



## Suggested Steps for Clean Caving

The recent emergence of White Nose Syndrome (WNS) and its devastating effect on several species of cave bats in the Eastern United States, has highlighted the movement of micro-organisms between cave systems as a serious concern. Certainly animals such as bats frequently move micro-organisms from one cave to another, but humans have the potential to move things greater distances and to move organisms bats may not come in contact with. Since it is impossible to control the movement of bats and other animals in and out of cave systems, it is hoped that by reducing the risk of human transmission, the spread of phenomena such as WNS might be reduced.

The USFWS strongly recommends compliance with all cave closures, advisories, and regulations in all Federal, State, tribal, and private lands. Should you otherwise enter a cave or mine, the protocol outlined on this card represents the best known procedure designed to reduce the spread of the micro-organisms including the fungus associated with WNS. This information is current as of 2010; refer to the USFWS website <http://www.fws.gov/whitenosesyndrome/> for the most current WNS and decontamination information.

### **BEFORE Entering a Cave**

1. Be sure all gear is clean and decontaminated from previous trips
  - clothing, footwear, or gear that was used in a state or region known to be affected by White Nose Syndrome should not be used in an unaffected state or region.
  - clothing, footwear, or gear should not be used in multiple caves in the same day unless the decontamination procedures described below are followed between caves.
2. Be sure you have an adequate supply of:
  - scrub brushes
  - trash bags
  - disinfecting wipes
  - water for washing and a hand towel
3. Be organized, and make sure everything you need is outside of your vehicle if possible.

### **AFTER Exiting a Cave**

1. Remove dirt and mud from your clothes, boots, helmets and any other gear using brush and water if practical.
2. Remove outer layers of clothing, helmet, and boots and place in trash bag(s).
3. Use disinfecting wipes to scrub all dirt and mud from surface of the skin, hair.
4. Rinse with water as needed and dry with towel.
5. Place towel, wipes, and any other trash in trash bag or other container.
6. Follow at home steps on the back side of this card.

**For Submersible Gear** (i.e. clothing and equipment that can be submerged without damage):

Wash all clothing and any appropriate equipment in washing machine or by hand using conventional detergents. Use cold, warm, or hot water. Woolite® fabric wash has been found to be highly effective for this procedure. Rinse thoroughly, and then follow by soaking for a minimum of 10 minutes in one of the decontaminating products listed at the bottom of this card, then rinse and dry.

**For Non-submersible Gear** (i.e. equipment that will be damaged by submersion):

Clean thoroughly with soap and water if possible, and then decontaminate by applying one of the recommended decontamination products (i.e. Lysol disinfecting wipes) to the outside surface for a minimum of 10 minutes, then rinse and air dry.

**For Footwear:**

Where possible, rubber (wellington-type) caving boots (which withstand harsh decontaminating products and are easily cleaned) are recommended. Boots need to be fully scrubbed and rinsed to remove all soil and organic material. Decontaminate rubber and leather boots, (including soles and leather uppers) with a product listed below for a minimum of 10 minutes, rinse and air dry.

**For Ropes and Harnesses:**

Wash rope/webbing in a front loading washing machine on the gentle cycle using Woolite® Extra Delicates detergent. Immerse in a dilution of Lysol IC Quaternary Disinfectant Cleaner for 15 minutes. Rinse twice in clean water and air dry. Brands of rope/webbing other than Sterling have not yet been tested for integrity after decontamination.

**For Cameras and Electronic Equipment:**

If possible, do not bring electronic equipment into a cave. If practical, cameras and other similar equipment that must be brought to a cave may be placed in plastic casing (i.e. underwater camera housing) or wrapped in plastic wrap where only the lens is left unwrapped to allow for photos to be taken. The plastic wrap can then be decontaminated by using Lysol® Disinfecting Wipes and discarded after use or wipes can be applied directly on camera/equipment surfaces or plastic casing.

**For Vehicles:**

In addition to gear, vehicles used to transport equipment can also harbor micro-organisms. Keep vehicles as clean as possible by storing gear in clean containers, and decontaminate those containers with your other equipment using the decontamination products listed on this card.

**RECOMMENDED DECONTAMINATION PRODUCTS:** The following chemical products were tested in a laboratory setting and were found to be particularly effective against killing the more resistant, spore-form of *Geomyces destructans* (the fungus associated with WNS) as well as the hyphae. Please read product labels for safety and disposal concerns.

1. Lysol® IC Quaternary Disinfectant Cleaner (0.3% quaternary ammonium compound minimum) – 1 part concentrate to 128 parts water or 1 ounce of concentrate per gallon of water
2. Lysol® All-purpose Professional Cleaner (0.3% quaternary ammonium compound minimum)
3. Formula 409® Antibacterial All-Purpose Cleaner (0.3% quaternary ammonium compound minimum) (Available at most Lowe's® stores)
4. A 10% solution of household bleach - 1 part bleach to 9 parts water (an estimate of 1:9 is insufficient)
5. Lysol® Disinfecting Wipes
6. Boil submersible gear in water for 15 minutes