



**THE TREAD LIGHTLY!**  
GUIDE TO RESPONSIBLE  
MOTORIZED VEHICLE USE IN  
**SAND DUNES**

## TREAD LIGHTLY! GUIDE TO RESPONSIBLE MOTORIZED VEHICLE USE IN SAND DUNES

The use of motorized vehicles to traverse sand dunes, known as “duning,” is enjoyed by millions of sand enthusiasts worldwide. Ensuring access of dune areas for future generations in the decades to come is the foundation of the American Sand Association (ASA).



The ASA strives to accomplish our objective through education. We make every effort to instill environmental awareness in our members. Of no less importance are the safety issues associated with motorized sand recreation.

ASA's mission statement:

***“The American Sand Association is an association of environmentally conscious motorized sand sport enthusiasts dedicated to open access and the enhancement of family orientated recreation.”***

Although the mission statement is only a few words, the ideals put forth speak volumes on the goals of ASA.

All of our members consider themselves environmentalists. So much so, that the ASA was awarded Secretary of the Interior Gale Norton's 4 C's award by BLM Director Kathleen Clarke in 2004 for leadership in conservation and recreational safety programs throughout the Imperial Sand Dunes Recreation Area (ISDRA) in Imperial County, California. As such, we respect and protect the land. We enjoy the outdoors and the challenges it brings. Most importantly, we enjoy the duning experience with our family, friends, and those closest to us. It is very common to observe two, three, and even four generations of a family gathered around a campfire at the end of the day.

We encourage responsibility and accountability in many areas: not drinking and driving, respecting wildlife, adhering to laws and regulations, promoting family values, and operating our vehicles so as to protect ourselves, others, and the environment. Our Public Safety and Education Program identifies us as a group that is interested in a World Class duning experience as well as stewards of the land and its resources.

It is our belief that when we act in a responsible manner, we earn the privilege to recreate on sand dunes on public lands. This helps ensure that future enthusiasts will also be able to enjoy the stark beauty of sand dunes; many of which can be accessed only by motorized means.

The ASA is proud to participate in this partnership with Tread Lightly!® to further these recreational goals.

The American Sand Association  
**Unite, Inform and Mobilize**  
[www.ASAsand.com](http://www.ASAsand.com)

# KNOW THE LAW... DON'T DRINK AND RIDE!



## DON'T LET THIS BE YOUR LAST RIDE!

*Drinking and driving laws apply off-highway*

The BLM's Director of Law Enforcement and Security has made it clear, "Let there be no misunderstanding, we will strongly enforce all DUI laws in full cooperation with state and local law enforcement agencies at all off-highway recreation locations."



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# THE TREAD LIGHTLY! GUIDE TO RESPONSIBLE MOTORIZED VEHICLE USE IN SAND DUNES

## INTRODUCTION

*We did not inherit the Earth from our parents,  
We are borrowing it from our children.  
-Indian Proverb*

For many of us, enjoyment of the outdoors has become a major form of recreation—“to get away from it all.” Hunting, fishing, camping, trail riding, photography, canoeing, hiking, biking—you name it—have become very popular. One reason for this popularity is that off-highway vehicles (OHVs) have made remote areas of the country accessible.

The off-highway backcountry has brought out the Lewis and Clark in all of us, to explore and enjoy. But we have a responsibility to our outdoor home. We need to keep it neat and orderly, just as we would our own homes.

Throughout the *Tread Lightly! Guide to Responsible Motorized Vehicle Use in Sand Dunes*, we will help you prepare to responsibly enjoy off-highway outdoors experiences and to be a positive influence on nature and other recreationists.

Now, off to the wonderful world of responsible sand duning the Tread Lightly!<sup>®</sup> way.

## WHAT IS TREAD LIGHTLY!?

Tread Lightly!, Inc. is an educational program dedicated to increasing awareness of how to enjoy the great outdoors while minimizing impacts of recreational use. It emphasizes responsible use of off-highway vehicles, other forms of travel, and low-impact principles related to outdoor recreational activities. It is a long-term, informational program designed to increase the public’s awareness that special care of the outdoors must be exercised by recreationists if opportunities to recreate are to continue.

Tread Lightly! was launched in 1985 by the U.S. Forest Service to help protect public and private lands. Shortly thereafter, the program was adopted by the U.S. Bureau of Land Management. To maximize its effectiveness, program responsibility was transferred to the private sector in 1990, making Tread Lightly! a nonprofit organization.

Over the years, the program has steadily added new dimensions to meet the needs of all types of outdoor enthusiasts. The program's message was expanded in 1997 to include the promotion of responsible water-based recreational activities. These changes brought the U.S. Bureau of Reclamation and U.S. Army Corps of Engineers on board as additional federal partners. Most recently, the National Park Service joined as a partner with Tread Lightly!.

Tread Lightly! unites a broad spectrum of federal and state governmental agencies, manufacturers of recreational products, media, enthusiast groups, and concerned individuals who share the common goal of caring for natural resources. Through education and restoration Tread Lightly! empowers generations to enjoy the outdoors responsibly, ensuring continued use of land and water resources.

Tread Lightly!'s message now reaches an international audience of outdoor recreationists. Through the services of Tread Lightly!, recreationists learn that opportunities to use the outdoors tomorrow depend on how they recreate today.

The message is simple: conserve our environment! Make the commitment to follow Tread Lightly! principles as summarized in the Tread Lightly! pledge:

- Travel and recreate with minimum impact
- Respect the environment and the rights of others
- Educate yourself, plan and prepare before you go
- Allow for future use of the outdoors, leave it better than you found it
- Discover the rewards of responsible recreation

## TRAVEL AND RECREATE WITH MINIMUM IMPACT

By understanding and practicing proper sand duning techniques you will ultimately be reducing the impact you might otherwise have on the environment.

Remember to always ...

- Travel only in areas that are open to your type of recreation.
- Travel only in areas designated for motorized use.
- Avoid sensitive areas.

The following are techniques to assist you in proper sand duning to help you travel and recreate with minimum impact in sand duning areas.

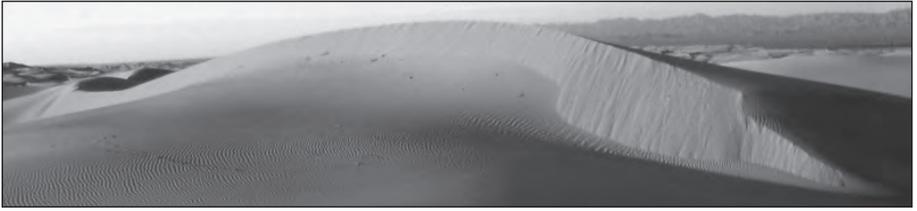


*The correct way to safely transition a dune is illustrated by the broken line. This allows a good view of what may be on the other side. Jumping a dune without a spotter is a recipe for disaster (solid line).*

## NEGOTIATING TERRAIN

Sand duning is a wonderful way to see the outdoors, and if done properly, an environmentally sound way to experience an area. Here are a few tips to help you negotiate the terrain and enjoy your sand duning experience, while protecting the environment.

- ▶ Determine the boundary of the designated sand duning OHV area. Don't travel outside this area.
- ▶ Avoid running over plants; not only does it damage the environment, but it can also ruin your tires.
- ▶ Never take your eyes off the dunes and watch your speed. Obstacles present themselves quickly.
- ▶ Be aware that the dunes are constantly changing; terrain features on the ride out may not be the same on the way back.
- ▶ On windy days with shifting sand, use stationary landmarks and/or global positioning system (GPS) units to help find your way back.
- ▶ In coastal duning areas, watch for quicksand in the low un-vegetated areas between dunes.
- ▶ Avoid areas adjacent to rivers, streams, and lakes. These areas in sand dunes are especially sensitive.
- ▶ In areas adjacent to sand dunes travel on designated roads and trails. Ride in the middle of the trail to minimize widening it.



*Slipfaces occur when wind blows sand over the top of a dune, settling it on the leeward side. This sand becomes piled so steep it “slips” down, creating sharp drop-offs.*

## TERRAIN FEATURES

- ▶ If you overdrive your line of sight by traveling too fast you may inadvertently wedge yourself in a “witch’s eye” or “blow hole” (a ravine or depression in the sand).
- ▶ Watch for slip faces. Found on the leeward (downwind) side of a dune, these areas build up unstable loose sand, which slips and runs down the slope, creating steep drop offs.
- ▶ As you approach the top of a dune crest, parallel the edge to avoid shooting over a steep drop-off. Try to do this on the driver’s side so you have a better view over the edge.
- ▶ Heat haze and mid-day “whiteout” can distort terrain. Reduce speed to allow more time to react.
- ▶ Scout an area before traveling at higher speeds. When traveling at higher speeds in unfamiliar dunes it is easy to miss terrain features, which may cause accidents or serious injury.
- ▶ When traversing, maintain speed and possibly accelerate to maintain momentum to stay on hills. Turn your wheels upslope and use throttle to hold your height on the hill. Traversing can help in spotting exit routes and getting around obstacles.
- ▶ Use a spotter when jumping hills or dunes.



*Razorbacks are formed when the wind blows sand in multiple directions, and a knife-edge ridge appears.*

## DRIVING TIPS

- ▶ When driving a sand rail, know how to operate a clutch: shift smoothly and select gears that maintain the middle RPM range.
- ▶ Decelerate into corners and accelerate through corners to smoothly track the desired course.
- ▶ Braking should be smooth to minimize “locking up.”
- ▶ Use momentum to climb hills. Downshift early to avoid stalling.
- ▶ If you stall mid-slope, shift into reverse and use the clutch and throttle to start a straight backing movement. Before the vehicle gains too much momentum, turn to the most favorable side to turn downhill, then shift into first gear.
- ▶ Berms created near campsites by repetitive riding (also known as “worm tracks” or “speed bumps”) are difficult to spot and extremely hazardous. Keep speeds low in all camping areas.

## MINIMUM IMPACT CAMPING

An overnigher or extended trip will require proper preparation. Here are some helpful tips to assist in minimum impact camping:

- ▶ Whenever possible, use existing campsites. Set up tents and cooking areas on a non-vegetated area. Take the time to search for a suitable campsite.
- ▶ Select a campsite approximately 200 feet off trail and at least 200 feet from any water resource. Camp near boulders or vegetation to screen you from other campers.
- ▶ Protect the limited water resources of the area. Detergents, toothpaste, and soap harm fish and other aquatic life. Wash 200 feet away from water resources. Scatter wash water so that it filters through the soil.
- ▶ Avoid camping near historical, archeological, or paleontological sites or in areas of sensitive or critical habitat.
- ▶ Plan meals before you leave. Repackage food into reusable containers or plastic bags. This will reduce the amount of waste that must be packed out.
- ▶ When cooking outdoors use a camp stove or a portable grill. They are always preferable to a campfire and reduce impact on the land.

- ▶ Observe all fire restrictions. If you choose to build a fire use an existing fire ring. Do not cut standing trees. Use only “dead and down” wood for campfires and gather firewood well away from your camp. Always make sure your fire is completely extinguished.
- ▶ Social bonfires are common in some sand duning areas. Check with local land managers for specific restrictions. Many areas prohibit or discourage burning objects which contain nails, hinges, and other metallic items. Clean fire pits and pack out ashes.
- ▶ In areas without toilets, use a portable latrine if possible, and pack out your solid waste. Sand has no viable microorganisms to break down solid human waste—it will petrify and eventually be exposed. All human waste must be packed out.
- ▶ Haul out and use the proper disposal for gray and black water.

Remember, good campsites are found—not made. Respect other campers, their property, and their reasons for recreating.

## PROTECTING THE SOUNDSCAPE

Natural sounds are essential to the health of the environment. Man-made noise can reduce the quality of the natural experience and is detrimental to wildlife in an ecosystem.

- ▶ Check with a land manager to determine if area sound restrictions exist for vehicles.
- ▶ Make sure your engine and exhaust system are well tuned. Your vehicle will run smoother and quieter.
- ▶ Avoid revving your engine or running at full throttle, which creates unnecessary noise.
- ▶ Respect others’ desire for quiet solitude and the sounds of nature. Early morning and late afternoon is often the time when people enjoy peace and tranquility.
- ▶ Don’t overstay your welcome. Do not idly ride around in camping, picnicking, or residential areas.
- ▶ Be aware that continued exposure to unnatural noise could cause chronic stress to wildlife. Take appropriate measures to reduce travel in areas inhabited by wildlife.

## RESPECT THE ENVIRONMENT AND THE RIGHTS OF OTHERS

By respecting land and water resources, wildlife, and the rights of others you ensure that not only will you be able to continue to go duning, but others will also be able to enjoy the great outdoors.



Remember to always ...

- Respect and be considerate of other users so that all can enjoy a quality experience in the outdoors.
- Respect wildlife. Be sensitive to their life-sustaining needs by keeping your distance.
- Comply with all posted signs.
- Always obtain permission to cross private land.

## RULES AND COMMON COURTESY ON THE DUNES

Be considerate of other recreationists on the dunes and camping in the area. Be cheerful and pleasant. A friendly “Hi!” goes a long way to building a positive image and relationship with other users. Be a goodwill ambassador for OHV drivers.

- ▶ Drive only in dunes designated open to motorized vehicles.
- ▶ Be considerate of others on the roads or dunes.
- ▶ If you encounter a gate on public land, leave it as you found it unless posted otherwise.
- ▶ Respect private land. Many landowners will allow you to cross their land, but only if you ask permission.
- ▶ Keep the noise and dust down—others will appreciate it.
- ▶ Don’t litter in the dunes! Blowing sand easily covers trash, only to reappear at a later date. Broken bottles and sharp objects hidden beneath the sand can damage tires and ruin trips for you and others. Glass bottles are prohibited in some areas; contact your local land manager for specific restrictions.
- ▶ When traveling on roads or trails, yield the right of way to drivers on the uphill grade or those overtaking you.
- ▶ Don’t be a dune hog. Respect others regardless of their means of transportation; everyone deserves to enjoy the outdoors.

## EDUCATE YOURSELF, PLAN AND PREPARE BEFORE YOU GO

Before heading out on your next sand dune adventure, a little preparation and education can make your life easier, safer and protect the environment at the same time. Planning for the unexpected, as well as the expected, can help maximize your time in the dunes and minimize your problems. Plan your trip well in advance—30 days isn't too early.

Remember to always ...

- Know local laws and regulations.
- Know which areas and routes are open for your type of recreation.
- Have the right information, maps, and equipment to make your trip safe, and know how to use them.
- Be sure your vehicle is compatible with terrain conditions.

### STEP BY STEP

#### Preparation

Preparing checklists for your vehicle, emergencies, and personal items is important. Refer to the Tread Lightly! Vehicle and Safety Equipment Checklists at the end of this book. A properly tuned and serviced vehicle will get you to your destination and back. The following are additional tips to assist you in planning and organizing.

- ▶ Contact the land manager for additional information such as seasonal closures or special permit requirements. Some states may require a temporary permit for out-of-state visitors.
- ▶ Obtain a travel map of where you plan to ride. Determine which areas are open to off-highway vehicle (OHV) use and if there are any special rules to be aware of.
- ▶ Make a realistic travel plan and stick to it. Let someone know where you are going and when you expect to return. Leave them a map and itinerary in case of an emergency.



- ▶ Become familiar with the different signs you will see in the dunes and proceed accordingly. If the area you wish to reach is on private property, contact landowner(s) to obtain their permission. Ask about restrictions.
- ▶ Contact the land manager to see if there are certain times or specific areas to avoid: times when wildlife are particularly sensitive to disturbance (e.g. nesting or birthing seasons) or when soils are wet and prone to rutting; areas that are particularly sensitive to disturbance because of rare or endangered plants and animals, critical wildlife habitat, or fragile soil or vegetation types; and problem areas that are extremely crowded or where environmental impacts are severe.
- ▶ Expect the unexpected. Know the weather forecast for your destination and dress accordingly. Recreationists on the sand dunes are exposed to the elements, and a great ride can turn into misery if caught unprepared. It is always better to have more clothing than you need.
- ▶ Whips and approved flags may be required on all vehicles in sand dunes at certain locations. Contact your local land manager for details.
- ▶ Be sure you know the location and operation of all the controls on your vehicle: brakes, engine stop switch, throttle, shifter, clutch, and parking brake. Learn how to find and use the controls without looking down at them. You will not have time to look for controls when riding or during emergency situations. Control locations may vary from model to model. If you switch to another vehicle, take time to familiarize yourself with its controls. Check local regulations for sound level requirements, spark arresters, laws, age limitations, training prerequisites, and necessary registration requirements.
- ▶ Check tire-pressure prior to any trip and continue to check daily on multiple day trips.
- ▶ Be sure your vehicle is properly tuned. Refer to the Tread Lightly! Vehicle Checklist at the end of this booklet.
- ▶ Check to see if the state requires special licensing or safety certification for the driver(s) and/or youth. Is any special equipment required?
- ▶ First time sand dune recreationists should always travel with someone who has experience in the area.

## Safety in the Dunes

Safety while sand duning is critical. Knowing your limitations, your vehicle's limitations, the ins and outs of traveling on sand dunes, and using common sense helps ensure your well-being.

- ▶ Ride at your skill level. Don't try to keep up with others if their riding is outside your ability.
- ▶ Ride with a partner or in a group. Riding solo can leave you vulnerable in the case of mechanical problems, accidents, or illness.
- ▶ Keep your group together. Slow down if someone lags behind and make all riders accountable for the person riding behind them. Use two-way radios to communicate, and designate lead and clean-up riders.
- ▶ Always maintain a safe following distance between riders. Tailgating cuts down on reaction time and can lead to collisions and injuries.
- ▶ It is easy to get separated or lost in the dunes. If this happens, climb the tallest nearby hill and make yourself visible.
- ▶ Don't drink & drive! Sand duning requires a high degree of skill and judgment. Using drugs or alcohol will impair your skills and can lead to an accident. If you are taking any over-the-counter or prescription drugs with "vehicle operation" warnings, don't ride.
- ▶ In crowded areas make your camp easy to find by flying a distinctive flag and using unique lighting after dark. Consider use of a GPS.
- ▶ Don't overextend daylight hours. Plan your riding schedule to allow returning to the base campsite or designated meeting place at a predetermined hour.
- ▶ Global Positioning Systems (GPS) can be an invaluable tool in sand dunes. Not only do they help navigation, but they also help you from getting lost and assist in locating you during rescue.
- ▶ Go prepared in case you breakdown and have to spend the night.
- ▶ Avoid running your vehicle completely out of gas. If you are running low, travel to the edge of the dunes and then make your way back to camp. If you do have to walk out of the sand dunes, it is much easier and safer on stable ground.
- ▶ Pace yourself. Sand duning is physically demanding and can be compounded by high altitude, or extreme heat or cold. Drink plenty

of water before and during the ride to avoid dehydration. Know your limitations and keep your body “fueled-up” at regular intervals throughout the day. Don’t be too proud to take a less challenging route if you feel tired.

- ▶ A mid-day “white out” or sun glare may cause loss of depth perception. Use goggles with gradient lenses and reduce your speed when such conditions occur.
- ▶ If your vehicle is equipped with a headlight, riding with it ON at all times will allow other riders to see you sooner.
- ▶ Young riders should always be supervised when riding in sand dunes.



#### **If you ride golf carts or sandrails:**

- ▶ Every occupant should be buckled in, even if you are planning on driving slowly.
- ▶ Make sure your golf cart is equipped with seat belts and a roll bar.
- ▶ Lifted golf carts can be unstable and roll easily at high speeds. Ride at a reasonable pace.
- ▶ Make sure your golf cart brakes are working properly and can easily stop your vehicle.
- ▶ All golf carts and sandrails should carry a fire extinguisher. They are required in some areas.
- ▶ A five-point harness with a crotch belt will hold the lap and shoulder belts down and keep riders in the sandrail.
- ▶ Safety features to look for in your sandrail or golf cart: suspension that will take rough terrain, seats mounted to the frame of the vehicle, properly installed seatbelts, a sturdy roll cage, a skip plate mounted under the seat, and sand tires mounted on bead lock wheels.



**If you ride an ATV or an off-highway motorcycle (OHM):**

- ▶ Always wear a helmet, eye protection, long-sleeved shirt, sturdy pants, over-the-ankle boots, and gloves. Specialized riding jerseys and pants can keep you cool (yet dry) to combat premature fatigue while a chest protector, kidney belt, and kneepads can be inexpensive insurance against injuries.
- ▶ Only carry the number of passengers your ATV is designed for or as local regulations require. Certain areas prohibit double riding; contact your local land manager.
- ▶ Be sure youngsters ride the right size ATV or OHM and supervise riders younger than 16.

An *ATV RiderCourse*<sup>®</sup>, a *DirtBike School*<sup>sm</sup> class or another OHV safety training course provides fast-paced, hands-on training that includes pre-ride inspection, starting and stopping, quick turns, hill riding, emergency stopping and swerving, and riding over obstacles. You'll also learn about protective gear, local regulations, places to ride, and environmental concerns.

**ALLOW FOR FUTURE USE OF THE OUTDOORS,  
LEAVE IT BETTER THAN YOU FOUND IT**

With the number of OHV operators rapidly growing every year, the repeated and often unintentional misuse by OHVs can quickly create environmental damage.

Remember to always ...

- Take out what you bring in.
- Properly dispose of waste.
- Leave what you find.
- Minimize use of fire.
- Restore degraded areas.
- Avoid the spread of noxious weeds.



By using common sense and taking a few precautions, OHV operators can ensure that the area they frequent will remain available and in good condition for future use.

- ▶ Always stay in areas open for sand duning.
- ▶ Do more than your share, if you see litter—pick it up. Bring plenty of garbage bags and don't leave anything behind.
- ▶ Avoid “spooking” wildlife and livestock you encounter. Slow down and keep your voices low. Range animals should be treated the same as you would treat an unknown dog—proceed with caution.
- ▶ Following a ride wash your vehicle and equipment to reduce the spread of noxious weeds.
- ▶ Sensitive wildlife habitat (i.e. riparian areas, vegetated areas, and areas with cryptobiotic crusts) should be avoided. Traveling through these areas will damage or destroy sensitive habitat.
- ▶ Wilderness areas are managed to maintain their primitive character and to provide opportunities for solitude. These designated areas are solely for non-mechanized travel—access is restricted to foot and horseback only. Sorry, no OHVs or bicycles.

## DISCOVER THE REWARDS OF RESPONSIBLE RECREATION

Remember—if you abuse it, you'll probably lose it! Careless operation of your OHV can cause damage and may result in the closing of areas to sand duning enthusiasts.



- ▶ Do all you can to help preserve the beauty and inspiring attributes of our lands and waters both for yourself and for future generations.
- ▶ Sand duning provides the opportunity to get away from the hustle of every day life and builds family traditions.
- ▶ Respect the environment and other sand dune recreationists. By using common sense and common courtesy, what is available today will be here to enjoy tomorrow.

## THE TREAD LIGHTLY! VEHICLE CHECKLIST:

Use the following list as a general guide. Always consult your owner's manual for information specific to your vehicle.

### Frame and Suspension

- ❑ Check for cracks, loose bolts, and sloppy steering. Tighten to specification. Are the handlebars straight with the grips securely fastened?
- ❑ If your vehicle has lights, do they work? Are the lenses free of cracks? Is the headlight aimed correctly?
- ❑ Check suspension for smooth operation. When bouncing the vehicle up and down, you shouldn't hear any clunks indicating loose or worn suspension joints. Try this at both front and back ends of the vehicle.
- ❑ Check for any fluid leaks from the fork or shocks. If they can be rebuilt, replace seals and fluid as required. If they cannot be rebuilt, the leaking fork or shock must be replaced.
- ❑ On vehicles with adjustable suspensions, adjust the setting (rider sag, compression, and rebound damping) to your weight and riding style. Suspension settings greatly affect traction and handling.

### Wheels and Tires

- ❑ Check condition of tires; see your owner's manual for tire wear limits. (ATV tires are difficult to change and is best done by a dealership.) Always check for correct tire inflation pressures *before* a ride, using a low-pressure tire gauge.
- ❑ Check wheel bolts/nuts for tightness, and check for cracks or dents in the wheel. Check that the cotter key(s) securing the front wheel spindle or axle nut is intact and undamaged.
- ❑ Check that wheels turn freely without binding. Check for excessive free play by grabbing each wheel at the 9 o'clock and 3 o'clock positions and rocking side-to-side.
- ❑ If so equipped, check the oil level in the final (gear) drive at the rear axle.

### Brakes and Controls

- ❑ Replace brake pads/shoes if you are not sure they will last the trip. Check hydraulic fluid level(s).
- ❑ Check rotors/drums for cracks or excessive wear. Replace those with any cracks, no matter how small.
- ❑ Check cables for smooth operation by disconnecting both ends and then moving the cable end back-and-forth. Look for any kinks, rust, or frayed ends. Lubricate or replace cables as required.
- ❑ Check that all control levers (hand and foot) move freely without being too loose. Apply a small amount of grease to all pivot areas. Adjust according to the owner's manual, and position to suit your riding style.

### Engine

- ❑ Check for oil leaks. Repair or replace gaskets or seals. Change engine/transmission oil if needed.
- ❑ Check to ensure oil and other fluids are at proper levels.
- ❑ Be sure the air filter is clean and properly maintained.
- ❑ Check for crisp return of throttle with handlebars in any position on your ATV or OHV. Clean and lube throttle assembly. Lube or replace cable as necessary and check carburetor return spring for breakage or fatigue.
- ❑ Check spark plug(s) for carbon buildup, proper heat range, and gap. Replace if necessary.
- ❑ Check coolant level on liquid-cooled models. On air-cooled models the fins on the cylinder and cylinder head must be free of any dirt or mud.
- ❑ Fill the gas tank with the correct type of fuel. For 2-strokes, follow the owner's manual for proper fuel-to-oil premix ratios.
- ❑ Check condition of exhaust pipe, muffler, and spark arrester. Exhaust system maintenance is especially critical because excessive noise can cause open areas to be CLOSED TO ANY RIDING.

## THE TREAD LIGHTLY! SAFETY EQUIPMENT CHECKLIST

Use the following list as a guide. Depending on where you are duning, you may need some or all of the following.

Without a basic tool kit, a minor problem can mean an end to your trip. Many innovative aftermarket products are available: compact tool packs, fanny packs with special tool holders, and even tools designed for compactness and multi-function. You can't carry a whole toolbox with you, but if you choose carefully you can have a fairly complete kit that should suffice. Trailside repairs help you continue your ride—not rebuild your engine—so keep that in mind. Start by examining your vehicle for bolt/nut sizes. Only carry wrenches that will fit fasteners on your vehicle!

If your vehicle is equipped with a utility rack(s) or storage compartment, this is the ideal place to secure tools. Tools should be in a tight bundle and padded to prevent damage to the surrounding bodywork. If securing to a rack, use straps (do not use bungee cords: bungee cords will stretch and allow heavier items, such as tools, to work free).

Always balance loads between front and rear without exceeding the vehicle manufacturer's load recommendations. Check your owner's manual for detailed information.

### Tools

- Open end or box wrenches of appropriate sizes
- Combination screwdriver with different tips
- Spark plug wrench
- Pliers or small Vise-Grips
- Multi-function pocket knife
- Low pressure air gauge
- Hand (tire) pump or CO<sub>2</sub> cartridges

### Optional Tools

- Compact chain breaker with chain repair kit (for chain drive models)
- Hex key (allen) wrenches (if applicable to your vehicle)
- Coiled cable saw or folding saw (for cutting deadfall)
- Camping shovel with folding handle

### Supplies and Spares

- Tire repair plug kit
- Nylon zip ties & safety wire
- Spark plug (taped into original box to prevent damage)
- Hose clamps (1 small, 1 large)
- Headlight bulb (wrap in foam rubber for protection)
- Master link for chain (for chain drive models)
- Nuts, bolts, and cotter pins common to your bike
- Clutch and brake levers
- Silicone or quick-set epoxy cement
- Duct tape (small roll)

## Emergency Items

- Drinking water (16-32 oz. per person—increase amount for long or hot rides to at least 5 gallons/person/day in desert locations)
- High energy food
- Map, compass or GPS, and signal mirror
- Rain jacket
- Tow strap
- Compact space blanket
- Waterproof matches or lighter
- Pencil and piece of paper
- High-power penlight or flashlight with spare bulb & batteries
- Small first aid kit
- Water purification tablets
- Toilet paper (plain white, bio-degradable if possible)
- Portable CB radio, two-way radios or cellular phone

Tread Lightly! and the American Sand Association are not affiliated with nor do they endorse or recommend any particular product or service featured in this publication. The user of any product featured herein assumes all risk of injury or property damage resulting from the use of any product featured herein. Tread Lightly! and the American Sand Association assume no liability arising out of the interpretation, contents or use of information provided in this guidebook, and should not be construed by the reader as expert or legal advice.

## TREAD LIGHTLY! MATERIALS AVAILABLE TO HELP YOU LEAVE A GOOD IMPRESSION

The following materials are available from Tread Lightly!, Inc., 298 24<sup>th</sup> Street, Suite 325, Ogden, UT 84401 or can be ordered on the Tread Lightly! website at [www.treadlightly.org](http://www.treadlightly.org) or by calling 1-800-966-9900.

- *Tread Lightly! Leaving A Good Impression*
- *Tread Lightly! Guide to Responsible Mountain Biking*
- *Tread Lightly! Guide to Responsible Four Wheel Driving*
- *Tread Lightly! Guide to Responsible ATV Riding*
- *Tread Lightly! Guide to Responsible Snowmobiling*
- *Tread Lightly! Guide to Responsible Trail Biking*
- *Tread Lightly! Guide to Responsible Personal Watercraft Use*
- *How To Tread Lightly: A Guide to Responsible Recreation*
- *Tread Lightly! Junior High Curriculum*
- *Tread Lightly! Science Manual*
- *ETHIC - Educational Tools for Hunters: Improving Choices manual/video*
- Decals – 4-Wheel Drive, ATV, Boating, Camping, Cross Country/Backcountry Skiing, Fishing, Hiking, Horseback, Hunting, Mountain Bike, Personal Watercraft, Snowmobile, and Trail Bike
- One-Page Tips—Camping, Cross Country/Backcountry Skiing, Fishing, Geocaching, Hiking, Horse Back Riding, Hunting, Hunting with ATV, Water Recreation, Youth Sand Duning
- Coloring/Activity Book
- Apparel—T-shirts, polo shirts, sport caps, etc.
- Vehicle Accessories—bumper & reflective stickers, key rings, Tread Lightly! logo decals, license plate frames
- Tread Lightly! Pledge Hangtag
- Tread Pledge Poster
- Souvenirs—water bottles, travel mugs, litter bags, pencils
- Advertising Products—counter displays
- Pins—4-Wheel Drive, Trail Bike, Hiker, Horseback, Mountain Bike, Snowmobile, Cross Country/Backcountry Skier
- Outdoor Products—banner, outdoor poster
- Trails Illustrated maps
- Delorme Atlas'

*Thank you for promoting environmental ethics by  
purchasing and using this booklet.*



**MEMBERSHIP APPLICATION**

Tread Lightly!, Inc. is a nonprofit organization dedicated to protecting the great outdoors through education. Your help through membership contributions enables Tread Lightly! to continue its educational mission. Become a member today. Individual Memberships can be obtained for a tax-deductible fee of \$20.00, renewable annually. Tread Lightly! offers Individual, Retailer/Outfitter, Dealer, and Club memberships. Each category varies in benefits and contribution levels. After joining as an individual member, you will receive various membership items including a window decal, a product catalog, a copy of Tread Lightly! Trails, our bi-annual newsletter, and tips applicable to your top area of interest. For more information on other membership categories contact Tread Lightly!.

**Individual Membership—\$20.00 Annual Contribution**

Please rank your top 3 areas of interest in numeric order

- |   |   |   |
|---|---|---|
| <input type="checkbox"/> Mountain Biking      | <input type="checkbox"/> Camping          | <input type="checkbox"/> Water Recreation   |
| <input type="checkbox"/> Hiking/Backpacking   | <input type="checkbox"/> Snowmobiling     | <input type="checkbox"/> Fishing            |
| <input type="checkbox"/> Cross Country Skiing | <input type="checkbox"/> Trail Biking     | <input type="checkbox"/> Four Wheel Driving |
| <input type="checkbox"/> ATV Riding           | <input type="checkbox"/> Horseback Riding | <input type="checkbox"/> Hunting            |
| <input type="checkbox"/> Personal Watercraft  | <input type="checkbox"/> Geocaching       |   |

Name (individual) \_\_\_\_\_

Name (business or club name) \_\_\_\_\_

Contact for business or club \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_

State \_\_\_\_\_

Zip \_\_\_\_\_

Daytime Telephone \_\_\_\_\_

Email Address \_\_\_\_\_

(Optional) Fax \_\_\_\_\_ E-mail \_\_\_\_\_

Payment Amount \$ \_\_\_\_\_  Check  Money Order  Credit Card

Credit Card Type  Visa  MasterCard  American Express

Card Number \_\_\_\_\_ Exp. Date \_\_\_\_\_

Signature \_\_\_\_\_

**Send your applications with payment to:**  
Tread Lightly!, Inc.  
298 24th Street, Suite 325  
Ogden, UT 84401

**Fax us at:** 801-621-8633  
**Call us at:** 1-800-966-9900  
**See us at:** [www.treadlightly.org](http://www.treadlightly.org)  
**E-mail us at:** [treadlightly@treadlightly.org](mailto:treadlightly@treadlightly.org)

Please allow 4 to 6 weeks for the delivery of your Tread Lightly! membership package.

## Notes

## OHV SAND DUNING AREAS IN THE WESTERN UNITED STATES

Contact land management agencies for sand duning information.

### CALIFORNIA

- 1) Imperial Sand Dunes Recreation Area  
BLM El Centro Field Office  
El Centro, CA **760-337-4400**  
[www.ca.blm.gov/elcentro](http://www.ca.blm.gov/elcentro)
  
- 2) Dumont Dunes OHV Area  
BLM Barstow Field Office  
Barstow, CA **760-252-6000**  
[www.ca.blm.gov/barstow](http://www.ca.blm.gov/barstow)
  
- 3) Olancho Dunes OHV Area  
BLM Ridgecrest Field Office  
Ridgecrest, CA **760-384-5400**  
[www.ca.blm.gov/ridgecrest](http://www.ca.blm.gov/ridgecrest)
  
- 4) Ocotillo Wells State Vehicular Recreation Area  
CA State Parks  
Borrego Springs, CA **760-767-5391**  
[www.ohv.parks.ca.gov](http://www.ohv.parks.ca.gov)
  
- 5) Oceano Dunes State Vehicular Recreation Area  
CA State Parks  
Oceano Dunes, CA **805-473-7230**  
[www.ohv.parks.ca.gov](http://www.ohv.parks.ca.gov)
  
- 6) Samoa Dunes Recreation Area  
BLM Arcata Field Office  
Arcata, CA **707-825-2300**  
[www.ca.blm.gov/arcata](http://www.ca.blm.gov/arcata)
  
- 7) Heber Dunes State Vehicular Area  
CA State Parks  
Heber, CA **760-767-5391**  
[www.parks.ca.gov](http://www.parks.ca.gov)

### OREGON

- 8) Oregon Dunes National Recreation Area  
USFS Siuslaw National Forest  
Reedsport, OR **541-271-3611**  
[www.fs.fed.us/r6/siuslaw](http://www.fs.fed.us/r6/siuslaw)
  
- 9) Sand Lake Recreation Area  
USFS Siuslaw National Forest  
Hebo, OR **503-392-3161**  
[www.fs.fed.us/r6/siuslaw](http://www.fs.fed.us/r6/siuslaw)

### IDAHO

- 10) St. Anthony Sand Dunes  
BLM Idaho Falls Field Office  
Idaho Falls, ID **208-524-7500**  
[www.id.blm.gov/spec\\_places](http://www.id.blm.gov/spec_places)

### UTAH

- 11) Coral Pink Sand Dunes State Park  
UT State Parks  
Kanab, UT **435-648-2800**  
[www.stateparks.utah.gov](http://www.stateparks.utah.gov)
  
- 12) Sand Mountain OHV Area  
BLM St. George Field Office  
St. George, UT **435-688-3200**  
[www.ut.blm.gov/stgeorge\\_fo](http://www.ut.blm.gov/stgeorge_fo)
  
- 13) Little Sahara Recreation Area  
BLM Fillmore Field Office  
Fillmore, UT **435-433-5960**  
[www.ut.blm.gov/recsite/little.html](http://www.ut.blm.gov/recsite/little.html)
  
- 14) Sand Hollow State Park  
UT State Parks  
Hurricane, UT **435-680-0715**  
[www.stateparks.utah.gov](http://www.stateparks.utah.gov)

*(See map on page 23)*

**NEW MEXICO**

- 15) Mescalero Sands North Dunes  
 OHV Area  
 BLM Roswell Field Office  
 Roswell, NM **505-627-0210**  
[www.nm.blm.gov/roswell](http://www.nm.blm.gov/roswell)

**ARIZONA**

- 16) Hotwell Dunes Recreation Area  
 BLM Safford Field Office  
 Safford, AZ **928-348-4400**  
[www.az.blm.gov/ohv/geoareas](http://www.az.blm.gov/ohv/geoareas)
- 17) Copper Basin Dunes OHV Area  
 BLM Lake Havasu Field Office  
 Lake Havasu, AZ **928-505-1200**  
[www.az.blm.gov/ohv/geoareas](http://www.az.blm.gov/ohv/geoareas)

**NEVADA**

- 18) Sand Mountain Recreation Area  
 BLM Carson City Field Office  
 Carson City, NV **775-885-6000**  
[www.nv.blm.gov/carsoncity](http://www.nv.blm.gov/carsoncity)
- 19) Amargosa Dunes  
 BLM Las Vegas Field Office  
 Las Vegas, NV **702-515-5000**  
[www.nv.blm.gov/lasvegas](http://www.nv.blm.gov/lasvegas)

**WYOMING**

- 20) Killpecker Sand Dunes  
 BLM Rock Springs Field Office  
 Rock Springs, WY **307-352-0256**  
[www.wy.blm.gov](http://www.wy.blm.gov)

**COLORADO**

- 21) North Sand Hills OHV Recreation Area  
 BLM Kremmling Field Office  
 Kremmling, CO **970-724-3000**  
[www.co.blm.gov/kra/kraindex.htm](http://www.co.blm.gov/kra/kraindex.htm)

**WASHINGTON**

- 22) Moses Lake Sand Dunes  
 Grant County Sheriffs Office  
 Ephrata, WA **509-754-2011 X468**  
[www.co.grant.wa.us/sheriff/SandDunes](http://www.co.grant.wa.us/sheriff/SandDunes)

# OHV Sand Duning Areas in the Western U.S.\*



\*Locations shown are managing agency offices. Contact agency for specific sand duning locations.

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&  
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