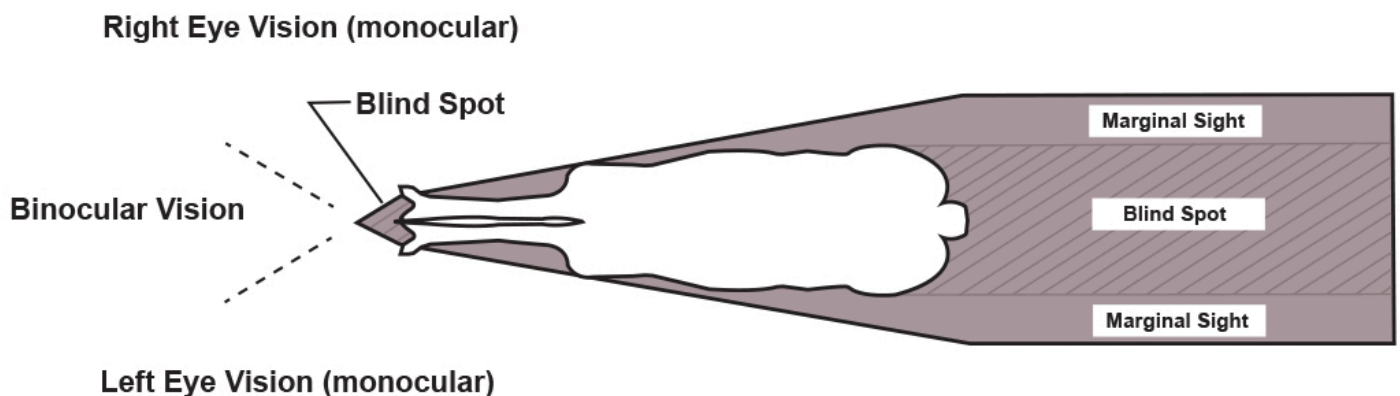


Figure 3. A horse's fields of vision.

(IMAGE FROM EQUESTRIAN DESIGN GUIDEBOOK FOR TRAILS, TRAILHEADS, AND CAMPGROUNDS, USDA FOREST SERVICE.)

Be mindful of what is going on around your work area. You may be able to prevent a mishap before it escalates. With animals, if something scares one, there is likely to be an instant chain reaction. If this happens it is usually best to step back out of the way of all the trail stock and wait it out.

Never pass in front and step over a **lead rope** of an equine when it is tied up. When approaching equine watch their ears, this indicates where their eye is focused. If they pin both their ears or bare their teeth – STOP. Do not go near. If they act like they want to bolt – STOP. Do not go near. Tail swishing, pulling back on lead rope are other indicators of something wrong. In other words, keep your distance if they are doing anything other than standing patiently.

Watch your feet near the animals because it can hurt when several hundred pounds is on your foot! The crew leader is responsible for making sure that crew members working around the trail stock have appropriate foot gear. Crew members without sturdy boots must be assigned duties away from the trail stock.

If a crew member is uneasy about working around packstock, the crew leader must assign him or her to duties away for the trail stock. Animals are sensitive to body language. If there's a nervous human nearby, they can become anxious themselves.

When getting ready to load or unload packstock for the first time, try to introduce yourself. Approach from the side towards the shoulder and talk to them. Then you may pet them. If they let you pet them, you should be good to go. If an animal does object by threatening to kick, bite, or moving away from you, ask the packer to replace you. Instant dislike does happen, and for no apparent reason, but not often.

It is very important to be extra watchful around loaded packstock. The loads decrease the animals' ability to see, and therefore they get a little anxious. Besides, they are antsy because they know it's getting close to time to hit the trail. Don't stand near loaded packstock. You don't want to get bumped by their panniers, or worse, knocked down; one place you don't want to be is on the ground!

When encountering stock on the trail, it's ideal for hikers to let them pass by standing to the downhill side. If there's nowhere safe to stand on the downhill side, just stand wherever it's safe. More importantly, hiker and horse rider should talk to one another. The normal banter reassures the animals that the hiker is a human being and not a predator.



Image 4. Unfamiliar sights and sounds can spook an equine. (IMAGE RE-PRINTED WITH PERMISSION FROM DAVE ELSTON.)

WHAT TO BRING AND WHAT NOT TO BRING

Packers are all different and have different ways of accommodating your gear; therefore, this is not a substitute for talking with your individual packer. But, here are some general guidelines.

Not So Easy for Packers	Easier for Packers
Ice chest or cooler larger than 48 quarts	Ice chest or coolers 48 quarts or smaller often fit inside pannier bags or on platform carriers.
Two coolers different sizes and weights	Coolers of the same size and weight
Big bulky plastic containers that do not fit inside pannier bags (and also do not have their own harness straps)	Rigid plastic lidded buckets or tubs that will fit inside pannier bags. Square buckets are more space-efficient than round ones.
Straps or decker hooks missing from bear boxes or panniers (exception: straps or hooks not needed if packer plans to manly the boxes)	Pannier boxes complete with straps to hang from <u>pack saddle</u> or decker hooks
Lots of extra tools	Minimum number of trail tools for job
Sharp ends of tools not covered	Covered tool blades; and, with trash can style tool carrier, reinforced container bottom
Cast iron cookware	Lightweight cookware
Glass containers	Food carefully repackaged for transport
Five gallon steel propane tank	A pair of matching 2-gallon or 1-gallon tanks. Fiberglass tanks are lighter than steel.
Large, heavy, multi-burner stove	Lightweight 2-burner camp stove
Large camp lanterns	Small camp lantern
Bulky, rigid water containers	Collapsible water containers
Bulky water filtration system	Gravity bag style water filter

PACKING UP ITEMS FOR TRANSPORT

First of all, make sure to find out whether your packer is comfortable with the idea of you, the crew leader, pre-assembling the loads. Packing is a complex art. Packers and their animals are all different. Some packers, understandably, will refuse to put any loads on their packstock that they themselves did not pack. Even in these cases, it's helpful for the crew leader to understand the following principles, in order to help ward off some of the typical troubles with packing loads.

The best packing containers can double as storage containers at camp; for example, bear box panniers or lidded buckets. When loading boxes and panniers, the cargo should be packed tight to prevent any breaking, shifting, or shaking. Ensure pots and their lids, dishes, and utensils are taped together, padded, or otherwise stored in a manner that eliminates rattling. Take only the gear that is needed. Less is better, just like when you are carrying your own pack. You will often find there is not as much room as you had hoped.

Crews should plan on carrying their first two meals in their own backpacks, in case of a mishap with the packer.

All food must be repackaged. Remove glass, cardboard, and excess packaging, which only adds

weight and garbage. Consider all the jostling that happens to loads on pack animals. Protect eggs. Store liquids in leak-proof containers. Remember: no glass! If you have smashables such as bags of chips or sliced bread, consider carrying them separately, maybe even on top of your backpack.

Final decisions about cargo loads and their weights rest with the packer. Final decisions on the priority of items to be included in a cargo load rest with the crew leader. Crew leader and packer must work together to ensure that tools and other materials are secured to avoid damage or loss.

When boxes and panniers are all loaded, lay everything out and begin organizing loads based on available packstock.

A three packstock load example might be:

- One for the set of tool carrying trash can panniers.
- One for the set of bear boxes or panniers.
- One for either 2 coolers, or 1 cooler and 1 pannier.

Tips for packing cargo loads:

- Keep heavy items on the bottom of boxes or panniers, and towards the side that will rest against the animal.
- Pack bottles upright to prevent spilling.
- Have duct tape handy.
- If anything might rattle, pad it.
- Have soft stuff on hand (such as extra tarps, dirt bags, wash rags, towels and sleeping bags) ready to stuff into nooks and crannies if needed to quiet a potential rattle. Remember this will add weight.
- Pack fuel and bug repellent separate from food.
- Many packers prefer to avoid top packs. If top packs are necessary, they need to be soft and lightweight like tents, bed rolls, tarps, etc.
- Side loads need to balance perfectly, within 1 pound of each other.
- Weigh your loads, adjust, and re-weigh until they are balanced. Mark weight on a piece of duct tape and stick to the box, pannier or cooler.

Proper pannier loads keep weights close to the animal and evenly distributed on the ribs. Weight is best distributed from the inside center of the pannier toward the front and toward the back of the animal. Panniers, bear boxes, **tool cans**, or any other type of load set on the animal's back can become uncomfortable if all the weight is in the front of the pack. This puts all the weight on the shoulder of the animal, causing sores. It's all about taking care of the stock so they will perform to the best of their ability. This is one reason a packer might choose to pack up panniers and boxes themselves.

Balancing the Loads

First off, the crew leader will need a good, sturdy 100-pound packer scale, which can be found online. It is possible to hang this scale from a tree limb if you are going to be working with lots of loads. The scale is an important tool, so take care of it. Do not leave it out in the weather and give it a place so you can always find it.

Panniers need to be within a pound of each other. As you become experienced you will be able to judge items of similar weights and distribute them accordingly. You will no doubt need to move a few things between panniers before you get the weight right. When panniers start feeling close in weight, that is when you start using the scale. So pack up everything in the set you are working on by

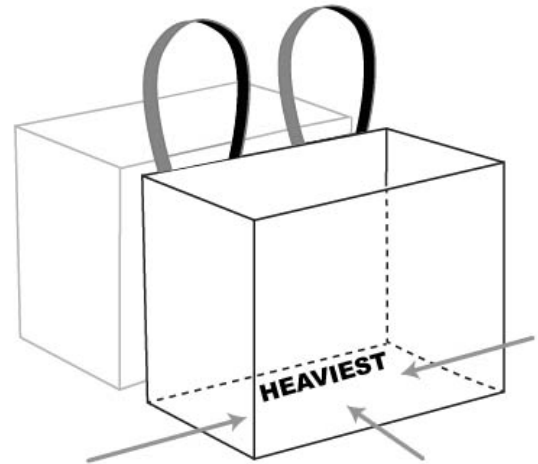


Image 5. Internal weight distribution inside panniers. (IMAGE BY SUE FORSMAN.)

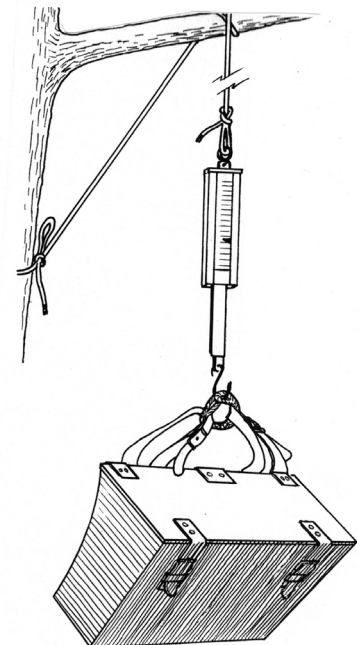


Figure 6. Packer scale. (IMAGE FROM HORSE PACKING IN PICTURES, FRANCIS W. DAVIS.)

guesstimating before you start with the scales. Lifting these 70-80 pound packs is going to be tiring. It is best to lift them with a buddy. Remember your safety lessons and keep that back straight when lifting! You keep hearing “No more than a pound difference” and you’re probably thinking “What’s the big deal?”

If the weight is off, even by a pound, the packer will have problems. It won’t matter how perfectly the load was tied, it just won’t get far before it starts shifting. Sure we can stop and try to shove the load back over or even re-tie but until it is balanced it won’t travel well. We usually end up finding the perfect rock along the route and add it to the light side. A quick fix beats having a wreck!

PACKING TRAIL WORK TOOLS

Many packers will mantle the tools, which is like wrapping them in a big burrito. Another common way to carry tools is in rectangular plastic trash cans fitted with harness straps. These trash cans are very easy to overload. The tool weights add up quickly; take just the minimum you need. Tool blades and sharp edges should be covered if possible. The trash cans get soft in the heat and we don’t want any punctures. Sharp edges are a danger to animals as well as humans. Reinforce the bottom of the can with carpet or plywood. Large blades such as pick mattocks are easier to pack when the heads are taken off the handles.

Handles stick up quite high when on the pack animal so their placement is important. They need to be directly over the animal’s back so they do not catch tree limbs. When packing the tool cans it helps to place them as if they are on the animal’s back; it helps to visualize where the back inside corner is. Get those handles over the rump of the animal. This is the best place for the tallest handles and all handles need to be along the inside edge of the cans. Stuffing dirt bags or webbed rock slings and other small soft items along the outside edge of the trash cans keeps the handles in place.

- Place guards on all tool blades.
- Put heavy tools and blades in bottom and centered as much as possible in the trash cans.
- Tool handles – Place the tallest at the back inside corner of the trash can: keeping to inside of can and close to the animal’s back.
- Tape or tie tool handles together to prevent rattles.

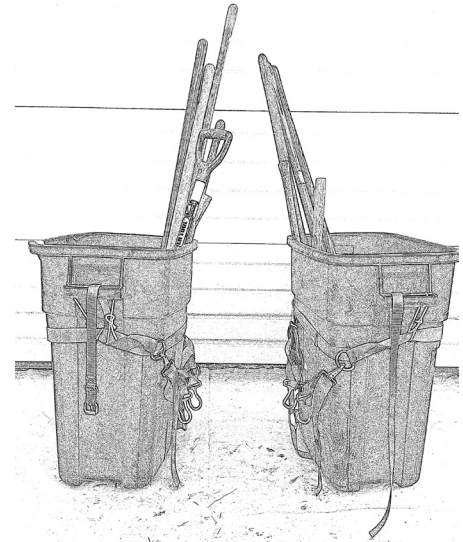


Figure 7. Trash can tool carriers. Also known as tool cans. (IMAGE BY SUE FORSMAN.)

LAST CHANCE FOR COMMUNICATION CHECK-IN

After the loads assembled, and before loading the stock is your last chance to take care of any further communication with your packer. After the animals are loaded, they won’t want to stand around; they will be hitting the trail. Double check that you’ve had the packer sign the JHA and sign-in sheet, discussed communication devices, check-in and check-out, volunteer hours, and contingency plans.

TIME TO LOAD UP THE PACKSTOCK

Packing up packstock is not a speedy process. It takes time no matter how fast you’d like it to happen. It can take at least two hours to weigh cargo loads and load packstock, even when the cargo is well organized in advance.

Once you have everything weighed and balanced for each animal, set the loads in pairs so it is obvious what goes together.

Depending on the space available at the trailhead the packer may ask you either to help bring loads to animals or animals to loads. Have a volunteer ready to hold the packstock while the packer and at least two volunteers load it up and tie down the load. The saddle needs to be checked and cinches tightened because some equine can be very tricky in that they like to expand and hold their breath; resulting in a saddle that will slip when they exhale. Loading of the tools carriers makes a good demonstration. Have students load an animal under your supervision to help them understand the teamwork advantages. Knowing how to lift the load onto the animal can make the lifting easier and safer. Demonstrate how to tie items to the top of the panniers. Remind students that this adds more weight to the cargo load. This is also a good time to demonstrate a top packs. Some packers will only use top packs if there are no other alternatives. Top packs change the load's center of gravity and if not perfectly placed and tied they will result in shifting loads.

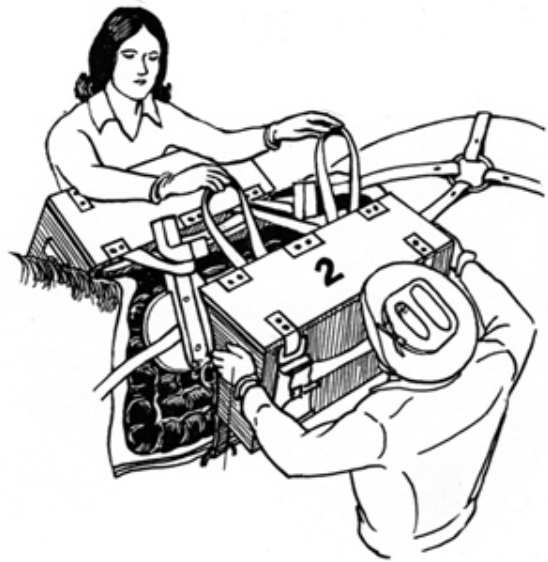


Figure 8. Teamwork is essential when loading packstock. (IMAGE FROM HORSE PACKING IN PICTURES, FRANCIS W. DAVIS.)

Animals with loads are restricted in their ability to see around themselves. We must be extra careful around loaded animals. Because of the vision limitation they are more likely to fidget in order to view their surroundings. They are only concerned about themselves and their safety. Therefore if you get in their space, they will expect you to get out of their way!

When the packstock is all loaded the packer will tail them up (tie together). Some packstock are individually lead by a trail stock rider. Some packers will tie several packstock together in a string. The packer knows the order the animals work best tailed together, the correct length of rope between animals, and how to rig the breakaway ropes. When everything is ready to go, because the animals are not good at standing around, the packer will need to take off up the trail. Be sure all communication is done before this point.

TEACHING TIPS & TECHNIQUES

Students should handle the gear and the animals as much as can be done safely. Ideally there should be enough packstock for each student to approach and work with an equine. Students should brush and prepare for saddling. There should be enough gear so that all students can participate in packing up tools, panniers and bear boxes. Instructor can have students packing up gear while packer gets the packstock saddled.

Take an example of a wreck scenario the instructor has heard about or personally experienced. Discuss what went wrong, and any lessons learned. This is not to scare anybody but just to help students understand the serious nature of a potential wreck, and the importance of being aware and careful.

Students broken into teams can help the packer load the heavy packs onto the packstock so they understand the importance of having helpers for the packer.

Students can be quizzed on the terminology and the key concepts.

A student volunteer can role-play a phone call with the packer, pretending to prepare for a trip that is two weeks away. See if the student can remember everything that needs to be discussed.

Students can pack a load, and then the other students can try to make it shift or rattle.

Students can pack two loads and try to guess how much they weigh, and whether they are balanced, before using the scale.

TRAIL FUN

For a fun wrap-up do a fast-paced “Jeopardy”-style quiz based on the KEY CONCEPTS.

REFERENCES

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Field Reference

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STUDENT SKILL OUTCOMES:

- Importance of communication with the packer
- Understanding the capabilities and limitations of packstock
- Understanding safe practices around trail stock
- Understanding of equine body language
- Knowing what cargo to bring and what not to bring
- Understand the fundamentals of packing and balancing loads

KEY TERMS:

Packstock: (aka pack animals) animals carrying gear for trail users or workers, loaded with panniers, side boxes or gear lashed to a frame on the animal. Most common packstock are horses or mules, but can include llamas and even goats. The wide loads, especially when several animals are strung together along a trail, require the wide clearing limits specified for the PCT. Llamas and goats can also be trained to carry a load.

Pack String: a group of packstock tied together in strings of usually up to six animals, often led by a single mounted or walking person. Loaded with panniers, boxes or tools, such a pack string needs every inch of PCT clearing limits, especially on corners.

Pack Saddle: Designed just for packing loads.

Saddle Pad: Needed under the saddle for animal comfort.

Pannier: Containers that hang off the packsaddle; one on each side. Can be made of canvas, wood or plastic.

Bear Boxes: metal or thick plastic resin containers with bear-resistant closures, often designed as panniers for pack stock.

Tail Up: Tie the packstock head to tail.

Manty: Gear bundled and tied in a canvas tarp then tied on the side of a packsaddle.

Top Pack: Preferably soft gear tied in a bundle and tied on top of packsaddle and panniers.

Lead Rope: A rope, usually attached to a halter, used to lead an animal

Bite/Bitter End: Bite is middle of a rope. Bitter end is the untied tail end.

Tool Can: A deep narrow plastic trash can adapted for use hauling trail tools via pack stock.

Highline: Rope strung tight between trees. Packstock are then tied to the highline instead of being tied to trees, thus avoiding damage to trees.

TRAIL MAXIMS:

“Do not surprise the stock,” “Take only what you need,” “Balance the load,” “No glass,” “No rattles,” “Listen to the packer”

KEY CONCEPTS:

1. Paperwork involved:
 - Job Hazard Analysis (JHA)
 - PCTA Volunteer Application
 - Volunteer Agreement
 - PCTA Project Report
 - PCTA Reimbursement Request
2. Communication
 - Start early and keep in touch
 - Essential items to discuss
3. Stock and Packer Capabilities
 - Carrying capacities
 - Each packer and animal are different
4. Safety around stock
 - Vision, body language, danger zones
 - How to approach an animal
 - Passing on the trail
5. What to bring and not to bring
6. Packing up items for transport
 - Pack tightly; avoid items shifting or rattling
 - Balance and weight distribution
 - Different ways to carry tools
7. Loading up the packstock
 - Teamwork is essential
 - Be careful around loaded packstock



BACKGROUND

Packstock are an important part of the Pacific Crest Trail's history and present day use. Unlike other National Scenic Trails such as the Appalachian Trail, the PCT was originally designed and built with trail stock in mind. In fact, many portions of the trail could not have been built, nor could they continue to be maintained, without the assistance of packstock.

Packstock can greatly increase the scope of a trail repair project by carrying materials, tools, camp gear, food and water farther into the backcountry than a trail crew can typically manage on their own. Pack support allows the crew to get to the job site quicker and with less effort. More time and energy can be utilized at the job site, helping to sustain crew morale. Another benefit of working with stock is that trail workers get a chance to observe how an animal travels over a trail segment needing work, as opposed to good terrain. Volunteers generally like working with the animals and seeing what they can do. It adds a whole new dimension to the trail crew experience.

COMMUNICATION

Effective communication between the packer and the crew leader is perhaps the most important outcome of this class. Because the two individuals may have no experience in the other's field and it is necessary to learn each other's needs and expectations. Crew leaders may be working with a first time PCTA volunteer packer and vice a versa, an experienced PCTA volunteer packer may be working with a new crew leader. Communication must begin early and be frequent enough so that all paperwork and logistical details get worked out.

PCTA's Crew Leader Checklist helps with project planning by providing the leader a to-do list from three months prior, up through the last day of the project. Included in this checklist are several reminders specific to a trip that's going to be pack-supported.

When recruiting a packer for a trip, start by asking an experienced person who has packed for trail crews before. If this person cannot do your trip, they will often be able to recommend other packers whom they trust, or at least direct you to appropriate means for publicizing your request among local packers. When talking with someone new who has not packed for a trail crew before, or not in this area, don't be shy about asking for references. Explain that it is PCTA's responsibility to demonstrate to land managing agencies that we are working with well-qualified volunteer packers.

Volunteer packers are folks who volunteer their time, animals, and equipment. Make sure you clearly understand how many packstock are available. Especially when pack-in is five or more miles, a packer should not be expected to make more than one trip on pack-in day. If more packstock is needed to get the job done then the crew leader and/or their supervisor needs to put the word out and recruit more packers. This is not the responsibility of the packer. If more packstock is not available the crew leader must make arrangements with the packer to prioritize cargo loads and make a second pack-in.

In some cases the packer was recruited for this trip months earlier, during the off-season, by a PCTA supervisor who is not the crew leader. It is essential that the actual crew leader establish personal contact with the packer, beginning at least two to three weeks prior to job. Phone (or an in-person

meeting) is usually better than email for many of the items you'll need to discuss.

Some of the items of information that need to be discussed are brought by the packer, others by the leader. If you are the leader, please remember to keep the following issues in mind during reconnaissance of the work site, and be ready to talk about them. Also keep in mind the packer will often want to pre-ride the trail and assess current trail conditions first-hand, thereby lowering chances of an accident later when they are all loaded up. Trail conditions can change quickly and relying on second hand information can be dangerous.

Essential Items to Discuss:

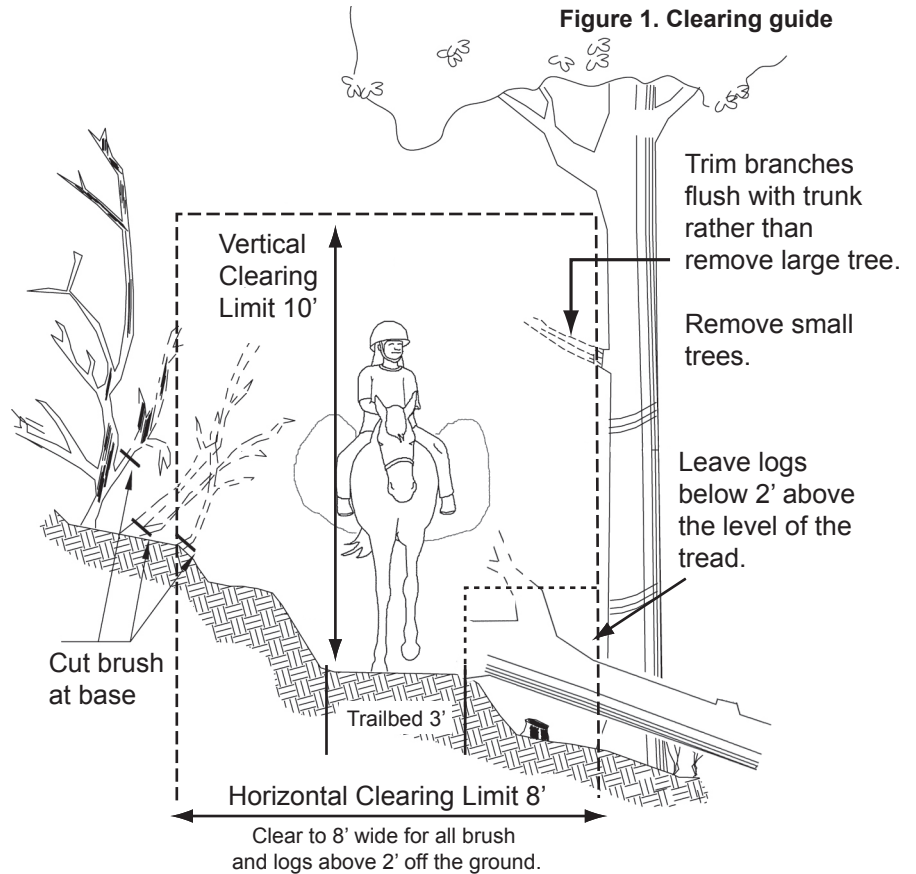
The following items need to be addressed during a crew leader and packer conversation:

Trailhead and Trail Information

- Dates and times of pack-in and pack-out
- Trailhead location
- Trailhead amenities: Turn-around area for trailers? Stock water? Room to **highline** trail stock? Room to camp?
- How many miles is the pack-in?
- GPS coordinates or landmark for campsite or drop site
- Has the trail been cleared to stock standards?
- Are there any potentially difficult fords?
- Is the trail safe for stock? Sometimes the trail seems cleared to stock standards but may still not be safe. Final decisions about whether trail conditions are safe for packstock rest with the packer.
- Do we anticipate the trail and/or site may be boggy?
- Do cell phones work on site? If not, crew leader should ensure packer has a radio to communicate with dispatch when apart from crew.
- Will packer be at the trailhead the night before?
- When will crew leader arrive with cargo? Leader should arrive early enough to ensure enough time for packing up cargo loads. It will take at least two hours to weigh cargo loads and load packstock, even when the cargo is well organized in advance.
- Will the packer be camping in the backcountry with the crew, or returning to the trailhead?
- Time and place for packer's return to pack out at the end of the trip.
- Contingency plans for dramatic weather changes, forest fires or other emergencies.

Paperwork and Protocol

- **Volunteer Application:** Packer needs to fill one out if they haven't volunteered for PCTA before.
- **Agency Partner:** Has the packer worked on that district before? Crew leader needs to keep agency in the loop about who is packing, and be prepared to provide packer's references to agency. Many



** These are general trail-wide clearing guidelines. Please work with your local land manager to determine if different guidelines are used in your local area.*

- agency partners will require that the packer sign their own separate volunteer agreement.
- **Trailhead Communication Plan:** To be distributed by crew leader, several days or more in advance of the trip. The packer should be included when the leader sends it to dispatch, agency contact, and supervisors.
 - **PCTA Authorized Volunteer Packer Reimbursement Request Form:** PCTA regional representatives need to provide their packer the form. Due to the unique service they provide, PCTA has a volunteer reimbursement policy specific to packers. Packers authorized for reimbursement are identified in the pre-project planning. At that time, the project budget – including the number of packers to be reimbursed, approximate mileage reimbursement, and incidental expenses will be identified. The authorized packer may invite other equestrians to attend the project and assist, noting that only the pre-authorized packers will be reimbursed for expenses.
 - Authorized volunteer packers may be reimbursed for i) Transportation Costs related to hauling stock to the trailhead/work site, and the return trip from the trailhead/work site at the rate of \$0.80/mile; ii) Food/Meals on a per-diem basis during volunteer service in the backcountry; and iii) Incidental Expenses directly related to the service such as supplies, propane, and feed for stock (receipts required).
 - A crew leader can obtain the reimbursement form from a Regional Representative, and provide it to the packer.
 - For more information, see PCTA's Volunteer Packer Reimbursement Policy at https://www.pcta.org/wp-content/uploads/2012/11/Volunteer-Packer-Reimbursement-Policy-v2013_07_251.pdf?x20535
 - **Volunteer Hours Reporting:** At the trailhead the crew leader should have the packer sign the Volunteer Sign-in, and ask the packer about prep time, travel time, on-trail time, and take-down time. These hours are submitted to PCTA as part of the overall project report. The packer won't need to submit their own hours report if the crew leader will be submitting the packer's hours to the PCTA as part of the overall project report.
 - **Check-in and Check-out:** The packer is often separated from the rest of the crew on the way in and out of the backcountry. They will need to carry a communication device and follow PCTA check-in and check-out procedures as if they were a separate work party.

Packstock and Gear Information

- How many packstock are available?
- Maximum weight per individual packstock?
- Is a **top pack** acceptable?
- Is it acceptable for a crew leader to pack and weigh loads in advance? Or, does packer want to pack and weigh loads?
- What type of containment is to be used for tools? Trash can tool carrier or **manty**?
- Are the metal **bear boxes**/bear box **panniers** acceptable?
- Are square lidded buckets acceptable? Round lidded buckets?
- What is maximum cooler size? Propane tank size?
- How many long rock bars and long crosscut saws are to be packed?

CAPABILITIES AND LIMITATIONS

A typical pack animal can carry 140 to 160 pounds of gear (15% to 20% of their weight). This is 70 to 80 pounds for each side load. Keep in mind that the loads are dead weight on the back of the animal. Imagine trying to carry your backpack without ever readjusting its position on your back. It gets uncomfortable very quickly. That is why we try not to overload our equine friends. If it is too uncomfortable, they might object and stop in the trail, refusing to move. It's important that the packer has enough animals and the crew must take only what they really need.

If your trail and/or site has a tendency to be boggy, try to schedule your pack support during dry weather, or take other precautions to keep stock out of the muck. During periods of extreme wet conditions, packstock could cause collateral damage to the trail and work site. The animals' weight, and the inability of the packer to keep them in a specific spot should be considered.

Packers are all different, and have different ways of accommodating your gear. Don't assume your next packer will bring the same equipment or use the same techniques as your previous packer. For example, some packers won't do top packs, so, don't count on it. Talk to your packer.

SAFE PRACTICES & EQUINE BODY LANGUAGE

Safe practices around stock are extremely important; they are large powerful creatures. Be aware that equine are prey animals. That means they are always on the lookout for predators who want to eat them! Try not to surprise or startle them.

This is a good time to cover equine vision. Like most prey animals, the horse's eyes are set on the sides of its head. This allows a 350° range of monocular vision and a good chance of spotting predators. The wide range of monocular vision has two blind spots: one in front, making a cone that comes to a point 3-4 ft. in front of the horse, and another right behind its head, extending over the back and behind the tail. With this in mind it's best to approach a horse from its side, toward the shoulder area. Remember to speak and watch the ear and eye. The ear travels with the eye so you can easily discern if you've been seen. Your safety is your responsibility so be sure you are seen.

Rule of thumb: Assume the animal has not seen you; therefore make your presence known with a hello or other small talk. When passing the animal's back end, either keep very close (so any potential kick won't get you in the head) or more than six feet away from the rear-end. If you must pass behind an equine start at the shoulder with hand contact and talk to them. Then move slowly to the rear, maintaining hand contact, when moving behind.



Figure 2. Horses are always on the lookout for predators. (IMAGE BY JIM SNOOK RE-PRINTED WITH PERMISSION FROM THE BACKCOUNTRY HORSEMEN OF WASHINGTON.)

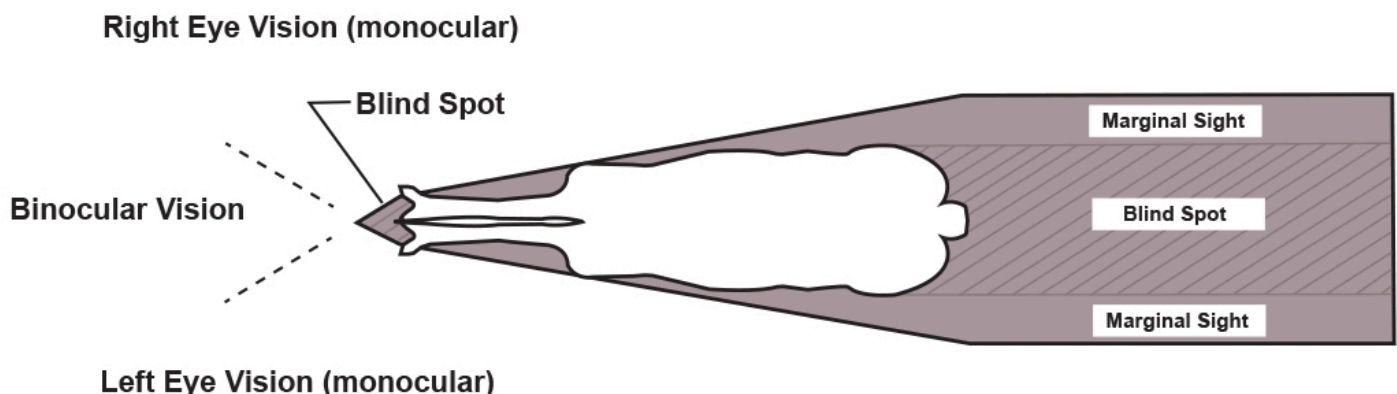


Figure 3. A horse's fields of vision.

(IMAGE FROM EQUESTRIAN DESIGN GUIDEBOOK FOR TRAILS, TRAILHEADS, AND CAMPGROUNDS, USDA FOREST SERVICE.)

Be mindful of what is going on around your work area. You may be able to prevent a mishap before it escalates. With animals, if something scares one, there is likely to be an instant chain reaction. If this happens it is usually best to step back out of the way of all the trail stock and wait it out.

Never pass in front and step over a **lead rope** of an equine when it is tied up. When approaching equine watch their ears, this indicates where their eye is focused. If they pin both their ears or bare their teeth – STOP. Do not go near. If they act like they want to bolt – STOP. Do not go near. Tail swishing, pulling back on lead rope are other indicators of something wrong. In other words, keep your distance if they are doing anything other than standing patiently.

Watch your feet near the animals because it can hurt when several hundred pounds is on your foot! The crew leader is responsible for making sure that crew members working around the trail stock have appropriate foot gear. Crew members without sturdy boots must be assigned duties away from the trail stock.

If a crew member is uneasy about working around packstock, the crew leader must assign him or her to duties away for the trail stock. Animals are sensitive to body language. If there's a nervous human nearby, they can become anxious themselves.

When getting ready to load or unload packstock for the first time, try to introduce yourself. Approach from the side towards the shoulder and talk to them. Then you may pet them. If they let you pet them, you should be good to go. If an animal does object by threatening to kick, bite, or moving away from you, ask the packer to replace you. Instant dislike does happen, and for no apparent reason, but not often.

It is very important to be extra watchful around loaded packstock. The loads decrease the animals' ability to see, and therefore they get a little anxious. Besides, they are antsy because they know it's getting close to time to hit the trail. Don't stand near loaded packstock. You don't want to get bumped by their panniers, or worse, knocked down; one place you don't want to be is on the ground!

When encountering stock on the trail, it's ideal for hikers to let them pass by standing to the downhill side. If there's nowhere safe to stand on the downhill side, just stand wherever it's safe. More importantly, hiker and horse rider should talk to one another. The normal banter reassures the animals that the hiker is a human being and not a predator.



Image 4. Unfamiliar sights and sounds can spook an equine.
(IMAGE RE-PRINTED WITH PERMISSION FROM DAVE ELSTON.)

WHAT TO BRING AND WHAT NOT TO BRING

Packers are all different and have different ways of accommodating your gear; therefore, this is not a substitute for talking with your individual packer. But, here are some general guidelines.

Not So Easy for Packers	Easier for Packers
Ice chest or cooler larger than 48 quarts	Ice chest or coolers 48 quarts or smaller often fit inside pannier bags or on platform carriers.
Two coolers different sizes and weights	Coolers of the same size and weight
Big bulky plastic containers that do not fit inside pannier bags (and also do not have their own harness straps)	Rigid plastic lidded buckets or tubs that will fit inside pannier bags. Square buckets are more space-efficient than round ones.
Straps or decker hooks missing from bear boxes or panniers (exception: straps or hooks not needed if packer plans to manly the boxes)	Pannier boxes complete with straps to hang from <u>pack saddle</u> or decker hooks
Lots of extra tools	Minimum number of trail tools for job
Sharp ends of tools not covered	Covered tool blades; and, with trash can style tool carrier, reinforced container bottom
Cast iron cookware	Lightweight cookware
Glass containers	Food carefully repackaged for transport
Five gallon steel propane tank	A pair of matching 2-gallon or 1-gallon tanks. Fiberglass tanks are lighter than steel.
Large, heavy, multi-burner stove	Lightweight 2-burner camp stove
Large camp lanterns	Small camp lantern
Bulky, rigid water containers	Collapsible water containers
Bulky water filtration system	Gravity bag style water filter

PACKING UP ITEMS FOR TRANSPORT

First of all, make sure to find out whether your packer is comfortable with the idea of you, the crew leader, pre-assembling the loads. Packing is a complex art. Packers and their animals are all different. Some packers, understandably, will refuse to put any loads on their packstock that they themselves did not pack. Even in these cases, it's helpful for the crew leader to understand the following principles, in order to help ward off some of the typical troubles with packing loads.

The best packing containers can double as storage containers at camp; for example, bear box panniers or lidded buckets. When loading boxes and panniers, the cargo should be packed tight to prevent any breaking, shifting, or shaking. Ensure pots and their lids, dishes, and utensils are taped together, padded, or otherwise stored in a manner that eliminates rattling. Take only the gear that is needed. Less is better, just like when you are carrying your own pack. You will often find there is not as much room as you had hoped.

Crews should plan on carrying their first two meals in their own backpacks, in case of a mishap with the packer.

All food must be repackaged. Remove glass, cardboard, and excess packaging, which only adds

weight and garbage. Consider all the jostling that happens to loads on pack animals. Protect eggs. Store liquids in leak-proof containers. Remember: no glass! If you have smashables such as bags of chips or sliced bread, consider carrying them separately, maybe even on top of your backpack.

Final decisions about cargo loads and their weights rest with the packer. Final decisions on the priority of items to be included in a cargo load rest with the crew leader. Crew leader and packer must work together to ensure that tools and other materials are secured to avoid damage or loss.

When boxes and panniers are all loaded, lay everything out and begin organizing loads based on available packstock.

A three packstock load example might be:

- One for the set of tool carrying trash can panniers.
- One for the set of bear boxes or panniers.
- One for either 2 coolers, or 1 cooler and 1 pannier.

Tips for packing cargo loads:

- Keep heavy items on the bottom of boxes or panniers, and towards the side that will rest against the animal.
- Pack bottles upright to prevent spilling.
- Have duct tape handy.
- If anything might rattle, pad it.
- Have soft stuff on hand (such as extra tarps, dirt bags, wash rags, towels and sleeping bags) ready to stuff into nooks and crannies if needed to quiet a potential rattle. Remember this will add weight.
- Pack fuel and bug repellent separate from food.
- Many packers prefer to avoid top packs. If top packs are necessary, they need to be soft and lightweight like tents, bed rolls, tarps, etc.
- Side loads need to balance perfectly, within 1 pound of each other.
- Weigh your loads, adjust, and re-weigh until they are balanced. Mark weight on a piece of duct tape and stick to the box, pannier or cooler.

Proper pannier loads keep weights close to the animal and evenly distributed on the ribs. Weight is best distributed from the inside center of the pannier toward the front and toward the back of the animal. Panniers, bear boxes, **tool cans**, or any other type of load set on the animal's back can become uncomfortable if all the weight is in the front of the pack. This puts all the weight on the shoulder of the animal, causing sores. It's all about taking care of the stock so they will perform to the best of their ability. This is one reason a packer might choose to pack up panniers and boxes themselves.

Balancing the Loads

First off, the crew leader will need a good, sturdy 100-pound packer scale, which can be found online. It is possible to hang this scale from a tree limb if you are going to be working with lots of loads. The scale is an important tool, so take care of it. Do not leave it out in the weather and give it a place so you can always find it.

Panniers need to be within a pound of each other. As you become experienced you will be able to judge items of similar weights and distribute them accordingly. You will no doubt need to move a few things between panniers before you get the weight right. When panniers start feeling close in weight, that is when you start using

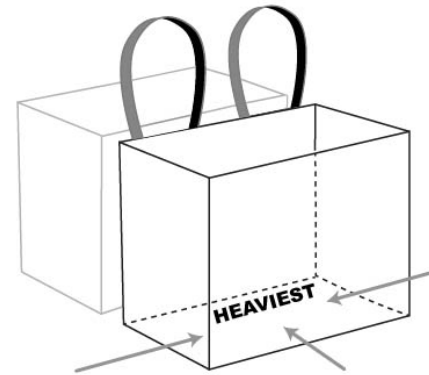


Image 5. Internal weight distribution inside panniers. (IMAGE BY SUE FORSMAN.)

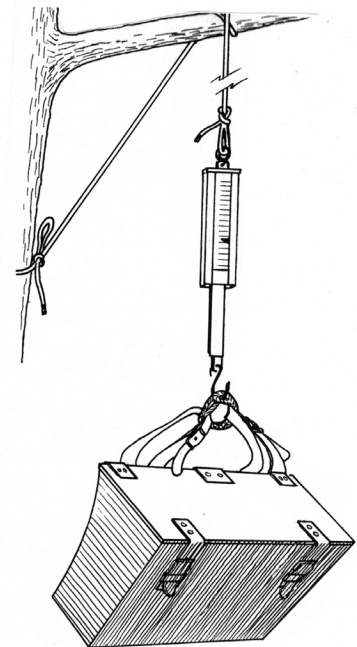


Figure 6. Packer scale. (IMAGE FROM HORSE PACKING IN PICTURES, FRANCIS W. DAVIS.)

the scale. So pack up everything in the set you are working on by guesstimating before you start with the scales. Lifting these 70-80 pound packs is going to be tiring. It is best to lift them with a buddy. Remember your safety lessons and keep that back straight when lifting! You keep hearing “No more than a pound difference” and you’re probably thinking “What’s the big deal?”

If the weight is off, even by a pound, the packer will have problems. It won’t matter how perfectly the load was tied, it just won’t get far before it starts shifting. Sure we can stop and try to shove the load back over or even re-tie but until it is balanced it won’t travel well. We usually end up finding the perfect rock along the route and add it to the light side. A quick fix beats having a wreck!

PACKING TRAIL WORK TOOLS

Many packers will mantle the tools, which is like wrapping them in a big burrito. Another common way to carry tools is in rectangular plastic trash cans fitted with harness straps. These trash cans are very easy to overload. The tool weights add up quickly; take just the minimum you need. Tool blades and sharp edges should be covered if possible. The trash cans get soft in the heat and we don’t want any punctures. Sharp edges are a danger to animals as well as humans. Reinforce the bottom of the can with carpet or plywood. Large blades such as pick mattocks are easier to pack when the heads are taken off the handles.

Handles stick up quite high when on the pack animal so their placement is important. They need to be directly over the animal’s back so they do not catch tree limbs. When packing the tool cans it helps to place them as if they are on the animal’s back; it helps to visualize where the back inside corner is. Get those handles over the rump of the animal. This is the best place for the tallest handles and all handles need to be along the inside edge of the cans. Stuffing dirt bags or webbed rock slings and other small soft items along the outside edge of the trash cans keeps the handles in place.

- Place guards on all tool blades.
- Put heavy tools and blades in bottom and centered as much as possible in the trash cans.
- Tool handles – Place the tallest at the back inside corner of the trash can: keeping to inside of can and close to the animal’s back.
- Tape or tie handles together to prevent rattles.

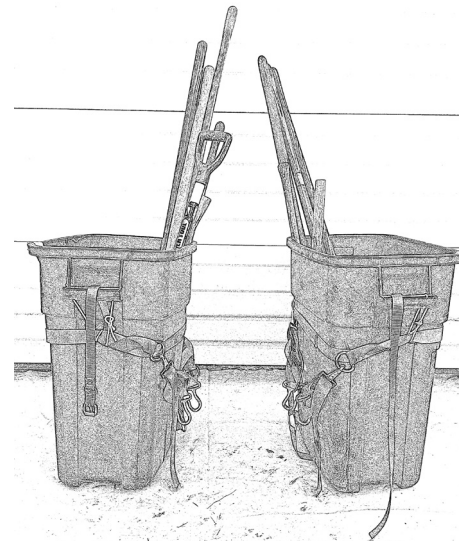


Figure 7. Trash can tool carriers. Also known as tool cans. (IMAGE BY SUE FORSMAN.)

LAST CHANCE FOR COMMUNICATION CHECK-IN

After the loads assembled, and before loading the stock is your last chance to take care of any further communication with your packer. After the animals are loaded, they won’t want to stand around; they will be hitting the trail. Double check that you’ve had the packer sign the JHA and sign-in sheet, discussed communication devices, check-in and check-out, volunteer hours, and contingency plans.

TIME TO LOAD UP THE PACKSTOCK

Packing up packstock is not a speedy process. It takes time no matter how fast you’d like it to happen. It can take at least two hours to weigh cargo loads and load packstock, even when the cargo is well organized in advance.

Once you have everything weighed and balanced for each animal, set the loads in pairs so it is obvious what goes together.

Depending on the space available at the trailhead the packer may ask you either to help bring loads to animals or animals to loads. Have a volunteer ready to hold the packstock while the packer and at least two volunteers load it up and tie down the load. The saddle needs to be checked and cinches tightened because some equine can be very tricky in that they like to expand and hold their breath; resulting in a saddle that will slip when they exhale. Loading of the tools carriers makes a good demonstration. Have students load an animal under your supervision to help them understand the teamwork advantages. Knowing how to lift the load onto the animal can make the lifting easier and safer. Demonstrate how to tie items to the top of the panniers. Remind students that this adds more weight to the cargo load. This is also a good time to demonstrate a top packs. Some packers will only use top packs if there are no other alternatives. Top packs change the load's center of gravity and if not perfectly placed and tied they will result in shifting loads.

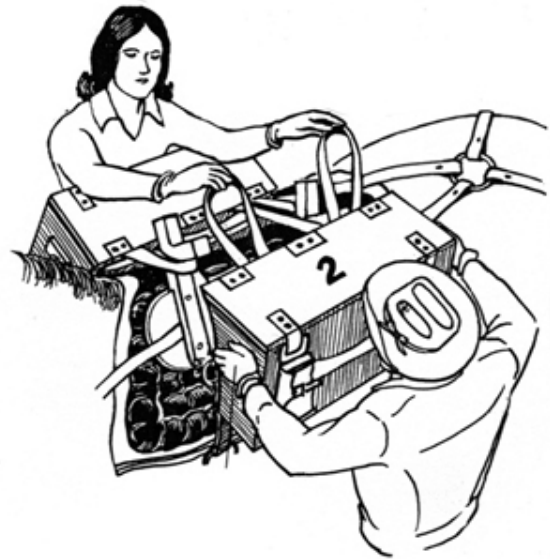


Figure 8. Teamwork is essential when loading packstock. (IMAGE FROM HORSE PACKING IN PICTURES, FRANCIS W. DAVIS.)

Animals with loads are restricted in their ability to see around themselves. We must be extra careful around loaded animals. Because of the vision limitation they are more likely to fidget in order to view their surroundings. They are only concerned about themselves and their safety. Therefore if you get in their space, they will expect you to get out of their way!

When the packstock is all loaded the packer will tail them up (tie together). Some packstock are individually lead by a trail stock rider. Some packers will tie several packstock together in a string. The packer knows the order the animals work best tailed together, the correct length of rope between animals, and how to rig the breakaway ropes. When everything is ready to go, because the animals are not good at standing around, the packer will need to take off up the trail. Be sure all communication is done before this point.