

## **Disclaimer**

By its very nature, 4-wheeling can be a potentially dangerous sport. Property damage, injury, or worse could result. This book does not cover all the hazards of the sport. We encourage participation with other, experienced 4-wheelers. You must acknowledge and assume full responsibility as to whether to take on these risks, and whether a trail is safe to drive at any given time. You must use good judgment and make proper preparations.

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## 4-Wheeling

Whatever the vehicle, the object is essentially the same; to get off the pavement, away from the traffic, out of sight of the stop lights; to discover an out-of-the-way road; to go somewhere we've never been; to test our skill and the ability of our machinery to maneuver over rocks, through sand; to get "way back" into the woods where we can revel in the works of nature.

We all know the rules of the highway. If we forget or stretch them a little, there is usually someone around to help us with a little reminder and a big fine!

Likewise, most of us are familiar with the operation and safety of our highway vehicles.

But out in the backcountry there's a whole new set of rules – and a few regulations – for safe, courteous, common-sense operation of recreation vehicles.

None of them are intended to keep us from having a good time. On the contrary, the "rules of the back roads" have been set down so that we might continue to enjoy the forests and the prairies year after year and so our children might also have the same opportunities.

Finding out about some of those rules and regulations is not always easy. Especially some of them, like safety, which are "nice to know" but not required by law.



That's why this booklet was printed.

Most of it was written by people who love to bounce along on back roads, but who recognize 4-wheeling, like any other outdoor sport, may conflict with other uses of the land.

If we learn – and follow – the rules, we minimize the conflicts. The result is a better time for everyone, and protection of the backcountry resources as well.

### **First, an ethic...**

No book is going to make you care about the proper use of the backcountry. You must develop that attitude on your own. What this booklet can do, however, is give you some of the basic elements of a code. Maybe you weren't aware of some of them, but many are just common sense. In combination they can guide you in your backcountry experience.

Developing and adhering to your own personal code of backcountry ethics is a challenge. But like any challenge, it has its rewards.

One of them is satisfaction that you know how to move over the land ***without damaging it***. It's tough to do – even for a hiker. You have the added disadvantage of a few thousand pounds of machinery. ***If you can move it over miles of primitive roads without leaving a vehicle imprint, you are an expert.***

### **Some of the Basics**

- Leave the land and its vegetation as you find it. Limiting travel to established roads will minimize damage to soil

and plant life. Drive only where permitted. Stay on the marked roads and trails.

- Don't make switchbacks across alpine tundra.
- Preserve America's heritage by not disturbing old mining camps, ghost towns, or other historical features.
- Leave rocks, flowers, wood, antlers, and artifacts in their natural state for others to see and enjoy.
- Respect the rights and property of others. Miners, recreationists, ranchers, fishermen, hunters, and many others rely on the backcountry for enjoyment and livelihood.
- Get permission before you cross onto private land. Leave gates as you find them.
- Carry out what you carry in.  
Encourage others to keep a clean camp by doing more than your share to rid the backcountry of litter. Don't burn or bury trash. Carry a trash bag in your vehicle and pick up trash left by inconsiderate people.
- Safety and courtesy are contagious. Spread them around.
- Your dog doesn't know not to annoy or disturb wild animals or people. Keep your pet on a leash and under control.
- Brush up on the history, geology, and ecology of the area. Knowing about it makes the trip more meaningful. There are several good books available at your local bookstore.



- Camp in an existing site whenever possible. Set your camp at least 100ft from water sources. Make a Pack-In Pack-Out camp.
- Cook your meals on a cookstove. Save campfires as a luxury for special evening discussions. Use a fire circle already built; if you must build a new ring, keep it small. Not only does a huge bonfire waste wood, but it's dangerous and hard to put out. When you leave the camp site, drown the campfire with water. Make sure all embers, coals, and sticks are wet. Move rocks to ensure no embers are underneath. Stir, add more water, and stir again. Feel all sticks and charred material to make sure nothing is burning.
- It's your responsibility to make sure the public lands are used safely and properly. In doing so you're not only protecting your privilege to enjoy the land but preserving a valuable natural resource as well.
- Do not expect to find a toilet handy.
  - For number 1, stay at least 200 feet away from any water sources, trails, parking areas, and campsites. Avoid urinating on sensitive alpine plants and soil that could be dug up by animals such as mountain goats attracted to the salt in urine.
  - For number 2, you have two choices; pack it out or bury it. The preferred method is to remove it. If



you must bury it, find a spot at least 200 feet away from any water sources, trails, parking areas, and campsites. Dig a hole 4 to 6 inches deep and recover with the soil removed.

- Pack out or bury all toilet paper regardless of how it was used.
- When bathing or washing utensils, use biodegradable soaps and dispose of wastewater away from water sources.
- During a lightning storm, your safest place is your rubber-tired enclosed cab vehicle. Avoid open ridges, lone trees, and rock outcrops. Seek shelter in a dense stand of trees, deep valleys or at the foot of a cliff.
- Altitude sickness is caused by the lack of oxygen. The symptoms of nausea and headaches can be overcome with deep breathing, rest, and quick energy foods such as dried fruit, candy, or fruit juices. Drink plenty of water.
- Proper use of a winch can help reduce adverse environmental impact on vegetation and the land. Generally, a winch should be used for emergency situations, to overcome temporary natural barriers such as fallen trees, landslides, and damaged stream crossings.

## **Planning Your Journey**

No matter where you travel, your trip will be better if you plan in advance. Visit the agency responsible for the public lands you wish to visit either in person or online. They have maps, brochures, and other information you can find for the area. Travel with at least one other vehicle.



## Rules of the Road

Most of the rules of the highway are for safety's sake and apply even on the most out-of-the-way, primitive, backcountry roads. A good example is excessive speed. You probably won't get a ticket for racing along an isolated back road, stirring up a cloud of choking dust behind you, but what about that narrow road? And the many blind curves and hills? That sharp corner could prevent your seeing another 4-wheeler, or backpacker, or deer, or dead end. You head for the backcountry to enjoy the scenery, so why rush by? Common sense says don't take the chance, and that's pretty good advice.

You won't see many signs out in the woods. Chances are if you assume you always have the right-of-way, every other 4-wheeler will do the same. Better to approach intersections with caution and yield if necessary.

Rarer than stop signs are roads with passing lanes. If you try to pass, make sure the driver ahead of you knows what you're doing. If you are being overtaken, pull over and let them by. When approaching oncoming vehicles, it is common courtesy for the first driver to indicate the number of rigs in the group and for the last driver to indicate they are the end of the group.



Vehicles coming uphill have the right-of-way. On very steep inclines, loss of climbing momentum could mean loss of traction, engine stall, or any number of things which could lead to a difficult, possibly dangerous situation.

When you leave your vehicle, park it in a safe place, completely off the traveled part of the roadway. Make sure your parking brake will hold or, better yet, chock the wheels. Do not park on Alpine Tundra or Riparian areas.

4-wheeling takes skill and good judgement. You impair both when you drink or take drugs. Alcohol or drugs and driving in the backcountry is just as dangerous as on the highway.

Noise, safety, quality of recreation experience, potential impacts on soil, watershed, wildlife, habitat and vegetation are all to be considered.

Although it is a federal offense to do so, sometimes the signs are torn down or defaced. Whether or not an area is properly posted, YOU are responsible for knowing the rules. You can be sure you're on the side of the law if you use the proper travel maps.



## **Communication**

The Mountaineers use GMRS (General Mobile Radio Service) radios for communication. The official channel is #19. There may be instances when the trip planners will designate an alternate channel if #19 is not working well.

The use of GMRS radios requires a license from the FCC. The term of the license is 10 years, and it extends to any family member, regardless of age.

## **Underage operators**

Whether on the road or off, you must have a valid state operator's license or learner's permit to drive on public lands.

## **Mufflers-spark arresters**

With the wrong or badly deteriorated exhaust system, your 4-wheeler is a fire hazard. A hot tailpipe can easily exceed the kindling point of dry grasses and underbrush. Catalytic converters get even hotter than standard exhaust systems. **WATCH WHERE YOU DRIVE AND PARK.**

Approved spark arresters are required on vehicles driven on public lands. Your factory-installed muffler is considered adequate, but custom tailpipes may not be.

## **Back Road Savvy**

When you venture onto the backcountry roads, it's a good idea to caravan with at least one other 4-wheeler. Have the people with more experience take the lead. Watch how they handle some of the hazards or tricky situations.

There are a couple of rules to remember when travelling the backroads with a group. Always keep the vehicle following you in your rearview mirrors. If you don't see them, stop and check on them. The person in front of you should do the same which will have the domino effect of stopping the entire group and no one gets left behind.

Another rule to keep the group together is to stop at intersections and only proceed once you're sure the vehicles following you are headed in the correct direction.

### **Airing down tires**

You want maximum traction when you're 4-wheeling, and one of the most effective techniques to increase traction is to air down your tires. Lowering tire pressure can be the difference between making it past an obstacle, instead of simply spinning your wheels. Airing down will give you more traction in sand, snow, dirt, rocks, and mud. It can also improve ride quality on rough terrain. There are many different opinions on how far to air down, find what works for you and your vehicle. Be careful and air up before returning to the pavement.



### **Rocks and potholes**

Engage your 4-wheel-drive before you get into a tight spot. Not all roads are tough enough to require extra traction, so you should use good judgement on when to lock in. Excessive tire slipping can damage road surfaces, leading to erosion and possible tire damage.

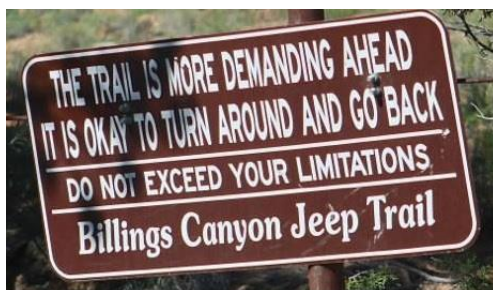
Keep a light foot on the gas pedal. Smooth steady application of power is usually better than all-out speed. Vehicle momentum can be important to get through some mud holes, sandy stretches, or snowbanks. Size up the situation in advance, deciding how much momentum you need to drive you through the obstacle. A steady driving momentum is better than creeping through some obstacles. Too much speed can cause slipping and sliding and may leave you stuck fast, right in the middle of the problem. Take it easy through dips or ditches crossing the road. Drive across them at an angle so that only one wheel at a time drops into the depression.

Steer toward the road's high spots to maintain maximum ground clearance. Try to straddle ruts, but not rocks. Let one wheel ride over large rocks if possible.

### **Really rough terrain**

When the going gets really rough, it's time to assess some of the possible consequences should your 4-wheeler not make it through. Ask yourself "What are the dangers?" Are you alone? Miles from help? Is there a possibility of a rollover or a plunge into a ravine? What's the time? The weather? Will getting you through result in damage to the land? Only after you're satisfied you can deal with the consequences of your actions should you go ahead.

- Gear down as low as possible and keep a light pressure on the pedal. Let the vehicle idle over



the worst stretches and stay off the brakes and clutch as much as possible.

- Have a “spotter”, a passenger or another driver, guide you (or “spot” you) through the really bad sections, especially if you can’t see the obstacle.

## Hills

- Use your lowest gear range to ascend or descend steep hills and make sure 4-wheel-drive is engaged.
- Go straight up or down. Don’t try to angle across the face of a steep hill or you might tip over. However, if you become angled across a steep hill – STOP – and gently back down the hill while maintaining extreme caution.
- Don’t cut a new road up or down a hill. The resulting scar is unsightly and can lead to soil erosion.
- Don’t race blindly over the crest of a hill. Get up enough momentum to reach the top, but not so much you can’t stop to check the best way down the other side.

If you have a manual transmission and stall out, set your emergency brake before you step on the clutch shift to lowest gears and “play” the emergency brake against the clutch to get moving again under power. AVOID WHEEL SPIN. You could start slipping sideways and tip over. If you start to slip, or have doubts about reaching the top, back down, and start over – or forget it and find another marked and approved route. Never go off trail to avoid an obstacle.

To park on a steep hill, place the vehicle in 4-wheel -drive, low range, and shift into low or reverse position with a manual transmission or park with an automatic. Set the emergency brake. Chock the wheels. If the grade is not too steep, park cross-angle.

## Getting unstuck

There are as many ways to get stuck as there are roads in the backcountry. Some are simple, easy to get out of, others a test of stamina, nerves, and vocabulary. It's easy to do on a rough road if your wheel falls into a deep rut or a large rock in the roadway catches your vehicle's undercarriage.

The quickest way to get unstuck is to think your problem through, planning each step you need to take. It'll save wear and tear on you and your equipment.

Air down your tires if you haven't already. Jack up your vehicle and build up the track under the wheels. Use rocks, dirt, logs – anything that will support the vehicle's weight. If you do any digging replace the soil and clean up afterward. You might be able to lighten the vehicle enough to raise the chassis and allow you to pull off the obstruction. To do this take out gear, gas cans, and people. However, if you are hung on an axle, this probably won't work.



## Mud holes and soft sand

Unless you are making some headway, don't spin tires relentlessly because they just dig deeper. Dig out under wheels, placing rocks, logs, or other firm material underneath for traction.

Mud can hold your wheels in suction. If it's strong enough, you'll have a hard time getting unstuck. Dig out mud at the side of the wheels to release the suction.

After being stuck in mud or soft sand, vehicles with disc brakes should be checked and any debris removed. Have brake drums pulled and thoroughly cleaned before any long-distance travel. If sand and dirt is not removed promptly, it will score the brake drums and cause excessive lining wear.

If you ford streams or travel in extremely wet terrain, make sure gear boxes and engine crankcase are not wet. Keep vehicle well-lubricated – more often than the manufacturer's instructions if driving conditions seem to warrant.

## **Tires**

You should use heavy-duty tires with tread suited for backcountry driving on all four wheels. Mismatched tires can cause a failure in the axle assembly or transfer case.

All tires should be matched to within one-eighth of an inch in diameter. Rotate your tires regularly for even wear.

## **Buckle up**

Seat belts are not only a safety factor but provide a more comfortable ride on bumpy roads – use them.





## The highway

When you get back on the pavement be sure to unlock your hubs, inflate your tires to the proper pressure, and switch to two-wheel-drive. Prolonged driving on hard-surface roads with 4-wheel-drive engaged can cause unnecessary gear train wear or damage.

## Winching

There are many advantages to having an electric winch on your 4-wheeler, but a winch also has limitations and has the potential to injure people and damage property if used improperly.

The best way to get acquainted with your winch is to try it out at your earliest opportunity. Plan your test in advance. Remember to listen to the winch operate as well as see it. Learn to recognize the sound of a light, steady pull, a heavy pull, and the sound of a load jerking or shifting.

The winch will pull your vehicle up or ease it down a steep grade. When properly anchored, your winch can pull another vehicle or load. It will do the job easily and safely if you follow these suggestions.

- **Plan your pull:** You can't always hook up and pull out in one step. Examine the area for anchorage points and leverage possibilities.
- **Pulling at an angle:** Although winches equipped with fairleads can pull from several directions, pull from an angle only to straighten up the load. Otherwise, damage to vehicle frame or other parts could result.

- **Anchors:** A tree or large, heavy rock makes a good anchor. When tying to a tree, use a webbed strap to protect the bark from the cable. DO NOT wrap your cable around the tree and hook it to itself. In open areas, stakes driven in solid ground and chained together make good anchor points. In sand, bury your spare tire horizontally, a foot or two deep. A buried log can make a good anchor also.



- **Winchline care:** Don't worry about even spooling while pulling a load unless there is a pile-up at one end of the spool. Re-spool after the job is done. When you rewind after a job, either drag a weight or have someone hold the cable taut by the hook.
- **Winchline breaks:** A line under extreme tension stretches. Release that tension suddenly, as with a break or faulty hook-up, and a steel cable will snap back like a giant rubber band – but with deadly force. A snap-back can sever limbs, cause severe abrasions, or take a life. To be safe follow these precautions:
  - STAND CLEAR A GOOD DISTANCE AWAY BEFORE THE WINCH LINE IS TIGHTENED.
  - When pulling a heavy load, place a blanket, jacket, or tarp over the cable about six yards behind the hook. It acts as a parachute to slow cable snap-back.

- **General safety:** When using vehicle power to assist a pull out of a bad spot, take care not to overtake the winch line. Use a heavy rag or gloves to protect hands from burns, and never allow the cable to slide through the hands. Don't move the vehicle to pull a load. **DO NOT LIFT OR MOVE PEOPLE.** Stay out of and safely away from a vehicle in a dangerous situation. Chock wheels when your vehicle is on an incline. Do not use trailer hitch ball as anchor point.
- *To be on the safe side, consult the manufacturer's specifications for decrease in winch capacity for each wrap of the cable around the spool. If you don't have this information, decrease rated capacity by 1000lbs for each wrap of cable beyond the first. Winch capacity and cable capacity are not the same. Make sure your equipment is right for the job. Check often for broken or frayed cable.*

## Pull By Layer



5th Layer \_\_\_\_\_

4th Layer \_\_\_\_\_

3rd Layer \_\_\_\_\_

2nd Layer \_\_\_\_\_

1st Layer \_\_\_\_\_

**Strongest Pulling Layer**

## Reporting violations

A few 4-wheelers either don't care about or are unaware of some of the rules of the backroads. You can help protect life and property and ensure continued motor vehicle access to public lands. If you see someone you believe is violating the rules, let them know your concern. Most times they will be glad to cooperate. However, if they continue to disregard the law, follow these few steps to aid law enforcement officers:

- Make a note of the location, date, and time of the offense.
- Get names and addresses of witnesses willing to testify against the violator at a magistrate's court.
- Photograph or note any damage to roads, trails, vegetation, structures, wildlife.
- Photograph the violators in action, if possible. Note license numbers of vehicles and get a description of the operator. Remember, a vehicle cannot be cited for an offense; it's the operator who must be proven guilty.
- Make sure in the case of off-trail violations, they're in an area that is closed to cross-country use. Note whether signs have been posted and roads or trails barricaded.
- Take your information to the agency responsible for managing the land involved. The sooner you act, the sooner the violators will be brought to task.

## Necessary Gear

### For emergencies...

- First aid kit
- Fire extinguisher
- Food and foul weather clothing
- Plastic bags for trash and to contain fluid spills

### Just in Case...

- Drinking water
- Food
- Foul weather gear
- Radiator water
- Jack capable of properly lifting your vehicle
- Gas
- Flashlight
- Matches
- Tools, especially those unique to your vehicle
- Shovel
- Vehicle fluids

- Bailing wire
- Axe or saw
- Blankets
- Tire chains
- Recovery gear
- Toilet paper
- GMRS radio
- Method to air up tires
- Tire repair kit
- Jumper cables or booster pack
- Cell phone
- Small tarp
- This booklet!**



This book was produced by the Larimer County 4-wheel Drive Club because we care about the environment and the safe, sensible use of 4-wheel-drive recreational vehicles, on and off our highways.

