

INTERIM RECOMMENDED FIELD PROCEDURES FOR PREVENTING THE
SPREAD OF WHITE–NOSE SYNDROME IN BATS

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PURPOSE AND INTENDED USE OF THIS DOCUMENT

The purpose of this document is to prevent the spread of white–nose syndrome in bats. The intended audience is anyone conducting bat field research or surveys in the West. We present these recommendations as interim measures that reflect our current state of knowledge and recognize that the recommendations will necessarily change as new information emerges.

The following procedures have been adapted from the US Fish and Wildlife Service's (FWS) Northeast Region Disinfection Protocol for Bat Field Research/Monitoring (available from: <http://www.fws.gov/northeast/whitenose/FINALDisinfectionProtocolforBatFieldResearchJune2009.pdf>) and reviewed by the FWS Northeast Regional Office, Western Bat Working Group's (WBWG) White–nose Syndrome Committee, and Science Advisory Committee.

Although white–nose syndrome (WNS) has not yet been reported in the western US or Canada, implementing decontamination procedures during bat–related field studies throughout the West may be a critical aspect for preventing the spread of WNS to this region. Although this protocol is designed specifically to avert the spread of WNS, we also ask that when conducting bat surveys,

researchers and others be aware of as well as implement other relevant protocols designed to reduce the spread of diseases such as the amphibian chytrid fungus (*Batrachochytrium dendrobatidis*; Bd for short).

Additionally, protocols specific to cave and mine entry are available from the FWS Web site listed above.

Since the transmission mode of WNS is not currently known, it is assumed that any equipment that comes into contact with bats has the potential to be a vector for the spread of WNS including mist nets, harp traps, bat holding bags, wing biopsy punches, weighing tubes, rulers, clothing, and gloves.

Under no circumstances should any equipment that has been used in surveys of bats or cave explorations that may have been in WNS affected areas¹ or adjacent states, and ideally any equipment used for the same purposes east of the Mississippi River be used in states or provinces west of the Mississippi River. Keep eastern equipment in the East and western equipment in the West.

BAT PROCESSING

- ∞ To reduce the potential exposure of bats to contamination at the processing station, process and release bats at the net whenever possible. When processing bats at the net, limit data collection to parameters essential to the survey. Such parameters might include:
 - Species
 - Sex
 - Age (juvenile, adult)
 - General fitness (e.g., dehydrated, emaciated)
 - Wing damage score (Reichard [no date], available from:
http://www.fws.gov/northeast/PDF/Reichard_Scarring%20index%20bat%20wings.pdf)

- ∞ When possible, set up separate processing stations to reduce the number of bats being processed in one location. Optimize a clean environment at each stage of capture, when processing bats, and when managing equipment.
- ∞ To minimize stress, hold bats for as little time as possible not to exceed 30 min.

DISINFECTION PROTOCOL

Porous materials (e.g., rope, gloves, nets, or bags that have come into contact with bats)

Before leaving the survey site

1. Remove any heavy soil deposits from the surface and transport items from the site in a sealed, disposable container.

Treatment before reusing

2. By hand, soak items in a 10% bleach solution (1 part bleach to 9 parts water) or quaternary solution (e.g., LYSOL® Professional Formula All Purpose Cleaner or Formula 409® Antibacterial All-Purpose Cleaner) with detergent as a surfactant for 10 min. If using bleach solution, do not store dilution for more than 24 h as the bleach will begin to break down once it is diluted. Store in opaque bottles as bleach also breaks down when exposed to sunlight. Turn capture bags inside out to dry.
3. Rinse twice in distilled or tap water.
4. Line dry thoroughly, ideally in the sunlight.
5. Optionally, items can be soaked as outlined in Step 1 above in a washing machine and then run through a gentle wash cycle. Be sure to secure handles and net shelves of mist nets with cloth hair bands, strips of stockings, or similar stretchable material that keeps the net from tangling. Place nets in a lingerie bag or other mesh bag and wash on gentle cycle in a washing machine and thoroughly line or machine dry. Bundle nets as loosely as possible to ensure penetration of decontamination and

massage the bundled nets during the soaking phase to ensure decontaminant penetration.

Hard surface equipment (e.g., bag clips, biopsy boards, calipers, rulers, scales, or tables that have come into contact with bats)

At the survey site

1. Soak items that can be soaked and that come into contact with bats such as calipers and rulers for 10 min in a 10% bleach solution (1 part bleach to 9 parts water) or quaternary solution (Professional Formula LYSOL® All Purpose Cleaner or Formula 409® Antibacterial All-Purpose Cleaner), rinse twice in distilled or tap water, and dry thoroughly with a fresh cloth or paper towel and by air between use with each bat.
2. Spray or wipe items that cannot be soaked that come into contact with bats such as biopsy boards or scales, allow to dry, rinse twice with distilled water or tap water, and air or wipe dry using a fresh cloth or paper towel.

Between survey sites

1. Store clean items in clean containers, completely separate from contaminated items. It is critical that contaminated and clean equipment are kept completely separate without intermingling.
2. Disinfect storage containers and items as described above between sites to reduce the chances that fungal spores or other potential agents associated with WNS are transmitted between clean and used equipment.
3. Wash or change into clean clothing, bathe and wash hair, and clean footwear between sites.

Use caution when applying any chemical to equipment coming into direct contact with a bat as it could be harmful to the bat.

BAGS AND GLOVES

- ∞ Bats should be temporarily held individually in breathable cloth bags rather than in holding cages. Reusable holding bags should only be used once per night of field work and should be washed and dried before reuse, following the procedures listed below.
- ∞ Disposable bags are preferred. Paper bags are a good option for holding bats temporarily, but may not be reused.
- ∞ Disposable gloves (e.g., disposable blue nitrile medical [exam] grade gloves or food handler gloves) should be worn over handling gloves and changed following every bat that is handled.

At all times throughout a field night, only one bat should be in any given bag.

If bats are handled with bare hands, apply an alcohol-based hand sanitizer (e.g., Purell® Instant Hand Sanitizer) and let dry completely between bats. Preferably use fragrance-free products to avoid transferring any chemical residue to bats.

EQUIPMENT WITH HARD SURFACES

- ∞ Apply the disinfection protocol described above for porous materials.
- ∞ Clean these items after contact with each bat.
- ∞ When weighing bats, we suggest using paper bags, disposable or washable holding material (e.g., disposable sanitary foot sox like those used at shoe stores, or plastic bags) that can be discarded after use with each bat or cleaned and reused between sites.

If collecting wing biopsies:

- ∞ Use one biopsy punch per bat or reuse only once and after completely sterilizing each used punch. To do this, after use, return the punch to its individual packaging and place all used punches in a separate container and store them separately from unused punches. Before reusing, soak the used biopsy punches in fresh 10% bleach solution for 10 min, then rinse twice in clean water and let air dry.

- ∞ Similarly, store used forceps separately from clean forceps and disinfect them by soaking in fresh 10% bleach solution, then rinsing them twice in clean water and letting them air dry. You may also soak forceps in bleach solution as described above for biopsy punches.
- ∞ The biopsy board must also be disinfected between processing individual bats using a dilute bleach solution as detailed above. Biopsy boards should also be disinfected between sites. Small squares of disposable cardboard can be used instead of a biopsy board, with one piece of cardboard being used per punch and then being disposed.

MIST NETS

- ∞ Use new or clean nets each night. Keep clean nets separate from used nets.

HAND NETS

- ∞ Avoid using hand nets if possible because they force bats to comingle.
- ∞ If hand nets are used, remove bats and place them in individual bags immediately following capture.
- ∞ Use a clean hand net for each capture and clean hand nets between capture of individual bat clusters using the steps described above for soft materials, and hard surfaces.

HARP TRAPS

- ∞ Avoid using harp traps whenever possible because they force bats to comingle.
- ∞ If harp traps are used, check them and remove all bats every 10 min. Place bats in individual bags immediately following capture.
- ∞ Disinfect each trap each night using the disinfection protocol above.

INDICATIONS OF WNS

Be aware of all signs of WNS:

- ∞ Presence of white fungus on muzzle, wings, tail membrane or ears
- ∞ Emaciation
- ∞ Prominent wing damage (see http://www.fws.gov/northeast/PDF/Reichard_Scarring%20index%20bat%20wings.pdf)

¹WNS affected states: Connecticut, Massachusetts, New York, Pennsylvania, Vermont, New Hampshire, New Jersey, West Virginia, Virginia.

Adjacent states: Maine, Rhode Island, Maryland, Delaware, Ohio, Kentucky, Tennessee, North Carolina

Note: The listed WNS affected and adjacent states are current as of 2009–06–02, please visit http://www.fws.gov/northeast/white_nose.html for the most updated information.