

Explore Off Road

San Bernardino
Mountains

FREE



Maps, Tips & Techniques

**Trails
411**

brought to you by

Master Trainers

Don Alexander

Wendy Stephens

Bill Stephens



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Trails 411

Off Road Training

**The most comprehensive
Off Road Training available
ANYWHERE!**

Shellie Shook - Student

Trails 411 (Bill and Wendy) is a must for all Jeep Wrangler owners. We learned so much about our Jeep such as the importance of always having the right tools, using 4low, feeling the trail, finding the right lines while rock crawling and so much more. Most important is their class gave us the confidence and knowledge to really enjoy what our Jeep was built for!

Gene Dahilig - Student

As a new owner of a Rivian R1T and someone who has not done much 4x4-ing before, I wanted to learn how to best handle this vehicle off-road. I had the pleasure of training with Bill, Wendy and Don from Trails 411. Since the R1T is an electric 4x4, how it handles off-road is a little different than the usual combustion engine 4x4. I was not sure how to handle it off road and wondered how the folks at Trails411 would handle the new tech. To my surprise, they were extremely curious how it performed and more than willing to explore it with me.

My trainers were able to show me how to manage an electric 4x4 with no HI/LO settings, but with instant torque on the trail. They were able to help me better understand how to take advantage the R1T Rock Climbing and Off-road Auto modes.

We went over wash-board terrain and rocky sections, helping me find the best line on the trail. They are professional trainers that absolutely love the sport and were able to pass some of that knowledge on to me. I am grateful for the opportunity to have them "show me the ropes." If you want to improve your wheeling skills, this is the place to go!

Thank you Bill, Wendy, Don and Trails 411!!!

- **4x4 Driving Skills**
- **Rock Crawling**
- **Vehicle Recovery**
- **Overlanding**
- **Commercial & Utility Driver Training**
- **Product Launch**
- **Corporate Events**

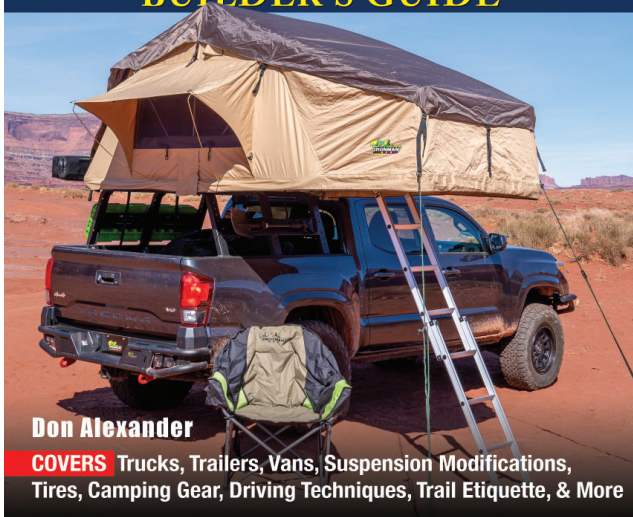


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THE OVERLANDING VEHICLE

BUILDER'S GUIDE



Don Alexander

COVERS Trucks, Trailers, Vans, Suspension Modifications, Tires, Camping Gear, Driving Techniques, Trail Etiquette, & More

Don Alexander's latest book will be available on Amazon in Spring 2024

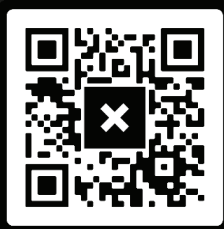
The San Bernardino Adopt-A-Trail VOLUNTEER program works diligently to maintain roads and trails to assure continued and safe access for motorized vehicle recreation. At its peak, the AAT program consisted of 53 clubs and produced on average 25,000 man-hours of volunteer work.

Since the pandemic, the program is in need of new clubs and volunteers. Scan the QR code for more info.



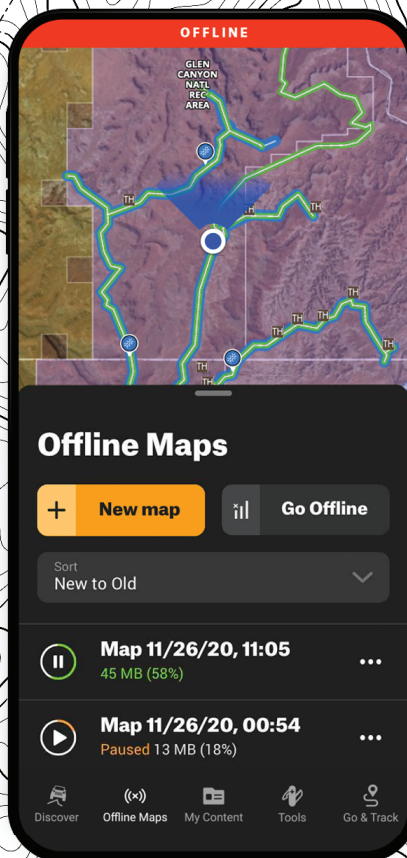
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Off Road Driving and Safety Tips



Off roading can be daunting to the newcomer. It is a very different environment compared to driving on the highway. The fear of getting lost or stuck keep many newcomers from experiencing the adventures that four wheeling offers. There is much to learn and some elements of driving off road are counter-intuitive. While nothing is better than hands-on experience, these tips will point you in the right direction and help open up a whole new world of adventure, challenge and beauty. These tips were developed for students at our Trails 411 4 Wheel Drive Training Programs in Big Bear Lake, CA.

Pay Attention

Many trails are narrow and traverse shelves. Inattention even for a split second creates a situation where a tire can breach the edge of the road. This can lead to getting stuck or going over the side. Lack of attention can also allow a bad line into ruts, bumps whoop-de-dooos, rocks, tree stumps and other unfriendly objects leading to damage and a very unpleasant ride.



A slight distraction on a narrow trail can lead to disaster. Paying attention makes off road driving much safer.

Learn your controls



Earlier 4x4s like the 2007-11 Wranglers had simple controls.

Learn your controls

Knowing what your controls are used for and how to operate them is critical. Before heading out to a trail, familiarize yourself with the operation of the transfer case for 2-wheel drive and four wheel drive high range and low range. Know how to shift an automatic transmission in manual mode if so equipped. Does your 4x4 have manual controls or electronic. Learn how to engage and disengage axle lockers. Know how a hill assist is engaged. Hill assist uses

The Wrangler JL Rubicon has many electronic controls. It is important to fully understand all of the off road controls to get the most from your 4x4. (Photo courtesy Stellantis)



the on board computer and antilock brake system to control downhill speed without applying the brakes. Every system is a little different but all depend on the transmission gear and the transfer case ratio. If your 4x4 is new, there is a good chance the sales person did not go over the 4x4 controls when you purchased the vehicle. Read the owner's manual. The same applies to used vehicles.



Speed for hill climbs

Most hill climbs are best undertaken at low speeds, 3 to 6 MPH. Very steep hills, those steeper than most newcomers are comfortable tackling, need a little more momentum. Wheelspin should be kept to a minimum with a light foot on the throttle. Know what is at the top of the climb even if it means hiking to the top. Many climbs require a sharp turn as the climb is crested. Missing the turn or carrying too much speed can lead to a very uncomfortable and dangerous wild ride.

Watch the TILT!

When driving over obstacles with only one side of your 4x4 be aware of the tilt angle of the vehicle. This can happen over rocks, bumps, tree roots and side slopes. In tight quarter the low side of the vehicle can tilt enough to cause damage to the roof, mirror or other body panels. Very slow speeds will reduce bouncing which in turn reduces the tilt or lean of the vehicle., If you hit the bump or obstruction too quickly, the amount of tilt and bounce increases with the risk of damage increasing. Bottom line: go slow in tight quarter and uneven terrain.

Place tires for ground clearance

Straddling obstacles is intuitive for most new off road drivers. Going for ground clearance reduces the chances of getting hung up or high centered on obstacles or even damaging critical underside components. Place tires on the obstacles to gain ground clearance. By practicing tire placement on small rocks, you learn



where your tire contact patches are located. Know how much ground clearance you have is also helpful. If in doubt, reduce speed and place tires on the rock or obstacle.

Take a Class

Taking an off road training class provides a quick way to learn about the ins and outs of off roading. Many elements of off road driving are counter-intuitive. For example on a side slope, nearly everyone tries to steer uphill. Steering uphill is intuitive but can cause problems. Receiving hands-on training from seasoned professionals makes a huge difference in getting up to speed safely while minimizing the risks of vehicle damage. The Trails 411 4 Wheel Drive Training programs we offer are customized to suit an individual's experience and their vehicle's level of off road performance. With one on one instruction, our clients learn quickly and advance from whatever level they start at to a much higher level in the course of a single day-long



session.

Classes are offered for:

- **Newcomers**
- **Intro to Rock Crawling**
- **Winching & Vehicle Recovery**
- **Overlanding**
- **Advance Rock Crawling**
- **Commercial Operators**
- **Law Enforcement**
- **Telecom**
- **Utilities**
- **Classes meet in Big Bear Lake and other southern California locations. After a short drive to the trail head, tires are aired down and several exercises are explained for the drive to our training area. At the training**

area, an instructor will drive you around the course explaining driving skills on a variety of obstacles. The Instructor will then ride with you to coach you over the varied terrain. The training course consists of hill climbs, descents, ruts, bumps, rock crawling and side slopes

- **WHAT YOU WILL EXPERIENCE IN THE NEWCOMERS PROGRAM:**
- **Vehicle Control Use**
- **Optimum Tire Pressures**
- **How Sway Bars Work**
- **Axle Articulation**
- **Vehicle Right of Way & Rules of the Road**
- **Gaining Ground Clearance**
- **Tire Placement**
- **Finding Traction**
- **Driving in Ruts and Bumps**
- **Keeping the Vehicle Stable**
- **Using a Spotter**
- **Choosing the Optimum Vehicle Path**
- **Climbing and Descending Hills**
- **Rock Crawling Basics**
- **Using the Brakes**
- **Controlling Wheelspin**
- **Keeping Trails Open**
- **Trail Difficulty**
- **Communications**



**Redlands Jeep
Hardcore
Jeepers**

Look for Traction

Different surfaces have varying degrees of traction. Surfaces offering good traction in the dry provide less in the wet and mud, even worse in snow and traction can be non-existent on ice. Sandy sections have less traction than dry dirt which has less traction than rocky terrain. Brush and debris along the edges of a trail may protrude through ice, snow or mud and could improve traction. Look for the traction when the vehicle slips, slides and excessive wheelspin sets in.



Look for rocks sticking through the snow or ice and rocks or brush along the edges of the trail. (Photo courtesy Stellantis)



Loose rocks provide less traction than those planted solidly in the ground. (Photo courtesy Stellantis)

Traction in sand is maintained with momentum and low tire pressures. (Photo courtesy Currie Enterprises)



Like sand, mud requires momentum and some wheelspin. The tread blocks act like

little paddle wheels helping propel the vehicle. If momentum is lost, wheelspin will likely do little for forward progress but may dig the vehicle deeper in the mud.



Snow may require some momentum. Too much wheelspin will dig the tires deeper into the surface.

Layers of clothing

Most areas of prime off road terrain are in mountain or desert regions. Significant temperature swings are common. A 90 degree desert day can become a 40 degree chill overnight. Dress in layers. Carry blankets just in case. Even lightweight emergency foil mylar blankets can help. Cheap rain ponchos can help keep you dry in unexpected summer thunderstorms.

Watch the rear tires in tight turns

It is important to pay attention to the path of the rear tires as well as the front. For longer vehicles like a Jeep Wrangler Unlimited, the rear tires will track inside the front tires by a full half width of the vehicle in a full lock turn.



Pay Attention!



FOCUS ON THE JOB

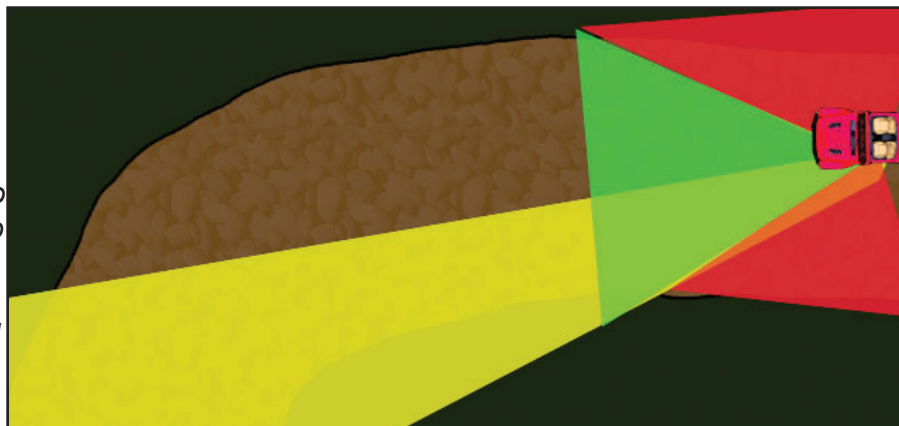
Be responsible for your actions and those of your passengers. The backcountry provides a wonderful environment and many challenges. Damaging the trail only creates ammo for those who would like to close all backcountry trails to motorized vehicle traffic.

Stay on designated trails. There are plenty of authorized trails, We don't need to create illegal ones, or damage those that are still open. And the most important factor is to pay attention to the trail and your surroundings while behind the wheel. Most accidents are caused by lack of attention by the driver.

WHERE YOU LOOK IS WHERE YOU GO VISUAL FIELDS

Where you look is where you go! Pay attention to where you look. Driving in the backcountry is a slower pace than highway or city driving, but your visual field is just as important.

Part of the time you should look well ahead, taking in the whole trail and environment surrounding you.



GET OUT AND TAKE A LOOK

Get out of the vehicle to get a different perspective on the terrain.

Keep your eyes moving to take in as much of the terrain as possible.

Most of time your eyes will be in the medium gray zone monitoring obstacles. The light gray zone allows you to determine the optimum line before you need to maneuver.

The dark gray zones include the sides and rear view mirrors. Watch these areas occasionally.



Terrain nearly always looks easier from outside the rig. Be sure to study the terrain looking ahead as well as looking back towards your vehicle.

LOOK AHEAD

Some times you need to look just in front of your vehicle to see the



details of the trail, especially when approaching obstacles, rocks, climbs, descents and side slopes. Other times you need to look to

the sides to help judge clearances when passing trees, rocks and shrubs. Your judgment here will determine how much forest “pin striping” will decorate your rig at day’s end.

And you even need to look down and back at times, again to judge clearances. You can even adjust your side mirrors down so you can see the back tires and rear quarter panels as you pass by possibly damaging objects.

If you are uncertain about the best path through a tough section, get out and take a look. Use a spotter to help you “see”

PLAN YOU LINE THROUGH OBSTACLES

Plan lines over and around obstacles so that ground clearance is maximized. This helps avoid getting high-centered. Also plan



lines to gain as much traction as possible in low grip situations. Look for rocks, brush or any spot where traction appears to be better. Sometimes a good line will be obvious from the driver’s seat. Other times getting out and assessing the situation is needed. Using a spotter is always a good idea. And remember that planning for the rear tire paths especially in tight turns is just as important, maybe even more important, than planning for the front tires.

TAKE A MENTAL PICTURE OF THE TERRAIN

Learning to visualize the best line when encountering obstacles takes practice. The better you can visualize the best path, the less likely you will get stuck and the less you will need a spotter.



Looking at the terrain from outside the vehicle gives a different perspective on the terrain.

To get a good view of the rear tires on the ground, rotate the mirrors down so you can see the tire contacting the ground.





Hand signals from the spotter provide the best possible and most precise communication to the driver.



Use a spotter

When the terrain is complicated, the line is difficult and the driver cannot see, using a spotter is a sound idea. A spotter becomes the driver's eyes outside the vehicle. A spotter can see obstacles and determine the best path when the driver is unable to see the terrain. Spotters should use clear, concise hand signals when the vehicle is moving and only use verbal communications when the vehicle is stationary.

For More Information on Spotting, see Chapter 13 **SPOT ON!**
THE ART & SCIENCE OF VEHICLE SPOTTING

Using clear and concise hand signals when spotting another vehicle improves communication. Verbal commands should only be given when the vehicle is stationary. A spotter should be positioned so that in an emergency, the spotter is not in harm's way. All drivers should learn how to spot. The perspective from outside improves the driver's judgment.

What gear/ transfer case ratio

Newcomers always ask what gear to be in on the transfer case. Never use four wheel drive on dry pavement. We always recommend four wheel drive on the dirt for improved control. High range is fine for most situations, Use low range when climbing or descending hills, especially steep hills. Use four low range in rocks where speeds are low. If engine RPM exceeds about 3000 RPM in top gear in low range, it is time to stop and shift back into high range four wheel drive. Use a transmission gear that keeps your engine RPM near optimum torque, usually between 1500 and 2500 RPM.

Pack out trash

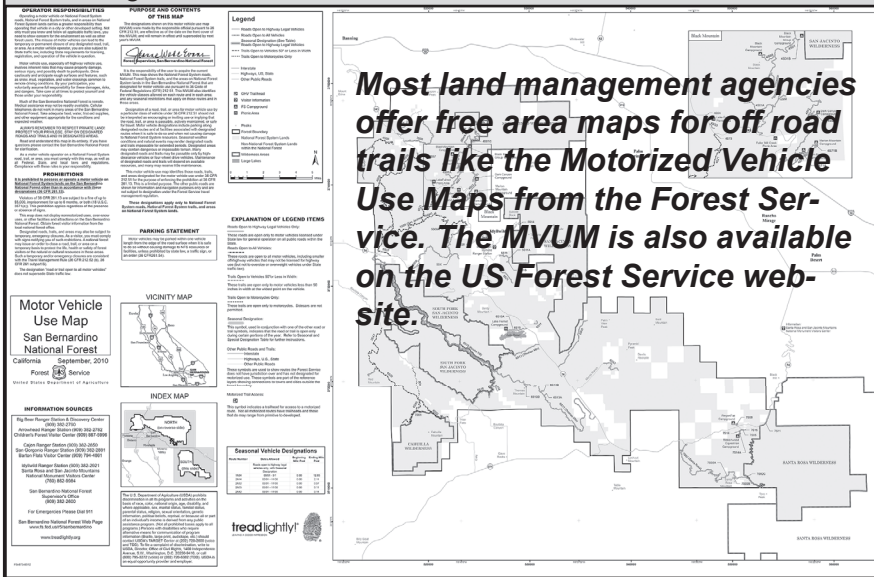
Leaving trash in the backcountry risks closed access for off road vehicles. Carry out any trash you create. And help out the environment by picking up trash left by thoughtless individuals. You would be shocked by the gross items people leave behind.

Leaving trash in the backcountry harms the environment, degrades the experience for others and leads to closed access. Pack out your trash!



Learn basic navigation

GPS provides valuable information for off road navigation. But electronics can fail. Always carry a paper map for the area where you travel off road. And learn how to read a map and the basics of navigation. Free paper maps are available from most government land managers like the US Forest Service Motor Vehicle Use Maps (https://www.fs.fed.us/recreation/programs/ohv/ohv_maps.shtml) and Bureau of Land Management (www.blm.gov/maps). Paper maps are available at visitors centers, ranger stations and field offices.



OnX Off Road GPS Map app for smartphones offers a wide range of features including offline map capabilities, tracking and saving routes, trail difficulty ratings and compatibility with Apple Carplay and Android Auto.

Carry comfort items

Folding camp chairs are more comfortable than rocks and logs. They take up little space. Hand wipes, paper towels, toilet paper and hand sanitizer also come in handy when exploring the backcountry. And carry trash bags to leave no trace!



Stay on designated routes
If a route is not marked or on an official map, it is probably not a legal route. Stay on legal routes. One of the biggest threats to motorized vehicle access on public lands is travel on illegal routes. If you're not sure don't go there.

Land management agencies like the US Forest Service and BLM provide signage on most legal routes.



Look where you want to go!

Looking at an object or hazard you want to avoid increases the risk that you will hit the object or hazard. While you must "see" the object to determine its presence, once noted, look away to the place you want to go. Conversely, if you need to crawl over a rock to gain ground clearance, then focusing vision on that rock will help you climb over it successfully.





More info? check out our videos at Trails411 on YouTube or better yet - take one of our off road training class at Jeep4x4school.com or Trails411.com

the level of modifications, if any, on their vehicle. An added benefit of a 1-on-1 class is the ease of scheduling which easily accommodates the individuals needs. We do offer group classes for groups, clubs and corporations for special training and vehicle recovery. Our primary master trainers, Don, Wendy and Bill have a combined

- *How Sway Bars Work*
- *Axle Articulation*
- *Vehicle Right of Way & Rules of the Road*
- *Gaining Ground Clearance*
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- *Keeping Trails Open*
- *Trail Difficulty*
- *Communications*

THE BENEFITS OF AN OFF ROAD TRAINING CLASS

Off road training programs are somewhat rare in the US. But taking a class can benefit the off roader by improving knowledge, understanding, driving skills, equipment operation, safety and confidence.

Most programs offer one and two day group classes with 5 to 10 vehicles per class. Prices vary but the cost is usually per person, not per vehicle.

WHY WE OFFER 1-on-1 CLASSES

Classes at our Trails 411 Off Road Training are one day, with 1-on-1 training. We usually have two trainers working with one vehicle. Because of the customized training, we can cover considerable ground in a single day. And costs are per vehicle, not per person. The intense training allows students rapid progress based on the needs of the individual, their experience and

total of off road and advanced training experience exceeding 100 years. .

BASIC OFF ROAD DRIVING TRAINING

1-on-1 training | Maximum 3 vehicles with one MASTER TRAINER per vehicle

What You Will Experience

- *Vehicle Control Use*
- *Optimum Tire Pressures*





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OFF ROAD TRAINING
 Big Bear Lake, CA



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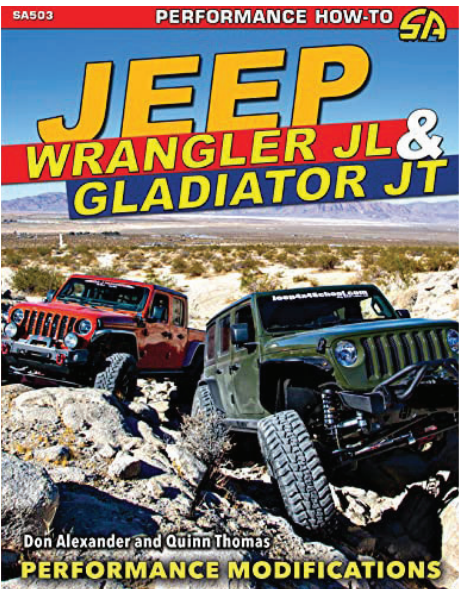
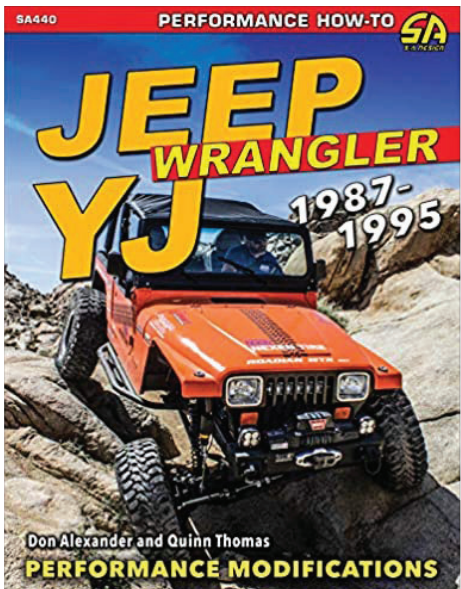
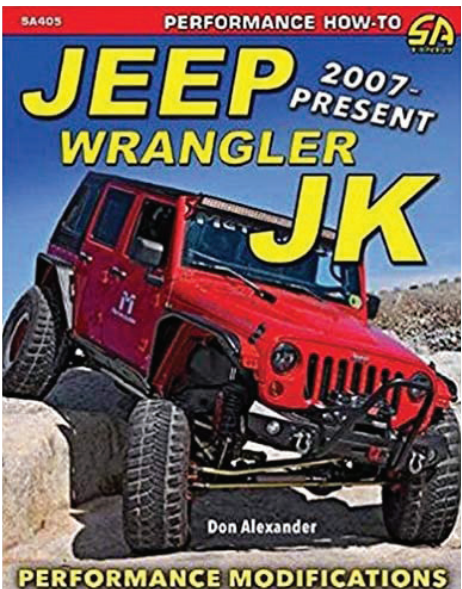
**DRIVING - WINCHING - ROCK CRAWLING
 OVERLANDING - TIRES - SUSPENSION & MORE**



Trails 411
Master Trainers
 by Don Alexander
 with Wendy Stephens
 & Bill Stephens

Check out the latest book from the Trails 411 Crew!
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TRAIL DIFFICULTY RATINGS



Most National Forests provided access to roads open to Sport Utility Vehicle and four wheel drive vehicle travel. The designated road system offers a wide range of experience levels including novice, intermediate, and expert levels and signed easiest, more difficult, and most difficult.

EASIST- GREEN CIRCLE



These fun family trails are suited for a stock vehicle and may not always require four wheel drive. Roads are typically wide enough to accommodate passing.

MORE DIFFICULT - BLUE SQUARE



While more challenging than the "Easy" rated trails, drivers of all skill levels can enjoy these trails. At this level a stock high clearance four wheel drive vehicle is required.



Trails are typically narrow with possible brush that may scratch your vehicle. Passing



usually requires backing up.

DIFFICULT

Trails at this rating require a vehicle with increased ground clearance and proper protection. Trails will often require a spotter and should only be attempted by more experienced off road drivers. On most trails at this level 33" tires and at least one locker are recommended.

MOST DIFFICULT - BLACK DIAMOND

Trails at this rating require a heavily modified vehicle.

Some damage to your rig is likely. Front and rear lockers, 35" tires and a winch are highly recommended.

Most Difficult rated trails should only be attempted by the most experienced four wheelers. Trails become more difficult in adverse weather, like snow and rain. Be prepared.

There are other trail rating systems that go into more detail (see the next page), but are basically very similar. Always determine the trail difficulty before setting

out on that trail. Most backcountry vehicle recoveries are for vehicles that are not suited for the rating of the trail. Be prepared, both for the vehicle, including recovery gear, and as a driver, for the trails you plan to drive.

Many backcountry trails use a more exact 10 level trail rating system:

Rating: 1

Graded dirt road. Dry, or less than 3" water crossing depth. Gentle grades. 2WD under all conditions except snow. No width problems, two vehicles wide.

Rating: 2

Dirt road. Dry, or less than 3" water crossing depth. Some ruts. Slight grades, up to 10 degrees. 2WD under most conditions. Rain or snow may make 4WD necessary. Usually one and a half to two vehicles wide.

Rating: 3

Dirt road. Rutted, washes, or gulches. Water crossings up to 6" depth. Passable mud. Grades up to 10 degrees. Small rocks or holes. 4WD recommended but 2WD possible under good conditions and with adequate ground clearance and skill. No width problems for any normal vehicle. Vehicle passing spots frequently available if less than two vehicles wide.

Rating: 4

Rutted and/or rocky road. No shelves but rocks to 9". Water crossings usually less than hub



deep. Passable mud. Grades moderate, up to 15 degrees. Side hill moderate up to 15 degrees. 4WD under most conditions. No width problems, vehicle passing spots frequently available if less than two vehicles wide.

Rating: 5



Rutted and/or rocky road. No shelves. Rocks up to 12" and water crossings up to 12" with possible currents. Passable mud. Moderate grades to 15 degrees. 6" holes. Side hill to 20 degrees. 4WD required. No width problems.

Rating: 6

Quite rocky or deep ruts. Rocks to 12" and frequent. Water crossings may exceed hub depth with strong currents. Shelves to 6". Mud may require checking before proceeding. Moderate grades to 20 degrees. Side slopes may approach



30 degrees. 4WD necessary and second attempts may be required with stock vehicles. Caution may be required with wider vehicles.

Rating: 7

Rocks frequent and large, 12" and may exceed hub height. Holes frequent or deep (12"). Shelves to 9". Mud 8" deep and may be present on uphill sections. Grades to 25 degrees and side slopes to 30 degrees. Water crossings to 18" and may have strong currents. 1-1/2 vehicles wide. 4WD required. Driver experience helpful.



Rating: 8

Heavy rock and/or severe ruts. Rocks exceeding hub height frequent. Shelves to 12". Deep mud or uphill mud sections. Steep grades to 25 degrees and can be loose or rocky. Water crossings may exceed 30" in depth. Side hill to 30 degrees. One vehicle wide. Body damage possible. Experience needed. Vehicle Modifications helpful.



Rating: 9

Severe rock over 15". Frequent deep holes over 15". Shelves over 15". Mud bog conditions (long, deep, no form bottom). Over 30" water crossings with strong currents. Steep grades over 30 degrees. Side slopes over 30

degrees. May not be passable by stock vehicles. Experience essential. Body damage, mechanical



break-down, rollover probable. Extreme caution required.

Rating: 10

Severe conditions. Extreme caution recommended. Impassable by stock vehicles. Winching required. Trail building necessary. May be impassable under anything but ideal conditions. Vehicle damage probable. Personal injury possible. Extreme caution necessary.

IMPORTANT CONSIDERATIONS ABOUT TRAIL RATINGS

While trail ratings can be very helpful, they can vary from place to place. What may be a 5 rating at Johnson Valley could be a 4 rating at Sand Hollow or Moab. Try watching a trail video of a trail you plan to tackle to see what rig



modifications others may have and how difficult the trail is in your opinion. You can also ask someone with experience on that trail, but their opinion may vary considerably from another's opinion or your own.



3N35

3N24

3N31Y

3N31Y

3N31Y

3N06

3N49

3N49

2N53

2N52

2N58

3N31

2N79

3N31

1N34

1N34

1N33

1N32

2N47

2N47

Cleghorn Ridge
2N47

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2N59

2N49

2N49

Fontana

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Black Di



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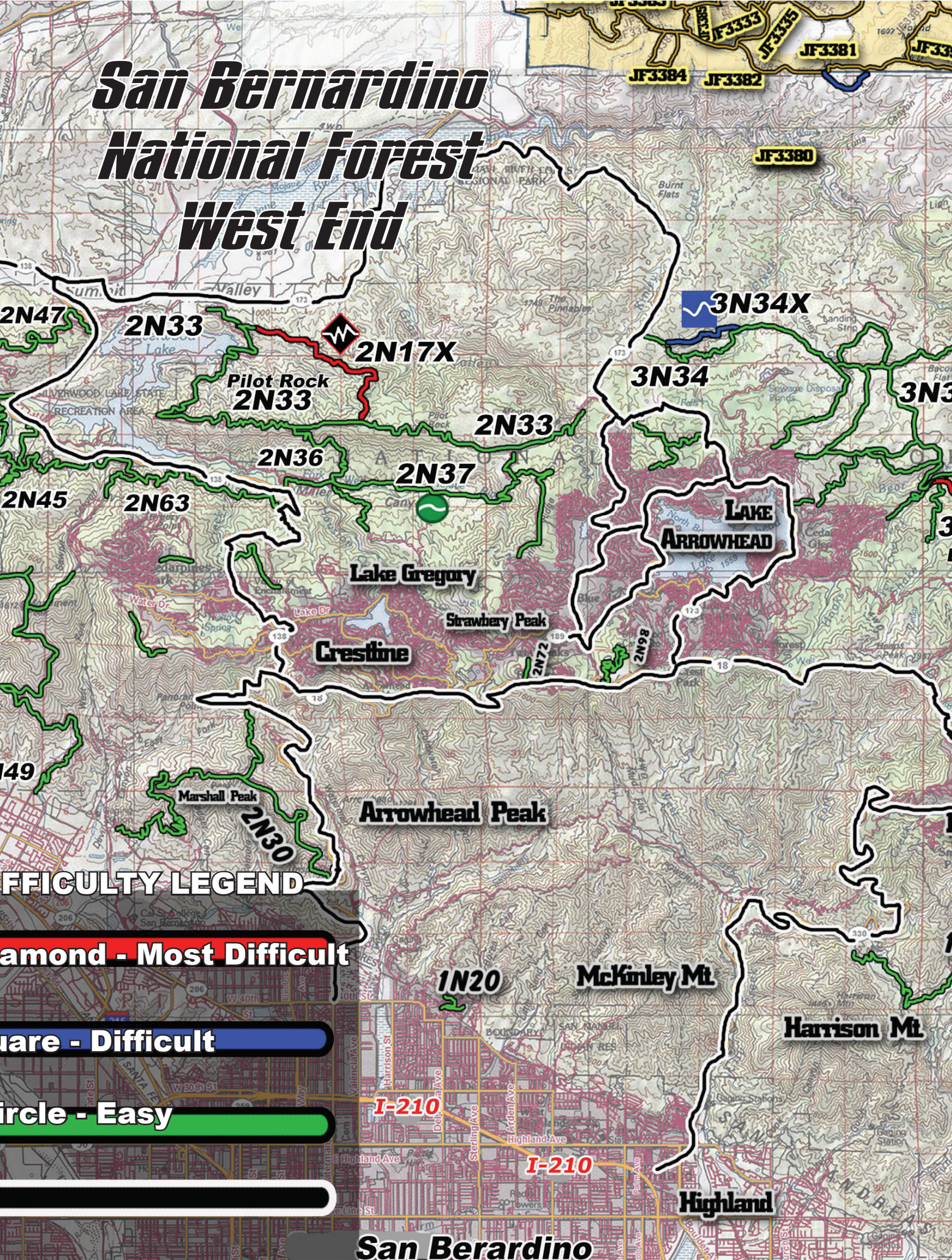


Green C

Local
Highways

TRAIL DI

San Bernardino National Forest West End



DIFFICULTY LEGEND

Diamond - Most Difficult

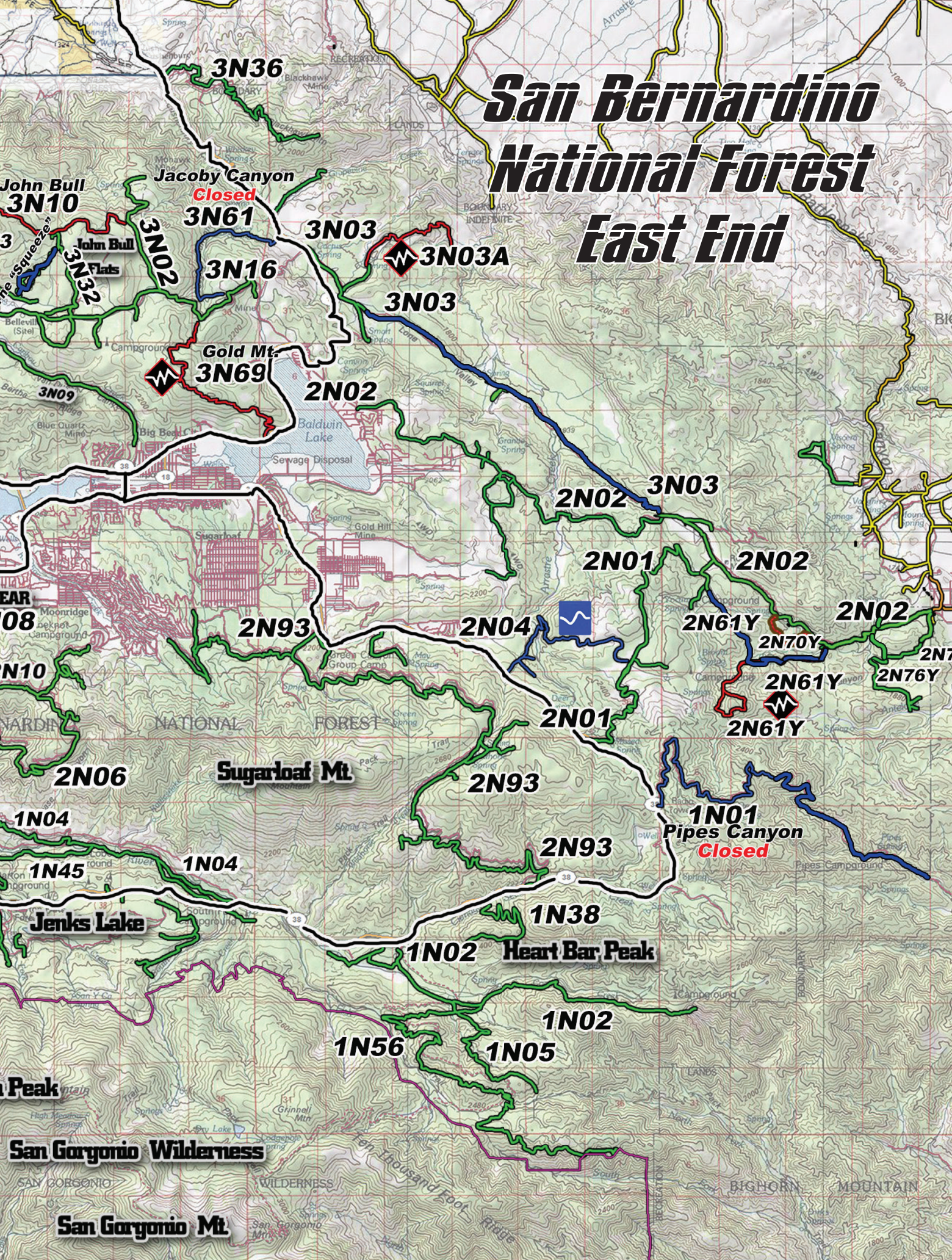
Square - Difficult

Circle - Easy

San Berardino



San Bernardino National Forest East End



San Gorgonio Wilderness

San Gorgonio Mt.



THINGS TO BE AWARE OF!

Side Slopes

When the road is tilted it is called a side slope. Side slopes can be very intimidating, especially if the slope angle exceeds about 10 degrees. The Jeep in the photo below is tilted to an angle of 28



degrees. That's plenty to get your attention and raise your heart rate but not enough to be dangerous. Rigs with moderate lifts or no loads on the roof can easily exceed 45 degrees of tilt without risking rollovers. Be more cautious if you are carrying a roof rack with gear and a roof top tent. The higher the center of gravity, the more prone a vehicle is to rollovers on

a steep side slope. In most cases, tires will lose traction and slide down slope before the vehicle can tip over.

Trying to fight the steering uphill by steering uphill will cause the tires to lose traction more quickly. Very little steering lock should be used. If the vehicle feels tippy, like it may roll over, steer downhill (which is counter-intuitive) and accelerate slightly. If the bottom of the slope leads to a steeper dropoff, be extra cautious. Carry a little momentum and try to steer straight or slightly downhill. Look for a line that offers the best traction. If the slope flattens out at the bottom, the danger is minimal.

Shelf Roads



Shelf roads feature an embankment on one side and a drop off on the other. Drop offs can range from a few feet to over a thousand feet. The greater the dropoff the more intimidating the road can become. And the narrower the road, the more difficult is the situation. Paying attention is extremely important.

Many people are intimidated by



narrow, steep dropoff shelf roads, especially passengers. Keep away from the downhill edge as much as possible, maintain a steady but slow speed and watch for erosion along the edges of the road.



Erosion at the Edges of a Road

Flowing water from streams, thunderstorms and snow melt can erode away the edges of the road. Ruts often form across the road. Along the edge of the road, a portion of the road is often washed away. On a shelf road, this can be very dangerous. But even on a wider road, the washed out section can suck a tire into the eroded section causing the vehicle to become stuck or in rare cases roll over.

Abrupt Ruts and Bumps

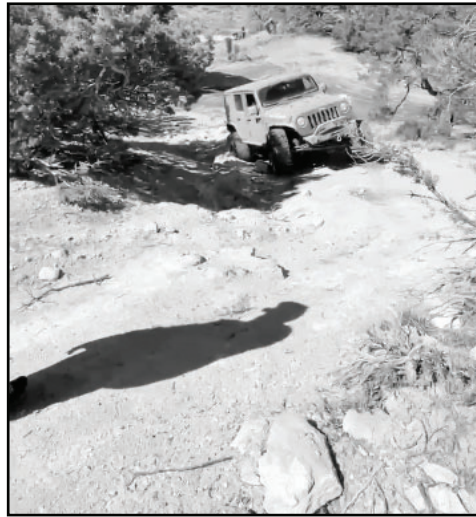
Abrupt ruts are hard to see. Steep bumps are a little easier to pick out. In either case, reduce speed to a crawl and try to take the rut or



bump at an angle so that one tire at a time passes through or over the obstacle. Too much speed will jar the vehicle and the occupants. Damage is very possible and the impact is very uncomfortable for the passengers. Paying attention is key!

Rocks in the Road

Relatively small rocks often litter the road or trail. Knowing the ground clearance of your vehicle is very important. Even small rocks can cause considerable damage to the underside of a vehicle if the



size is misjudged. If in doubt, place a tire (or tires) up on the rock to gain ground clearance. Practicing this also teaches you where your tire contact patches are located. And remember the path of the rear tires especially in a turn. You may place a front tire on a rock but will the rear also be on the rock. If the inside tires placed on the rock in a tight turn, the rock will miss the inside rear tire. Be cautious and go slowly.

Ruts Parallel to the Direction of Travel

When ruts run parallel to the direction of travel, attempt to straddle the ruts and take the high ground. This makes steering easier and safer while reducing the erosion caused by driving in the ruts. Sometimes it is impossible to avoid



driving in the ruts. Mud, snow and ice often cause the tires to slide into the ruts and getting out of the ruts may be very difficult until the depth of the rut diminishes. When this occurs, keep a light grip on the steering wheel so that if the rut jerks the steering wheel your hands and arms are not jerked too much. Slow, steady speeds and minimal steering inputs will help.

Ruts and Bumps Crossing the Road

To assure adequate ground clearance, try to cross ruts and bumps at a slight angle so that one tire at a time crosses the obstacle. This reduces the risk of getting high centered crossing a bump or exiting a rut. If the rut is perpendicular to the direction of travel, try to



angle the vehicle slightly. **EXERCISE CAUTION ON NARROW SHELF ROADS.** Soil can be loose on the edges. Maintain a slow, steady speed.





Speed for hill climbs

Most hill climbs are best undertaken at low speeds, 3 to 6 MPH. Very steep hills, those steeper than most newcomers are comfortable tackling, need a little more momentum. Wheelspin should be kept to a minimum with a light foot on the throttle. Know what is at the top of the climb even if it means hiking to the top. Many climbs require a sharp turn as the climb is crested. Missing the turn or carrying too much speed can lead to a very uncomfortable and dangerous wild ride.

Braking downhill



Driving down steep hills causes weight to transfer off the rear tires onto the front tires. Braking causes more weight to transfer forward. The reduced weight on the rear tires makes them prone to lockup. If the rear tires

lock up while steering, the rear of the vehicle can begin to slide sideways. If uncorrected, the tires can catch in the dirt, rocks or ruts causing a rollover. This can happen even with antilock brakes. Counter steering the wheel and easing off the brakes allow the sideways slide to be corrected. Very gentle acceleration can also help. Carrying extra speed may be uncomfortable but that is preferred compared to tipping over.

Left foot braking

With an automatic transmission, left foot braking is a very effective way to control wheelspin and speed when climbing and descending hills and rocks. In addition to enhancing control, left foot braking pre-loads the driveshafts and axles reducing the possibility of breaking an axle or twisting a driveshaft. With some practice, left foot braking provides much greater control especially in low traction situations.



Hands on the wheel

The driver's hands should be positioned on top of the steering wheel rim. Thumbs should be on top of the rim, not wrapped around the rim. Steering wheel kick-back over rough terrain can cause injuries to thumbs and wrists.

If the steering wheel kicks back over bumps or ruts, this hand position could cause a serious injury to the thumbs. Keep your thumbs on top of the steering wheel rim.



Watch the TILT!

When driving over obstacles with only one side of your 4x4 be aware of the tilt angle of the vehicle. This can happen over rocks, bumps, tree roots and side slopes. In tight quarter the low side of the vehicle can tilt enough to cause damage to the roof, mirror or other body panels. Very slow speeds will reduce bouncing which in turn reduces the tilt or lean of the vehicle., If you hit the bump or obstruction too quickly, the amount of tilt and bounce increases with the risk of damage increasing. Bottom line: go slow in tight quarter and uneven terrain.

Angle through ruts and over bumps

Getting high centered on bumps and ruts is both annoying and embarrassing. You can minimize the risk by crossing bumps and ruts at an angle. The goal is to place one tire at a time over the bump or through the rut to maximize ground clearance. In a series of undulating ruts and bumps try to take the line that will keep the vehicle as level as possible.



When you get it wrong, this happens. This is definitely not the preferred "Jeep Wave".



Plan the line through ruts and over bumps so that the vehicle stays as level as possible.



Angle through ruts so only one tire at a time crosses the deepest section. (Photo courtesy Stelanatis)

Control Wheelspin

Minor wheelspin on hill climbs is OK as long as momentum is maintained. On rocks, some wheelspin can heat the tires which increases traction and can wear through sand or moisture to improve grip.



Dropping down steep ledges

Dropping down steep ledges requires hard braking to keep the front springs from compressing too much while unloading the rear springs. Try to steer straight or downhill if possible (to the left in the lower photo) to help stabilize the vehicle.

Use caution in tight quarters

Some trails provide a driving challenge by having very narrow sections barely wide enough to fit through.

A miscalculation can lead to serious damage or even getting "wedged" between rocks or trees. The "Squeeze" trail near Big Bear Lake, CA is one such spot.



Adjust Tire Pressure



Tires are aired-down (tire pressure reduced) for four reasons: improved traction by allowing the tire contact patch to spread over a greater area, improve ride since the tires are softer, reduced

Tire deflators like the RockJock EZ Deflator make airing down quick and easy. Deflators offer the most bang for the dollar for improving the off road experience.

risk of a puncture since the tire tread and sidewall have more compliance and reduced damage

to the road surface since the weight on each tire is spread out over a greater area of the tire contact patch. The optimum tire pressure for off road situations varies by the stiffness and height of the tire sidewall, weight of the vehicle, type of wheels being used and the road surface and conditions. For example, a 33 inch diameter tire on a 17 inch

wheel has a sidewall about 7 inches tall at optimum highway tire pressure. That tire can be aired down to so that the sidewall height is reduced by 10 to 12 percent or $\frac{3}{4}$ inch. This is a safe tire pressure for most conditions. Never go below 12 PSI without beadlock wheels.

Airing up requires an air source. Inexpensive 12 volt car air compressors can be purchased in hardware stores or online. If all else fails, driving short distances at low speeds to an air source is safe with tires in good conditions. Maximum speed below 40 MPH and maximum distance about 5 miles. The big issue is overheating the tires. On hot days in the desert, short-distances and lower speeds are prudent.

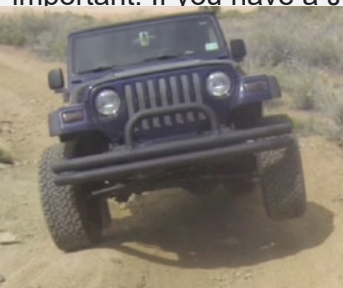


The PowerTank is a great way to air up tires quickly. The tank uses compressed CO2.



The RockJock Anti-Rock Sway Bars allows full axle articulation without disconnecting. Quick release disconnects are available

Articulation is limited when the front sway bar is connected. Disconnecting the sway bar allows the axle to articulate fully.



Disconnect front sway bar

Sway bars control body roll when cornering. Limiting body roll on the highway is important on the highway but off road, sway bars limit axle articulation. If the axles cannot move freely up and down it is likely to lift one or two tires off the ground in big ruts, bumps and rocks. You can see this happening in some truck and SUV TV commercials. For safety (and lower blood pressure), keeping all four tires planted to terra firma is a sound idea. Disconnecting the front sway bar reduces the likelihood of lifting tires off the ground and teeter-tottering. In rare cases, a roll over is possible. Disconnecting the front sway bar is most important. If you have a Jeep Wrangler

Rubicon, you have an electric sway bar disconnect. If not, sway bar disconnect kits are available.



Travel in groups or file a flight plan

It is always prudent to travel in groups in the event of problems like getting stuck, breaking down or medical emergencies. Club 4x4 runs and professional events like Jeep Jamborees are a great way to learn the ropes. If you are hell bent on going solo, there are satellite locators that can help keep you safe in case of emergency. At the very least, notify someone you can count on about your planned route and estimated time of return. If you fail to report in by a designated time, they can look for you or contact authorities.



Carry a tow strap and shackles

While it is naive to count on traffic to help out if you get stuck or suffer a breakdown, be prepared. A good Samaritan passing by may be willing to help but don't expect them to have a tow strap and shackles that you will need to get pulled out of trouble. Carry these items with you. A good tow strap is cheap insurance. Use only tow straps with stitched loops at the ends, never straps with metal hooks. They can fail and are dangerous.



Carry a First Aid Kit

The most dangerous element of off roading is scampering around on rocks, hills and ruts. Scrapes and cuts are fairly common. A basic first aid kit is a necessity for backcountry travel. Learning first aid is a really good idea. At least read the instructions in your first aid kit preferably prior to using it for real. There are first aid apps for smartphones that can offer guidance. One is the SAS Survival Guide. ONE OF OUR TRAINERS IS TRAMA CERTIFIED.



Recovery gear

Basic recovery gear can help you get unstuck. Getting stuck happens to everyone. The previously mentioned tow strap and shackle top the list. A shovel can allow you to dig out of tough situation. A Hi-Lift jack with a Wheel Mate attachment allows you lift a wheel and tire off the ground. You can then stack rocks or debris under the tire to gain ground clearance when high centered. Winches have a major cool factor and are a great tool. Extraction boards can quickly get you unstuck from soft surfaces including sand, mud and snow. A ground anchor like the PullPal allows you to use a winch when no other vehicles, trees or other objects are



A Hi-Lift jack is often the first recovery tool purchased by the newcomer. The Hi-Lift offers good versatility.



The Max Axe tool kit provides several helpful tool heads that interchange on a single handle.



available to winch against.

A kinetic "yanker" strap is a great tool for pulling a stuck rig out of sand, snow or mud.

Wendy's Newbie Nuggets

Listen to Wendy Stephens on the Jeep Talk Show

[CLICK Here to go to the Jeep Talk Show](#)



Dispersed Camping Rules

- Camp 100 feet away from any water source
- Camp within 150 feet of a roadway
- Camp outside of a 1-mile radius of any designated campsite
- Don't camp at a site for more than 14 days
- Camp where others have camped before
- It is easy to recognize land that has been camped on before; look for worn down dirt and rock clusters that have been formed to keep fires in check.
- Pack it in, pack it out
- Don't leave behind trash or anything else you carry in with you.
- Check beforehand for any other restrictions, especially open fire restrictions
- Depending on the administering agency, what the weather has been like, and other various factors, there may be specific rules in place, most commonly restrictions on campfires.



Leave No Trace

These rules are in place for a reason. Bulldozing your way through the woods and setting up camp wherever you please, destroying plants and scaring away wildlife as you go has a significant impact on the environment. By being respectful and following these rules, you are protecting these public lands for future campers.

Mind Your Manners

Share the trails & roads

A wide variety of user groups or stakeholder groups utilize public lands for recreation. These groups range from pedestrian (hikers), to equestrian and a wide range of motorized vehicles. While conflicts often arise between stakeholders, sharing the trails is important to help maintain access for everyone.

Right of way rules/ recommendations

Motorized vehicle operators should always yield to hikers, equestrian and mountain bikes for safety and courtesy reasons.

Nearly all routes on public lands allow travel in both directions. There are exceptions like Titus Canyon in Death Valley National Park. Many roads and trails are too narrow for easy passage of vehicles traveling in both directions. The general rule is that traffic traveling downhill should yield to uphill traffic. The reason is one of practicality. It is more difficult for the uphill vehicle to move after stopping.

In reality, cooperation and compromise work best. And nearly everyone is more than willing to work together. Some however, are just rude jerks. While rude behavior can be anywhere from frustrating to infuriating, the sensible course of action is to yield and avoid confrontation.

One significant challenge is finding room to pull over to allow another vehicle to pass especially on narrow sections barely wide enough for one 4x4 vehicle. One or two vehicles passing is usually relatively easy to work out. Two large groups requires patience, creativity and time to sort out. A spirit of cooperation makes the task much easier.

Stay on designated, legal routes

This is arguably the single most important means to maintain access for motorized vehicles on public lands. Some areas allow four wheeling anywhere. We enjoy to such areas near our base in southern California: Stoddard Valley and Johnson Valley. But most areas allow motorized vehicle recreation only on designated routes. Driving off designated routes is a sure way to get access closed for motorized vehicles.

Staying on designated routes presents significant challenges in many cases. Regardless of the challenges, it is the responsibility of the user to know where the designated routes are and to stay on them. Most of the time, legal routes are well marked with signs and posts. But not always. Most land management agencies especially at the federal level (USDA Forest Service, BLM) provide printed and digital maps showing legal routes. Using them is important.

But signs and maps provide limited assistance and guidance. The problem stems from the user-created illegal bypasses to drive around difficult sections of road. Often fences are cut, trees downed and brush cleared to accommodate these bypasses. The bypasses often cross sensitive areas which are protected. The problem for the off roader coming across the illegal bypass after the bypass has been created and used is the difficulty determining that the bypass is in fact illegal. Maps are rarely detailed enough to offer answers. Land managers rarely provide good information or signage to alleviate the confusion. But the solution is for the individual to take the responsibility to find the correct, legal route to avoid contributing to the problem.

GPS systems should help and often do. However, most GPS units and apps rely on USGS maps for plotting roads and trails. Many times these maps have not been updated for decades and many roads shown are closed or decommissioned.

As a rule of thumb, if you encounter a difficult section of road or trail and there is an adjacent bypass, it is highly likely that the bypass is illegal. If you cannot proceed due to the main obstacle, do not use the bypass. Turn around and go back. The challenging section requires a suitable vehicle and driver experience. Without those key elements, you do not belong on the trail.

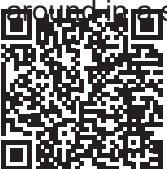
An additional problem occurs when a knowledgeable individual attempts to inform another person that the bypass they are planning to use is illegal. If someone takes the time to explain that the bypass is not allowed and using it could help close the entire trail, listen, be respectful and follow their advice. All too often the advice is ignored, often in a very belligerent way. That reaction is both unreasonable and leads to closures. ***Don't be that jerk!***

BE COURTEOUS

- Hand signals for oncoming traffic
- Give and take when passing
- Slow for hikers, mountain bikers and equestrian
- Slow to reduce dust for others camping or parked trail-side
- Pack out your trash
- Travel with a group of two or more vehicles. Driving solo can leave you vulnerable if you have an accident or breakdown.
- Designate meeting areas in case of separation.
- When traveling the backcountry in groups of two or more, it is the responsibility of the driver ahead to keep the driver behind in sight. If the following driver drops out of sight for more than a few seconds, the driver ahead should stop and wait until

the following driver is in sight. If the following driver does not appear within a reasonable time, go back and look. That driver may have a problem. This technique keeps groups of rigs together which is the point of traveling in groups.

- Don't drive in areas where it is not permitted. These areas have been declared "off limits" to vehicles to protect wildlife, vegetation, or for your safety.
- Don't Litter... take along a trash bag or other receptacle for collecting your trash so that you can deposit it in the proper trash receptacle. And if you encounter trash left behind by those less considerate than you, pick it up too.
- Yield the right of way to those passing or traveling uphill. Most backcountry trails are narrow, and one vehicle must yield. Keep your eyes open for wide spots along the trail where you may be able to back up to and allow an easier pass, even if you are the uphill vehicle. And because most trails are two way, be cautious around blind turns, and there are many in the backcountry, for oncoming traffic, Keep speeds low in blind situations so that you can stop quickly.
- Respect the environment and other trail users. By using common sense and common courtesy, what is available today will be there to enjoy tomorrow. This applies to hikers, mountain bikers and equestrians as well as other vehicles. And pass others slowly on dusty or muddy trails to minimize the dust in the air as others pass, especially if they are in the open air.
- If you encounter someone broken down, stuck or stranded in the backcountry, stop and offer assistance. The code of ethics for the backcountry requires that you do so. If someone seems injured or somewhat confused, insist on helping. At the minimum, contact authorities as soon as possible. Never pass by someone without questioning the situation and working out a plan if they need help.
- Comply with all signs and barriers. Make every effort to keep the trail pristine by packing out what you bring in, and go even farther by picking up litter left by others less thoughtful than you.
- If it looks like the trail ends, don't continue to drive off trail. Exit your rig and explore ahead on foot to see if you can pick up the trail, If not, turn



around in a safe spot.
Scan the QR Code for information on San Bernardino National Forest Campfire permits

Where Campfires Are Permitted in the San Bernardino National Forest

The San Bernardino National Forest has restrictions in place regarding campfires. Wood and charcoal campfires are allowed only in agency-provided fire rings at:

- ***Yellow Post Sites***
- ***Developed Campgrounds - Campfire permit required.***
- ***Picnic Areas - In provided BBQ grills***
- ***You must obtain a California Campfire Permit***
- ***Campfires are not allowed anywhere else at any time of the year.***

It is illegal to build a fire while camping remotely (outside of a designated camping area). Additional restrictions on campfires can be implemented as fire danger increases, always check with the local Ranger Station. Read Current Fire Restrictions.

A citation for violating fire restrictions prompts a mandatory court appearance. It is a federal offense punishable as a misdemeanor, a fine, and/or imprisonment.

- ***Extinguishing Campfires***
- ***Extinguishing your campfire properly and completely is crucial to avoiding accidental wildfires. One of the biggest mistakes you can make is leave a fire pit without ensuring that flames aren't still smoldering under the surface. Wildfires can and have smoldered underground and reignited dead leaf matter or even tree roots. The California Dept. of Forestry and Fire Protection recommend the "Drown, Stir and Feel" method:***
- ***Drown - Drown the fire with water.***
- ***Stir - Stir around the fire area with your shovel to wet any remaining embers and ash. Be sure to turn wood and coals over and wet all sides. Move some dirt onto the fire site and mix thoroughly to fully smother it.***
- ***Feel - Feel the area with the back of your hand to ensure nothing is still smoldering.***
- ***Buy It Where You Burn It***
- ***If you plan to build a campfire, please 'Buy It Where You Burn It!' Firewood from outside the area can harbor insects and diseases that are non-native to our National Forest. Bringing invasive species into new locations can kill large numbers of trees and shrubs. For this reason, it is important that you 'Buy It Where You Burn It!'***

Several Ways You Can Get Trails Closed

Legal Designated Routes for Motorized Vehicles

The biggest threat to trail closures is driving off designated routes. Many roads and trails on public lands pass through highly sensitive, bio-diverse areas. Driving off of designated roads can cause permanent damage and lead to road and trail closures.

Dispersed Camping

Dispersed camping means you can camp in areas outside designated campgrounds. However, strict rules apply to dispersed camping. Most often, camping is only allowed in areas already disturbed by vehicle and human traffic. In other words, you cannot just drive out to the perfect spot across undisturbed terrain to reach the perfect spot. Doing so not only damages the area but it is also illegal. Be sure to educate yourself on the local dispersed camping regulations.

Campground Courtesy

Designated campgrounds have rules covering noise, lights, shower and restroom use and parking. Be courteous and adhere to the regulations.



Many roads and trails are too narrow to allow easy passage when faced with on-coming vehicles. The general rule is giving the uphill vehicle the right of way. But this is not a hard, fast rule. If one vehicle has a spot to pull in or

back in to, then that vehicle can easily yield. The idea is to make safe passage as easy as possible for every one. A little co-operation and respect go a long way.

Speed

Speed is generally slow. The speed you drive is dependent on the nature of the terrain. Curves, especially blind curves require slow speeds. Rough terrain with whoop-de-dos require slow speeds. While low speeds are safer on washboard sections, higher speeds will make the ride smoother. But be aware of on-coming traffic, blind corners and hill crests.

Protecting the Road/Trail Surface

Reduced tire pressure (see the tire chapter) increases traction by spreading the vehicle weight over more tire surface area on the ground. This increases traction while reducing wheelspin. Low tire pressures also reduce the shearing of the soil. Good driving skills like brake modulation to stop tire lockup on descents and good throttle control to reduce wheelspin all contribute to preserving the road surface.

Disposing of Trash

Disposing of your own trash should be a no brainer. It's NOT! Trash clean-up days are necessary every few months to clean up after irresponsible people. Don't be the jerk leaving trash behind.

Dealing with Human Waste

Bathroom breaks – We all know when you gotta go, you gotta go. There is an unwritten rule that when the group stops for a 10-100 (bathroom stop) the women go to the right of the Jeeps and the men go the left.

YOU want to know why? Because Women are always

RIGHT.

Ladies – take a baggie with you and please take all your feminine stuff back out with you. Do not leave that stuff on the trails. And this goes for your kids diapers too. Just don't do it! And I hate cleaning that stuff up when we do trail maintenance on our adopted trails.

Cleaning Oil and Other Fluid Spills

Fluid spills are unsightly and damaging to the environment. Leaks happen, often do to damage to oil pans and diff covers. Carry a spill kit to safely and effectively clean up after a spill.

TREAD Lightly!

Principles

TRAVEL RESPONSIBLY

- Travel responsibly on designated roads, trails or areas.
- Travel only in areas open to four wheel drive vehicles.
- For your safety, travel straight up or down hills.
- Drive over, not around obstacles to avoid widening the trail.
- Straddle ruts, gullies and washouts even if they are wider than your vehicle.
- Cross streams only at designated fording points, where the road crosses the stream.
- When possible, avoid mud.
- In soft terrain, go easy on the gas to avoid wheel spin, which can cause rutting.
- Don't turn around on narrow roads, steep terrain or unstable ground. Back up until you find a safe place to turn around.
- Stop frequently and scout ahead on foot.
- To help with traction, balance



Travel is rarely allowed off trail. The section of road above is an illegal bypass created by drivers unwilling or unable to negotiate an obstacle on the legal section of the road. Someone actually cut down fences to get around the obstacle. Such actions are both illegal and the fastest way to get the road closed. In this case, the illegal route traversed across a highly sensitive area called a pebble plain. One of the big problems is that off roaders coming through after the fences are down and traffic has created a trail that looks OK, believe that passage is allowed. It's not! It is up to the individual to know the rules and stay on designated routes even when signs are not present. Many GPS programs use old USGS maps which often show decommissioned roads which are no longer legal. Using a current BLM or Forest Service map will show legal routes. Some map apps are GPS-enabled for use with smartphones and tablets.

your load and lower tire pressure to where you see a bulge (typically not less than 20 pounds). Know where the differential or the lowest point on your vehicle is. This will help in negotiating terrain and prevent vehicle damage resulting in oil and fluid spills on the trail.

- Maintain a reasonable distance between vehicles.

- Comply with all signs and respect barriers.
- Travel with a group of two or more vehicles.
- Driving solo can leave you vulnerable if you have an accident or breakdown.
- Designate meeting areas in case of separation.
- Choose the appropriate winch for your vehicle size.
- Attach towing cable, tree strap, or chain as low as possible to the object being winched.
- Let the winch do the work; never drive the winch.
- When winching always inspect your equipment, use the right winch for the situation, find a good secure anchor and never winch with less than five wraps of wire rope around the drum.
- When using a tree as an anchor, use a wide tree strap to avoid damaging the trunk of the tree.
- Don't mix driving with alcohol or drugs.

RESPECT THE RIGHTS OF OTHERS

- Respect the rights of others, including private property owners, all recreational trail users, campers and others so they can enjoy their recreational activities undisturbed.
- Be considerate of others on the road or trail. Learn the basics of trail etiquette.
- Leave gates as you find them.
- If crossing private property, be sure to ask permission from the landowner(s).
- Yield the right of way to those passing you traveling uphill.
- Yield to mountain bikers, hikers and horses.
- When encountering horses on the trail, move to the side of the trail, stop, turn off your engine, remove your helmet and speak—you want the horse to know you are human.
- Ask the rider the best way to proceed.
- Proceed with caution around horses and pack animals.
- Sudden, unfamiliar activity may spook animals—possibly causing injury to animals, handlers and others on the trail.
- Do not idly ride around in camping, picnicking, trailhead or residential areas.
- Keep speeds low around crowds and in camping areas.

- Keep the noise and dust down.

EDUCATE YOURSELF

- Educate yourself prior to your trip by obtaining travel maps and regulations from public agencies, planning for your trip, taking recreation skills classes and knowing how to operate your equip-

Camp Fires



Camp fires pose a serious threat for fires especially in the west. Most areas require a permit outside of designated campgrounds. Many areas do not allow open fires outside of a contained camping stove. Often permits are required for stoves.

In our local forest, many forest fires started from unattended campfires or fires not properly extinguished. Just because there are no flames does NOT mean the fire is extinguished. Fires can smolder for several days and often can ignite underground roots. The proper way to extinguish is to dig below the surface where the fire was located, make sure that the ground is cool and that no embers remain. Failing to do so can allow the fire to re-ignite and spread. The two main causes of forest and wild fires are lightning strikes and human caused either from poorly managed or illegal campfires and carelessness.

ment safely.

- Obtain a map, (motor vehicle use map where appropriate) of your destination and determine which areas are open to off-highway vehicles.
- Make a realistic plan and stick to it.
- Always tell someone of your travel plans.
- Contact the land manager for area restrictions, closures and permit requirements.
- Check the weather forecast before you go.
- Prepare for the unexpected by packing necessary emergency items.
- Buckle up! Seat belts are mandatory.
- Know your limitations.
- Watch your time, your fuel and your energy.
- Take an off-highway drivers course to learn more about negotiating terrain in a four-wheel drive vehicle.
- Make sure your vehicle is mechanically up to task.
- Be prepared with tools, supplies, spares and a spill kit for trailside repairs.
- **AVOID SENSITIVE AREAS**
- Avoid sensitive areas such as meadows, lake shores, wetlands and streams.
- Stay on designated routes.
- Other sensitive habitats to avoid include living desert soils, tundra, and seasonal nesting or breeding areas.
- Do not disturb historical, archaeological or paleontological sites.
- Avoid “spooking” livestock and wildlife you encounter and keep your distance.
- Motorized and mechanized vehicles are not allowed in designated Wilderness Areas.
- Pack out what you pack in and carry a trash bag on your vehicle to pick up litter left by others.
- Respected Access is Open Access
- **DO YOUR PART**
- Do your part by modeling appropriate behavior, leaving the area better than you found it, properly disposing of waste, minimizing the use of fire, avoiding the spread of invasive species and restoring degraded areas.
- Carry a trash bag on your vehicle and pick up litter left by others.

- Pack out what you pack in.
 - Practice minimum impact camping by using established sites, camping 200 feet from water resources and trails.
 - Observe proper sanitary waste disposal or pack your waste out.
 - Protect the soundscape by preventing unnecessary noise created by a poorly tuned vehicle or revving your engine.
- Before and after a run, wash your vehicle to reduce the spread of invasive species.

Burning wood pallets creates several problems, even when fires are legal. Pallets are often treated with chemicals which can be toxic. If left intact, pallets do not burn very thoroughly leaving a mess behind. Burnt pallets also leave behind nails which can injure visitors and wildlife and cause tire punctures.



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