NOLS Green Cleaning Policy

NOLS’ mission is to be the leading source and teacher of wilderness skills and leadership that serve people and the environment. This guides our decision making, even when it comes to green cleaning procurement.

NOTE: Some branches are already using several of the natural cleaners noted in this document. Some of the natural cleaners (and natural cleaner recipes) haven’t been tested by NOLS, but come well recommended by the sustainability industry for their safety and effectiveness. This document notes which methods are successful at a branch level and those that are still untried. As you work through this list and have positive or negative feedback regarding a project, let us know by emailing sustainability@nols.edu. We will integrate your experience into our guidelines. Thank you for your help!

First Priority:
Make cleaners using natural ingredients. Floor, glass, counters, and many other cleaning recipes can be found in Appendix 1.

Second Priority:
If you need to supplement or replace homemade cleaners with store bought products, find cleaners that provide an ingredients list. Choose products that do not include poisons, which contaminate the environment and put occupant health at risk.

Ingredients to Avoid: (More information on chemicals to avoid in Appendix 2)
- Ammonia
- 2-butoxyethanol/ Ethylene glycol butyl ether
- 1,4 dichlorobenzene (1,4 DCB)
- Ethoxylated nonyl phenols (NPEs)
- Methylene chloride
- Naphthalene
- Phthalates, or phthalate esters,
- Silica
- Toluene
- Trisodium nitrilotriacetate (NTA)
- Xylene
- Bleach (Sodium hypochlorite)
- Phosphates

Safe Brands Include:
- Citra Solve, Seventh Generation, Whole Foods 365 and Ecover. These brands are all successfully used at various branches.
- For institutional cleaners, use products certified by Green Seal or EcoChoice.
Product Availability:
NOLS operates in many remote locations around the world, where it may not be possible to find cleaning products meeting our priorities. In these cases we will continue to look for sustainable cleaning products while avoiding toxic ingredients as much as possible.

Appendix 1
Homemade Substitutions
There are many inexpensive, easy-to-use natural alternatives, which can safely be used in place of commercial household products. Here is a list of common, environmentally safe products, which can be used alone or in combination for many household applications.

- **Baking Soda** - cleans, deodorizes, softens water, scours.
- **Soap** - unscented soap in liquid form, flakes, powders or bars is biodegradable and will clean just about anything. Avoid using soaps which contain petroleum distillates.
- **Lemon juice** - one of the strongest food-acids, effective against most household bacteria.
- **Borax** - (sodium borate) cleans, deodorizes, disinfects, softens water, cleans wallpaper, painted walls and floors.
- **White Vinegar** - cuts grease, removes mildew, odors, some stains and wax build-up.
- **Washing Soda** - or SAL Soda is sodium carbonate decahydrate, a mineral. Washing soda cuts grease, removes stains, softens water, cleans walls, tiles, sinks and tubs. Use care, as washing soda can irritate mucous membranes. Do not use on aluminum.
- **Isopropyl Alcohol** - is an excellent disinfectant.
- **Cornstarch** - can be used to clean windows, polish furniture, shampoo carpets and rugs.
- **Citrus Solvent** - cleans paint brushes, oil and grease, some stains. (Citrus solvent may cause skin, lung or eye irritations for people with multiple chemical sensitivities.)
- **Trisodium phosphate (TSP)** - a mixture of soda ash and phosphoric acid. TSP is toxic if swallowed, but it can be used on many jobs, such as cleaning drains or removing old paint that would normally require much more caustic and poisonous chemicals, and it does not create any fumes.

Formulas:
Combinations of the above basic products can provide less harmful substitutions for many commercial home products. In most cases, they’re also less expensive. Here are some formulas for safe, alternative home care products:

**Note:** These formulas and substitutions are offered to help minimize the use of toxic substances and reduce the environmental harm caused by the manufacture, use and disposal of toxics. Remember more is not always better, and mixing bleach with vinegar or ammonia will result in toxic consequences. **Keep all home-made formulas well-labeled, and out of the reach of children.**

**All-Purpose Cleaner (untested):** Mix 1/2 cup vinegar and 1/4 cup baking soda (or 2 teaspoons borax) into 1/2 gallon (2 liters) water. Store and keep. Use for removal of water deposit stains on shower stall panels, bathroom chrome fixtures, windows, bathroom mirrors, etc.
Another alternative are microfiber cloths which lift off dirt, grease and dust without the need for cleaning chemicals, because they are formulated to penetrate and trap dirt. There are a number of different brands. A good quality cloth can last for several years.

**Bathroom mold (untested)**: Mold in bathroom tile grout is a common problem and can be a health concern. Mix one part hydrogen peroxide (3%) with two parts water in a spray bottle and spray on areas with mold. Wait at least one hour before rinsing or using shower. This formula is most effective for early treatment of mold.

**Carpet stains (untested)**: Mix equal parts white vinegar and water in a spray bottle. Spray directly on stain, let sit for several minutes, and clean with a brush or sponge using warm soapy water. For a heavy-duty carpet cleaner, mix 1/4 cup each of salt, borax and vinegar. Rub paste into carpet and leave for a few hours. Vacuum.

**Chopping block cleaner (successful)**: Rub a slice of lemon across a chopping block to disinfect the surface. For tougher stains, squeeze some of the lemon juice onto the spot and let sit for 10 minutes, then wipe.

**Dishwasher Soap (untested)**: Mix equal parts of borax and washing soda, but increase the washing soda if your water is hard. If you want to use a commercial dishwashing soap, try Ecover Ecological or Trader Joe's powders, which contain no bleach or phosphates.

**Dishwashing Soap (untested)**: Commercial low-phosphate detergents are not themselves harmful, but phosphates nourish algae, which use up oxygen in waterways. A detergent substitution is to use liquid soap. Add 2 or 3 tablespoons of vinegar to the warm, soapy water for tough jobs.

**Disinfectant (successful)**: Mix 2 teaspoons borax, 4 tablespoons vinegar and 3 cups hot water. For stronger cleaning power add 1/4 teaspoon liquid castile soap. Wipe on with dampened cloth or use non-aerosol spray bottle. (This is not an antibacterial formula. The average kitchen or bathroom does not require antibacterial cleaners.) To disinfect kitchen sponges, put them in the dishwasher when running a load.

**Drain Cleaner (untested)**: For light drain cleaning, mix 1/2 cup salt in 4 liters water, heat (but not to a boil) and pour down the drain. For stronger cleaning, pour about 1/2 cup baking soda down the drain, then 1/2 cup vinegar. The resulting chemical reaction can break fatty acids down into soap and glycerine, allowing the clog to wash down the drain. After 15 minutes, pour in boiling water to clear residue. Caution: only use this method with metal plumbing. Plastic pipes can melt if excess boiling water is used. Also, do not use this method after trying a commercial drain opener--the vinegar can react with the drain opener to create dangerous fumes.

**Fabric softener (untested)**: To reduce static cling, dampen your hands, then shake out your clothes as you remove them from the drier. Line-drying clothing is another alternative.

**Floor Cleaner and Polish:**
vinyl and linoleum (successful): mix 1 cup white vinegar in 1 gallon (4L) water.

wood (untested): apply a thin coat of 1:1 vegetable oil and vinegar and rub in well.

painted wood (untested): mix 1 teaspoon washing soda into 1 gallon (4L) hot water.

brick and stone tiles (untested): mix 1 cup white vinegar in 1 gallon (4L) water; rinse with clear water. **Most floor surfaces can be easily cleaned using a solution of vinegar and water.** For damp-mopping wood floors: mix equal amounts of white distilled vinegar and water. Add 15 drops of pure peppermint oil; shake to mix.

**Laundry Detergent (untested):** Mix 1 cup Ivory soap (or Fels Naptha soap), 1/2 cup washing soda and 1/2 cup borax. Use 1 tbsp for light loads; 2 tbsp for heavy loads.

**Marks on walls and painted surfaces (untested):** Many ink spots, pencil, crayon or marker spots can be cleaned from painted surfaces using baking soda applied to a damp sponge. Rub gently, then wipe and rinse.

**Mold and Mildew (untested):** Use white vinegar or lemon juice full strength. Apply with a sponge or scrubby.

**Oil and Grease Spots (untested):** For small spills on the garage floor, add baking soda and scrub with wet brush.

**Oven Cleaner (untested):** Moisten oven surfaces with sponge and water. Use 3/4 cup baking soda, 1/4 cup salt and 1/4 cup water to make a thick paste, and spread throughout oven interior. (avoid bare metal and any openings) Let sit overnight. Remove with spatula and wipe clean. Rub gently with fine steel wool for tough spots. Or use Arm & Hammer Oven Cleaner, declared nontoxic by Consumers Union.

**Scouring Powder (successful):** For top of stove, refrigerator and other such surfaces that should not be scratched, use baking soda. Apply baking soda directly with a damp sponge.

**Toilet Bowl Cleaner (successful):** Mix 1/4 cup baking soda and 1 cup vinegar, pour into basin and let it set for a few minutes. Scrub with brush and rinse. A mixture of borax (2 parts) and lemon juice (one part) will also work.

**Tub and Tile Cleaner (successful):** For simple cleaning, rub in baking soda with a damp sponge and rinse with fresh water. For tougher jobs, wipe surfaces with vinegar first and follow with baking soda as a scouring powder. (Vinegar can break down tile grout, so use sparingly.)

**Window Cleaner (successful):** Mix 2 teaspoons of white vinegar with 1 liter (qt) warm water. Use crumpled newspaper or cotton cloth to clean. Don’t clean windows if the sun is on them, or if they are warm, or streaks will show on drying. The All-Purpose Cleaner (above) also works well on windows. Be sure to follow the recipe, because using too strong a solution of vinegar will etch the glass and eventually cloud it.
Appendix 2

Ingredients to Avoid:

- **Ammonia**
  - Irritation to eyes and mucous membranes. Breathing difficulty, wheezing, chest pains, pulmonary edema, skin burns. High exposure can lead to blindness, lung damage, heart attack or death.

- **2-butoxyethanol/ Ethylene glycol butyl ether**
  - One of many glycol ethers used as a solvent in carpet cleaners and specialty cleaners. Can be inhaled or absorbed through the skin and may cause blood disorders, as well as liver and kidney damage. May also cause reproductive damage with long-term exposure.

- **1,4 dichlorobenzene (1,4 DCB)**
  - Has been linked to a reduction in pulmonary function. Found in space deodorizing products, such as room fresheners, urinal cakes, toilet bowl fresheners and cleaning products it is also used as an insecticide for moth control.

- **Ethoxylated nonyl phenols (NPEs)**
  - Known as “gender-benders,” nonyl phenols can induce female characteristics in male fish, for example. The threat posed to the environment by nonyl phenols prompted the European Union to ban them from all cleaning products manufactured or used in the EU. Still used in the U.S.

- **Methylene chloride**
  - Methylene chloride is listed as a possible human carcinogen by the International Agency for Research on Cancer and is commonly found in paint strippers. In 1987, regulators in the U.S. compelled manufacturers to put warning labels on products containing methylene chloride.

- **Naphthalene**
  - Either naphthalene, or another chemical called paradichlorobenzene, is used in mothballs and moth crystals. Naphthalene is listed by California’s Office of Environmental Health Hazards Assessment as a substance “known to the state to cause cancer,” while paradichlorobenzene is listed by IARC as a possible human carcinogen. Avoid all moth products that contain either of these two ingredients.

- **Phthalates, or phthalate esters,**
  - Are esters of phthalic acid and are mainly used as plasticizers (substances added to plastics to increase their flexibility). They are chiefly used to soften polyvinyl chloride. Phthalates are being phased out of many products in the United States and European Union over health concerns.

- **Silica**
  - Made from finely ground quartz, silica is carcinogenic as a fine respirable dust. Silica is found in that form in some abrasive cleansers, which are often used on a regular basis around the home.

- **Toluene**
  - Toluene is a potent reproductive toxin, which is used as a solvent in numerous products, including paints. It is also sold as the pure product and is listed by
California’s Office of Environmental Health Hazard Assessment as a reproductive toxin that may cause harm to the developing fetus. Pregnant women should avoid products containing toluene.

- **Trisodium nitrilotriacetate (NTA)**
  - NTA is listed as a possible human carcinogen by the International Agency for Research on Cancer. It is used as a builder in laundry detergents and also has an adverse environmental impact as it can impede the elimination of metals in wastewater treatment plants. NTA's action can cause metals that have already settled out to be re-mobilized back into the liquid waste stream.

- **Xylene**
  - Another extremely toxic ingredient that is often found in graffiti and scuff removers, spray paints and some adhesives. A suspected reproductive toxin that has shown reproductive harm in laboratory experiments, it is also a neurotoxicant that can cause memory loss on repeated exposure.

- **Bleach (Sodium hypochlorite)**
  - When bleach is mixed with acids (typically found in toilet bowl cleaners), it reacts with them to form chlorine gas. When it is mixed with ammonia, it can create chloramine gas, another toxic substance.
  - In the environment, sodium hypochlorite is acutely toxic to fish. The chlorine in bleach can also bind with organic material in the marine environment to form organochlorines, toxic compounds that can persist in the environment.
  - There may be some circumstances where bleach use is necessary for disease control, but there is little need for it on a regular basis. Tests have shown that washing counters and other surfaces with soap and water removes most bacteria and there are a number of oxygen-based alternatives for laundry uses of bleach.

- **Phosphates**
  - Manufacturers have since reduced or even eliminated phosphates from laundry products, but no action has ever been taken on dishwasher detergents. Most of the products available from major manufacturers contain 30-40 per cent phosphates. Some also contain high levels of chlorine-based sanitizing ingredients.

**Reference:**

Environmentally Responsible Taskforce. University of Colorado Environmental Center. [http://ecenter.colorado.edu/greening_cu/erp/taskforce.html](http://ecenter.colorado.edu/greening_cu/erp/taskforce.html)
