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Health

Just Too Loud

Car alarms! Boom boxes! Leaf blowers! If the noise isn't making you crazy, it may be making you sick

By JEFFREY KLUGER

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Ted Rueter isn't joking about possibly moving to New Zealand. And if he does go, it won't be the frenzy or the expense of living in the U.S. that drives him away. It will be the leaf blowers. Americans now own more than 90 million of the infernal things, he says, each of them making the job of lawn clearing much easier--and much, much louder. Rueter, a onetime political-science professor at UCLA who is head of the advocacy group Noise Free America, already fled Los Angeles to get away from the leaf-blower blight, only to move to New Orleans and find the problem just as bad there. "Everywhere has turned into leaf-blower hell," he says.

It's not just the blowers that are driving Rueter daft. It's the boom cars--those high-decibel, low-frequency speakers on wheels that cause your windshield to buzz and your eardrums to pulse when they pull up next to you at a stoplight. It's the car alarms too, as well as the barking dogs and the banging garbage trucks and the screaming airplanes and the roaring highways and the plaster-cracking sound tracks in action movies that shake the seats not only in the theater where an action movie is being shown but in the one on the other side of the multiplex wall where some people are trying to watch a Merchant-Ivory film, if you don't mind. It's the explosion of ambient noise that seems to be everywhere, costing more and more people not only their sleep and their sanity but increasingly their hearing and health as well.

According to the National Institutes of Health, more than 10 million Americans already suffer some permanent noise-induced hearing loss. The National Institute of Occupational Safety and Health (NIOSH) reports that some 30 million are exposed to daily noise levels that will eventually reduce their ability to hear. One in eight children between the ages of 6 and 19 already have some degree of hearing loss, and adults who are going deaf are doing so earlier and earlier. "The greatest increase [in noise-related hearing loss] occurs for people 45 to 64 years old," says Dr. James Battey, director of the National Institute on Deafness and Other Communication Disorders. "This is almost 20 years younger than we would expect."

And it's not just our ears the noise is hurting. It takes sounds in excess of 85 decibels (db) to damage hearing, but noise at less than 75 db may be linked to hypertension, and that at just 65 db leads to stress, heart damage and depression. Think the noise in your environment doesn't rise to that level? Think again. A ringing telephone can reach 80 db; a hair dryer hits 90 db; an ambulance siren can top out at an excruciating 120 db. "Noise pollution is truly a public health threat," says Representative Nita Lowey of New York, who has reintroduced a bill in Congress to turn down the volume. "It's critical," she says, "that we work to diminish the impact [noise] has on our communities."

The booming of America has many causes. Population growth in city centers, loss of rural land to suburban sprawl, and the soaring number and size of cars on the highways all play

a role. So too does the entertainment industry, with Walkmans, iPods and surround-sound theaters pouring noise into consumers' ears. Even sports stadiums, always noisy places, have got louder as earsplitting commercials fill the comparatively quiet interludes that used to prevail during pauses in the action. Also to blame are moves made in Washington more than a generation ago. In 1972, the Office of Noise Abatement and Control (ONAC) was created to identify sources of noise and combat them. But in 1981, Congress and the Reagan Administration eliminated ONAC funding, removing one federal blanket that had been thrown over the din.

Whatever the roots of the problem, the clamor is now everywhere--and the workplace may be the worst place of all. At least 20% of U.S. workers do their jobs in environments that could endanger their hearing, according to NIOSH. The U.S. government estimates that more than 90% of coal miners suffer hearing impairment by age 50. Even farms are not exempt: according to the New York Center for Agricultural Medicine and Health, a staggering 75% of farmers now exhibit some hearing impairment, mostly as a result of noisy equipment. "Hearing loss is one of the most common workplace conditions," says audiologist Ted Madison, president of the National Hearing Conservation Association.

For kids, the racket starts in the cradle. A squeaky toy held close to the ear--which is precisely where babies may put them--can reach 94 db. A toy xylophone can ring in at 92 db. And since babies' ear canals are so small, a sound that gets in them may knock around harder than it does in an adult's ears and do commensurately more damage. When these battered baby ears make it to high school they only suffer more abuse as kids start listening to music at full volume and going to dance clubs where wall-to-wall reverberation is the point.

Noise can be controlled to an extent, depending on the source. Some of the biggest sources of ambient noise are highways and roads, but the cause is less honking horns or gunning engines--though those play a role--than tires hitting pavement. Pliable rubber making contact with asphalt doesn't seem as if it would produce a lot of noise but in fact it does, and in a lot of ways. As any spot on the tire strikes the highway, it hits with the thunk of a little rubber hammer. Also, the patch of tire that's in contact with the ground at any instant--the so-called tread block--can squeak like a sneaker on a gym floor and pop like a suction cup when it pulls back off the surface. Air pumping through tire grooves makes noise of its own.

The solution, says engineer Bob Bernhard, co-director of Purdue University's Institute for Safe, Quiet and Durable Highways, is to change not the tires but the road surface. "You can make the pavement porous," he says, "which affects the air-pumping mechanism. You can also mix a little rubber in with the asphalt, which changes the road's stiffness." Porous surfaces are already being rolled out in parts of Georgia, Florida and Arizona, as well as in Europe.

Road noise that cannot be eliminated can be muffled. More and more highways are being framed by high walls, additions that do little for the view but an awful lot for the peace and quiet of the people living nearby. The walls reduce noise by either reflecting or absorbing it. This low-tech though pricey fix--about \$1 million a mile--reduces sound levels only as much as 7 db, but given the exponential way noise propagates, that's a lot. "A 10-db reduction may work out to a halving of loudness," says Nicholas Miller, head of Harris Miller Miller & Hanson, a noise-consulting firm in Burlington, Mass.

Airport noise is harder to stifle but not impossible. An airport can determine which of its

runways require a plane to fly over the least populated area and use those as its default approaches. Miller's firm recommends that noisy banking on takeoffs and landings occur over water where possible. Other studies suggest that pilots eliminate the stair-step method of descending from flight and instead ease down at a smooth angle to eliminate a lot of noisy throttling.

Local governments have also started to step in. In 2002, New York City launched what it calls Operation Silent Night, a campaign to crack down on noise in 24 high-volume neighborhoods. Police officers with noise meters impose fines from \$45 to \$25,000--the highest ones going to scofflaw businesses like nightclubs. Noise summonses jumped 20% in the first year, making the city not only quieter but safer too, since some of the noisiest offenders turned out to have outstanding warrants for more serious offenses.

The European Union has been somewhat more aggressive in combatting noise. Calls for explicit limits on noise were rejected by the European Parliament, but compromise legislation does require all member countries to produce color-coded, 3-D noise maps of all major cities, enabling planners to spot the biggest problems at a glance. The maps, which must be completed by 2007, can then be used for computer models to test the noise impact of a new building or street design before construction begins. In a city like Paris, where a single noisy motor scooter in the middle of the night can wake up more than 200,000 people, a little planning can go a long way.

In the U.S., there is still no comparable program. Representative Lowey's bill, now pending in Congress, would provide \$20 million a year for noise reduction and reopen the shuttered noise-abatement office. Some appliances are now designed for reduced noise, and a uniform-labeling program could enable consumers to compare decibel levels the same way they compare energy efficiency in a toaster or dishwasher.

Ted Rueter's Noise Free America is pushing a more aggressive approach, filing class actions against makers of boom-car equipment, for example. "The ads that companies run to encourage kids to invest in these things are despicable," he gripes. He hopes that restaurants and other establishments will be required to post noise levels at the door alongside no-smoking, occupancy-limit and alcohol-warning signs.

Such micromanagement of noise may never be entirely possible, but it may be the best of an imperfect array of options. The alternative--walling ourselves off behind a thickening barricade of earplugs, triple-glazed windows and white-noise machines--may keep down the noise, but it will also deafen us to much of the world, not just the parts we don't want to hear.

--With reporting by Paige Akin/Richmond, Va.; Melissa August/Washington; Alice Jackson Baughn/Bay St. Louis, Miss.; Paige Bowers/Atlanta; Joe Kirwin/Brussels; Terrence Murray/Paris; and Cathy Booth Thomas/Dallas