

White-Nose Syndrome Decontamination Protocol (v.3)

U.S. Fish and Wildlife Service – Draft 7.31.2010

The USFWS strongly recommends compliance with all cave closures, advisories, and regulations in all Federal, State, tribal, and private lands. By disregarding this recommendation, you could potentially promote the transmission of the fungus *Geomyces destructans* (*G.d.*), likely the causative agent for white-nose syndrome (WNS), which is responsible for significant bat mortality in eastern North America. Should you choose to disregard this recommendation, the following protocol outlines the best known procedures to help reduce the spread of the fungus.

You should not handle bats. If you observe live or dead bats (5 or more individuals in a single location) that may exhibit signs of WNS, contact a wildlife professional in your state wildlife agency (<http://www.fws.gov/offices/statelinks.html>) or contact your nearest USFWS Ecological Services Field Office (<http://www.fws.gov/offices/>). Researchers, contact your state or federal agency for permitting requirements.

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 *G.d.*, as well as the hyphae.

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);
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**; or
6. **Boil submersible gear in water for 15 minutes**

BEFORE CAVING: In order to effectively reduce the risk of human transfer of *G.d.*, it is imperative that you follow these decontamination procedures any time you plan cave visits, and **under no circumstances should clothing, footwear or gear that was used in a WNS-affected state or region be used in a non-affected state.** If gear **cannot** be thoroughly decontaminated or disposed of, we advise that you not enter caves or parts of caves requiring use of this gear. If gear **can** be thoroughly decontaminated and you must enter a cave, isolate and decontaminate these items after last exiting a cave. Gear should not be used in multiple caves in the same day unless the decontamination procedures below can be performed **between each cave visit.**

AFTER EACH CAVE VISIT: Thoroughly scrape or brush off any dirt and mud from clothing, boots, and gear and then place them in a sealed plastic bag or plastic container with lid to be cleaned and disinfected off site. Outer clothing should be removed prior to entering a vehicle after/between a site visit. A clean change of clothing is recommended. To decontaminate clothing, footwear and gear, please follow the procedures listed below.

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 above, then rinse and air dry. As an alternative to chemical products, boiling submersible gear at a fast boil for 15 minutes is also recommended, followed by air drying.

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

Clean thoroughly with soap and water, and then decontaminate by applying one of the recommended products above 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 above for a minimum of 10 minutes, then rinse and air dry.

For Ropes and Harnesses:

To date, only Sterling rope and webbing have proved to sustain no damage when using products above. 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. Brands not tested should be dedicated to a single cave or not used at all.

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 surfaces or plastic casing.

For Vehicles:

In addition to gear, vehicles used to transport equipment can also harbor spores. Keep vehicles as clean as possible by storing gear in clean containers, and decontaminate those containers with your other equipment using the decontamination products above.

Note: Protocol updated as of 7-31-2010. Please visit <http://www.fws.gov/WhiteNoseSyndrome/> for updated materials and for **comprehensive supplemental documents that detail decontamination procedures for 1. cavers, and 2. researchers.**