



## Article Submission

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### Researchers Warn Against Using Fire Ring as Garbage Dump

WILLIAMS, Ariz. – With summer just around the corner, campers are gearing up for weekend getaways and long summer-break vacations. For many, this means packing up the car, reserving a favorite campsite and breaking out the s'mores. For others, summer is the time to stuff a pack and trek out into the wilderness with their favorite freeze-dried foods.

For campers and hikers a common outdoor recreation element is the camp fire. Although most fires consist mainly of woody debris, many recreationists use the fire ring as a garbage disposal. However, some say this practice is harmful not only to the environment but also to those in close contact with the waste and emissions.

A study conducted by the Missoula Technology and Development Center says common garbage items increase toxic emissions, including carcinogens or cancer-causing agents, from camp fires to potentially dangerous levels. According to the study, these and other pollutants can be inhaled, absorbed through the skin or ingested with contaminated water and food sources.

Researchers used 29 simulated camp fires to conduct the study. All of the fires had ponderosa pine branches and needles but trash items like diapers, batteries and cigarette butts were added to 27 of the fires. The study compared the levels of emissions from those fires to the fires composed of only woody debris.

What researchers found was although fires containing only woody debris release toxic gases, carcinogenic emissions greatly increased when garbage was burned in a camp fire.

Much of the study focused on gaseous emissions. However, another aspect of the study focused on the solid waste or residue left after different trash items were burned. After researchers burned cardboard boxes, large particles were left over. A baby diaper was burned, and it left a black foam-like residue. When plastic bags and container lids were burned, they left yellow or blue residue. After burning anything containing foil such as freeze-dried meal bags, instant soup or hot cocoa packages and candy wrappers, most of the foil was left intact.

Although many people may think that once trash is burned it no longer is a problem, researchers said even ash left over from garbage, which appears to be harmless, can have an extended impact on a site. These extended effects take place when campers scatter the ashes of fires that contained trash. Many elemental metals occur naturally in the environment but can become hazardous when the levels are increased by the presence of ash from burned garbage.

According to research results, several elemental metals, including mercury and lead, at elevated levels can be toxic to humans, animals and plants. For example, researchers found that while mercury levels were barely detectable in the ash from camp fires that just burned wood, two commonly burned items – cigarette and candy wrappers – released three times the amount of mercury. For those who are exposed to high levels of mercury, it may result in permanent nervous system and kidney damage.

As the research indicates, some amount of toxins are present even when only wood is burned. However, the solution to keeping the forest and the people who enjoy it healthy is not to burn garbage. Instead recreationists should follow the basic rule of thumb in Wilderness ethics: If you pack it in, you pack it out.

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