



# Low impact recreation: protecting our forests

Forests are very important to our environment because they are renewable resources. A **renewable resource** is any natural resource that can be replenished naturally over time. Forests provide many benefits including clean air for us to breathe, homes for animals and resources for everyday products, like paper. Forests are also a popular spot where nature lovers enjoy various recreational activities. When visiting and engaging in recreational activities in our forests, it is important to understand how activities such as biking, hiking and camping can negatively impact forests. These impacts can be severe and long term by damaging plants and trees and reducing the forest's ability to "renew" itself.

By understanding how certain activities can harm forests, we can make good decisions to safely enjoy our activities in forests and preserve their natural beauty. So, whether we use a forest for hiking, biking or camping, we can do our part to ensure that forests remain renewable resources for many generations to come.

This handout highlights several popular recreational activities which can have negative impacts on forests. The handout also highlights seven "Leave no trace" principles which, when followed, allow us to enjoy these same recreational activities while protecting our forests.

## Leave no trace – 7 principles

- 1) Plan ahead and prepare
- 2) Stay on the trail
- 3) Carry in, carry out
- 4) Be considerate of other visitors
- 5) Leave what you find
- 6) Respect wildlife
- 7) Minimize campfire impacts





## Hiking and Biking



### Leave no trace – 7 principles

#### 1) Plan ahead and prepare

- Know the regulations and special concerns for the area you will visit.
- Prepare for extreme weather, hazards, and emergencies.
- Schedule your trip to avoid times of high use.
- Visit in small groups when possible. Consider splitting larger groups into smaller groups.
- Repackage food to limit waste.
- Bring a map and compass.

Believe it or not the simple act of hiking or biking on trails in a forest can damage the forest, particularly if care is not taken to limit the impact of the activity. When hiking or biking in a forest it is important that you stay on marked trails. These trails are created in specific areas and often with special features to limit erosion. It is best to walk or bike single file in the center of the marked trails to limit damage to trail-side plants such as

Christmas fern and jewelweed. Even when you come across a muddy section, it is best to go straight through it rather than around it. As you step around a muddy area, you can damage plants. This may widen the trail and increase future erosion.



biker riding in the center of the trail

Even a slight movement off of the trail can damage plant life and tree saplings.

Movement off trail can lead to contact with poison ivy or stinging nettle, which can cause skin irritations.

When you wander off a trail to check out something interesting, you are creating the beginnings of a user-created trail. **User-created trails** are trails in a forest that are accidentally created by hikers or bikers who venture off of the marked trails. At first a user-created trail may appear as a faint path but it attracts others who follow to “explore” the less traveled path. As more and more people travel the path, the plants, shrubbery and tree saplings receive enough damage that they die and give way to bare dirt and rocks. Since user-created trails are not planned in areas to minimize erosion, they can lead to major impacts on areas near the trail. Without plant and tree roots to hold the soils in place, rainwater washes the soil away. If you are hiking or biking and see the beginnings of a user-created trail, it is important to ignore it and stay on the main trail. This allows the user-created trail time to “heal”. User-created trails and widening of established trails can create a freeway look in the middle of a forest.

#### 2) Stay on the Trail

- Hike and bike on established and marked trails.
- Prevent user-created trails.
- Walk single file in the middle of the trail, even when wet or muddy.
- Hike and bike in small groups.
- Take rests and breaks on non-vegetated surfaces, such as rock outcrops.



In addition to staying on marked trails, hiking or biking in smaller groups can also help limit your impact on the environment. As you can imagine, larger groups of people tend to do more damage along and beside the trail.

### 3) Carry In, Carry Out

- Do not litter.
- Take all uneaten food with you when you leave.
- Inspect your rest area for spilled food and trash before moving on.
- Make sure you are not leaving anything behind.

### 4) Be Considerate of Other Visitors

- Respect other visitors and protect the quality of their experience.
- Be courteous. Yield to other users on the trail.
- Let nature's sounds prevail. Avoid loud voices and noises

When you need to take a break to rest, try to find a sturdy surface, such as a rock outcrop or other non-vegetated location. Sitting on or laying backpacks and gear on plants can damage them and create long term impacts. Keep in mind that live tree seedlings are critical to the long term maintenance of a forested area.

While hiking in a forest, it is also important to not damage mature trees. Hikers are often tempted to carve their names or initials in a tree's bark. Do not attach a sign to the bark of a tree to mark a spot for others in your group. Each of these acts not only affects the beauty of a tree but they also damage the tree's bark and possibly make the tree sick. The bark of a tree is a tree's "skin" which protects the softer inner parts of the tree from damage. Damage to its bark makes a tree more likely to get a disease, rot and be attacked by animals or insects. It also destroys some of the tissues that carry food and water in the tree. When a tree's bark is damaged most of the way around the tree it is called **girdling**. Girdling usually kills the tree.



carved tree



trash bag left in a tree

No matter what activity you are in the forest for, there is no reason to leave trash behind. Many parks have a "carry in, carry out" policy on trash. Any trash you produce needs to leave with you. Trash in the forest negatively impacts the beauty of the outdoors. It is not as enjoyable to walk through a forest that is covered in other people's trash. Trash also negatively impacts the natural environment. A bag waving from a tree may discourage birds or squirrels from using a tree. If that tree depends on birds or squirrels to disperse its seeds, that tree is now unlikely to be able to spread its seeds.

It is also important to avoid collecting "souvenirs" such as leaves, plant seeds, or insects during a hiking or biking trip in a forest. Leaving the area exactly as you found it allows others that come after you the same sense of discovery. Collecting "souvenirs" is a common way that invasive species can be spread from one area to another. An **invasive species** is a species that has become a pest. It grows or reproduces very rapidly, spreads, and displaces native species. One of the more common invasive species is the tree of heaven. A **native species** is any species

## 5) Leave What You Find

- Leave rocks, plants and other natural objects as you find them.
- Be aware of “hitchhiking” plants and seeds.
- Inspect clothes, gear, etc., before leaving an area.
- Allow other visitors to enjoy nature’s treasures too.

## 6) Respect Wildlife

- Observe wildlife from a distance. Do not follow or approach them.
- Never feed animals. Feeding wildlife damages their health, alters natural behaviors, and exposes them to predators and other dangers.
- Leave rocks and logs as you find them as they are animal habitats.
- Protect wildlife and your food by storing food and trash securely.
- Control pets at all times, or leave them at home.
- Avoid wildlife during sensitive times: mating, nesting, raising young, or winter.

which occurred within an area before settlement by Europeans. Although some native species grow or reproduce rapidly, most rapid growing species are introduced from other countries and have left behind their natural controls. These are commonly referred to as **introduced species**. Invasive species are difficult to control and can take over whole areas in a forest. Native species often lose out to the invasive species. Invasive species infestations are very expensive to control and are environmentally harmful. Because of their dominance, invasive species infestations reduce biodiversity in the area. **Biodiversity** is the variety of living things in an area. Biodiversity is required to maintain healthy natural habitats. Plus, it is simply more interesting and exciting to hike or bike through a landscape full of different plants and trees rather than an area overtaken by a single invasive species.

Invasive species can unknowingly be transported between forests by “hitchhiking” their way on the clothing or gear of the hiker or biker. For that reason, it is very important to clean everything including clothing, shoes, pets, backpacks and other equipment before going to a new area. Removing “hitchhiking” seeds, plant parts, and insects will decrease the risk of spreading an invasive species to other areas. The spotted lanternfly is a common “hitchhiking” insect.



## Camping



There are many things to think about if you are planning a camping trip. You certainly want to make sure that you have your tent and sleeping bag, maps, hiking shoes and maybe even a camera to record those special memories with the family. Another important thing to plan is food for the trip. And more importantly, how you plan to cook the food while you are camping. Campfires are a favorite activity for campers. They can offer a relaxing setting to unwind at the end of a long day of hiking. They are often used to cook food and drinks by campers.



camp site

Before planning your trip, make sure you know the regulations for the area you are visiting. Some parks and camping areas do not allow fires or only allow them in certain areas. Building camp fires during very dry or windy times can be dangerous. Even a small, hot ember can cause a serious, uncontrolled forest fire. Many parks post signs warning campers of dry conditions and may not allow fires during those times. Because of the increased dangers associated with campfires, it is better, and safer, to bring a small camping stove along to cook food and prepare hot drinks.

## 7) Minimize Campfire Impacts

- Use a lightweight stove for cooking
- Where fires are permitted, use established fire rings or fire scars.
- Keep fires small. Only use sticks from the ground that can be broken by hand.
- Avoid transporting firewood from one area to another.
- Never leave a fire unattended.
- Always keep a shovel and bucket of water nearby.
- Burn all wood and coals to ash, put out campfires completely, soaking them with water.
- Return unused firewood back into the forest.

---

---

**Take only pictures, leave only the lightest of footprints, and bring home only memories.**

If you decide that you really want a campfire, there are some important things to remember so that you can have safe and enjoyable camping experience that limits impacts on the environment. First, you should collect fire wood from the local area. Collect firewood away from your camp and collect it from several areas. Make sure not to take the last of the downed wood from a certain area. Using up all of a supply of downed wood in an area can upset the ecosystem. Many animals rely on downed and rotted wood for food and shelter. Collect only wood that is dead, on the ground, and can be broken by hand. Do not collect wood from standing trees, even if they are dead. A dead tree that is still standing is referred to as a **snag**. These trees provide important homes to the wildlife. Never collect wood from live trees because removing parts of the tree will damage the tree and possibly kill it. It is also best to limit the size of firewood to pieces that do not require an ax or saw to cut. Smaller pieces of wood will burn more completely, leaving less waste.



**snag tree**

Larger downed wood serves as shelter for animals and plays an important role in the ecosystem. Large downed wood also increases the water-holding capacity of the soil. It is also important not to damage lichen or funguses, like the turkey tail fungus, that are growing on snags and downed wood. Funguses are important in breaking down the wood and recycling nutrients back into the soil helping the growth of future trees and plants. Lichens are important producers of oxygen that we need to breathe.

Some campers think that it is easier to bring their own firewood to a campsite rather than collect local wood. It may be easier but it can have major effects on the local forest. One particular insect transported by firewood is a small insect called the emerald ash borer, also known as EAB. EAB is responsible for the death of millions of ash trees in North America. EAB is an introduced species of beetle that is native to Asia.

Once you have collected wood for your fire, you need to find suitable location to build the fire. It is always best to use an existing fire ring or fire scar. The ring will contain the fire and hot embers. By using an existing scarred area, you avoid damaging a new area of ground with the fire. Fires scar and damage the soil and can limit future growth in the area.

When building a fire, select a location that is away from anything that can easily catch fire, including shrubs and trees. Only use pieces of wood which fit fully inside the fire ring. This reduces the risk of flames or embers from escaping the ring. It is also important to not build large campfires. Keep the fire small and just large enough to serve its purpose. The larger the fire is, the higher the risk that it can get out of control and accidentally start a forest fire. You don't need to have a fire every night. Also put the fire out immediately after cooking. You should always keep a shovel and bucket of water near the fire to quickly put out any embers that escape the ring. Never leave a fire unattended.



campfire ring

Remember to stop adding firewood to the fire well before you want to put it out to give the wood plenty of time to burn down. When you are finished with the fire make sure that all of the wood is burned to ash. Then soak the pit with water, making sure that no hot embers remain. You should be able to touch the ash with your hands. Remember, it only takes one hot ember to ignite a fire that that can spread rapidly through a forest. Lastly, return any unused firewood back to the forest.



## All-Terrain Vehicle (ATV) Riding



Many of the same principles that occur in the hiking and biking section is also true of ATVs. Staying on the marked trail is critical. When you use an ATV, you have four tires that continuously move across the trail and the potential to make a lot of impact. If you have to turn around at a narrow spot in the trail, be careful not to get off the trail or damage plants.

Take special care to stay on the trail when traveling through streams, riparian areas, and wetlands. These areas are very fragile ecosystems and the goal is to disturb them as little as possible. Wheel ruts can decrease the stream's ability to keep the stream banks stable and prevent erosion. Off trail puddles are commonly **vernal pools**. Vernal pools are seasonal ponds. Many types of animals use them but they are very important since it is where most frogs lay their eggs. Avoid driving through these puddles at all costs to protect this very important habitat.



ATV trail damage



vernal pool

If the trail is dry and dusty, moving at a slower speed can reduce dust. Dust in the air is not good for us or for wildlife to breathe. It also coats the trail side plant leaves. When it rains, this soil is washed off the leaves and likely into a stream. This can kill stream life by suffocating it. Once you have finished your trail ride, wash the ATV. Seeds from invasive plants can easily be transported by tires or mud on the ATV. This prevents the movement of invasive plant seeds into new areas.



## Horseback riding



Horseback riding is another popular activity in parks and forested areas. Like hiking and biking, horseback riding can be very damaging to a forest if riders do not take care. When riding horses in a forest, many guidelines similar to those described for hiking and biking apply. These guidelines include riding in small groups, staying on marked trails and riding single file in the center of trails.

In addition to following appropriate guidelines for riding, it is important to take care in planning breaks as well as planning food for your horse. When taking a break from riding, the horses should be tied off of the main trail on a sturdy area. When possible, existing hitch lines and corrals should be used. It is best to not tie horses to trees, especially small trees. If you must tie your horse to a tree it is important to make sure that rope has a large enough diameter to avoid digging in to and damaging the bark. Tie ropes can cause girdling on trees and kill them. Using padding between the tie rope and tree can help protect the bark. When tying up to trees, hitch lines should be used. Hitch lines extend between two trees and allow the horse to move between the trees which limit the amount of damage to a single spot on the ground. If your horse will be tied up for a long time, it is important to move the hitch line or corral often to avoid excessive, non-repairable damage to a single area. Horses pawing and tramping in a single area for too long can excavate and damage roots of the nearby trees. You should also pay attention to the plants growing in the area. Select an area to tie up the horse where it is least likely to tramp tree saplings and other plants. Also, take care not to tie up the horses near poisonous plants, like mountain laurel. At the end of your break, make sure that you repair any areas where your horse pawed and dug up the ground with its hooves.



horseback riders in a single line

Many riders allow their horses to graze on grass growing in the hitch area. This is fine as long as the horse is moved often to avoid eating all of the grass in a single area. Some riders choose to bring feed with them. If you want to bring feed for your horse, make sure that it is certified weed free to limit the risk of accidentally bringing an invasive weed to the area. The feed should be placed in a feedbag, in a container or on a tarp to prevent damage to the ground from horses pawing at the food. Any leftover feed should be packed out of the forest.

