

THE Quiet Zone

Quiet Lawns

Creating the “perfect” landscape without polluting the soundscape

Just as Americans settle onto their porch or deck for a peaceful end to a busy day, a chorus of lawn mowers, weed whackers, hedge trimmers, and leaf blowers drown out the sound of birds. It doesn't have to be that way.

Larger suburban lawns have generated a host of time-saving tools that, while making lawns neat and clean, fill the air with noise—audible litter—as well as other air pollutants. Most lawn equipment is so loud that the operator ought to be wearing earplugs to prevent hearing loss. The result is that on any given summer night, the drone of lawn equipment disturbs the peace. And in neighborhoods frequented by lawn services, the days can be filled with constant noise.

Increasingly, citizens are trying to turn off the din of lawn equipment. Many people are realizing that it makes no sense to create the “perfect” landscape by polluting the soundscape. Fortunately, we can turn off the din without turning off the time-saving lawn equipment.

FROM THE DIRECTOR

It's summer—time to open the windows and listen to the birds chirping and the lawn equipment droning. It doesn't have to be that way. Some lawn equipment is one half to one quarter as loud as others. But until now, no one knew which ones they were. We're changing that. Our Quiet Lawns project is designed to inform customers about the quietest mowers and encourage manufacturers to build quieter ones.

This is just the start. We plan on testing mowers each year, and we hope that you buy the quieter ones, and let others know about them too. And please let us know about your experiences with quiet lawn equipment, so that next year's report will be more comprehensive. Later this summer we will be testing trimmers and other lawn equipment. Within a couple of years, we hope to make the Annual Quiet Lawns Report a “must read” for the lawn and garden industry.

Wishing you Peace and Quiet,



Les Blomberg,
Executive Director

A QUIETER FUTURE

The Noise Pollution Clearinghouse has tested more than 40 pieces of lawn equipment for noise.

Consumer Reports has tested most of these for quality.

Together these two sources should allow consumers to purchase high quality and quieter lawn equipment. Eventually, market forces and publicity will spur manufacturers to build better, quieter lawn equipment.

The change will not happen overnight. The average life of the more than 34 million mowers, 14 million riding mowers and 16 million trimmers in the United States right now is seven years. By 2011, most of today's stock will be in the recycle heap. There is a tremendous opportunity over the coming years to dramatically reshape our neighborhood soundscapes by reshaping the lawn and garden marketplace. NPC is working hard to publicize our findings and is committed to years of testing to ensure that the transition to quieter lawn equipment occurs. In 10 years, summer evenings in neighborhoods



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QUIET LAWN

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could be much more peaceful.

Currently, the quietest equipment available tends to be hand powered or electric. Both human powered and electric tools have made significant advances in recent years, such as advances in battery technology that has the potential to significantly reshape the suburban soundscape. Older electric lawn equipment tended to be a stripped-down gas-powered mower. Newer designs like the electric-powered reel mower by Brill (imported from Germany by Sunlawn) and the Neuton mower (from Country Home Products) are making the older electric mowers look like dinosaurs.

Electric-powered lawn equipment tends to be 10-20 dBA quieter than gas (one half to one fourth as loud), and air pollution emissions at the power plant tend to be much less than those at a gas power plant. With electric powered mowers, you don't have to walk around your yard with earmuffs or earplugs. In

addition, there are no gas cans to deal with, no trips to the gas station, and no spills in your trunk or garage. Also very important, you and your children are not walking in the exhaust stream as you mow your yard.

There is hope that gas powered mowers will be both cleaner and quieter in the future. The newer mowers are cleaner than the older ones, as four-cycle engines have replaced two-cycle engines. Two-cycle engines are still found on millions of other pieces of lawn equipment, however. In terms of quiet, if Honda or another manufacturer does for mowers what Honda did for generators, gas-powered mowers could still have a significant role to play in quiet neighborhoods. We've measured Honda's new 3000 Ultralight gas-powered generator at 56 dBA at 25 feet—15 dBA less than the quietest gas-powered lawn mower we measured—also powered by a Honda engine. Since the combined noise of both a Honda generator and an electric mower is still half as loud as the quietest gas-powered mower we tested, eventually the industry should be able to make a quiet gas-powered mower.



PROTECT THE SOUNDSCAPE— PROTECT YOUR HEARING

A typical gas-powered mower is 85 to 90 decibels for the operator (95 for riding lawnmowers). In a typical suburb, it can be heard a quarter mile away or more. Mowing a quarter-acre lot pollutes 100 acres of neighborhood with noise. And while the neighbors complain, the operator is slowly going deaf. The World Health Organization (WHO) and the Environmental Protection Agency (EPA) both recommend that people limit their total exposure to noises as loud as a lawn mower to 45 minutes per day for the quieter gas mowers, 15 minutes for the average mowers, and five minutes for the loudest ones. If you

are using an average gas-powered mower, unless you can finish the job in 15 minutes and spend the rest of the day in peace and quiet, you should be wearing earplugs.

Electric lawn equipment is usually 80 decibels or less for the operator. The

noise footprint is on the order of acres, not 100 acres. And the WHO and EPA recommend you limit exposure to such noise levels to less than 8 hours, more than enough time to safely mow a lawn.

OUR FAVORITES

For Small Lawns—Reel Mowers (55-60 dBA @ 25 feet)

NPC has tested dozens of these mowers. Our favorite reel mower is the Brill Luxus 38 (Brill also makes a smaller Luxus 33 with the same design), because, in addition to being quiet, it's lightweight, easy to push, and its blades do not touch each other so they are more durable and require less sharpening. Reel mowers are a great source of useful exercise, something more and more of us need these days. Reel mowers are the choice of golf courses because of their better cut and less damage to the grass than rotary mowers.

But reel mowers are not for everyone. Our testers were happy with them on lawns up to 5,000 square feet, but that will depend on how much useful exercise you want. In addition, if you don't regularly mow your

lawn (if you let it get too long) you're in for a lot more work. Also, if your lawn is not smooth the mower tends to bounce around a lot and cut unevenly. And if your lawn is not all the same height (full of weeds with dandelions sticking up), the mowers do not perform well (they cut the grass fine but leave the dandelions). Reel mowers cut the greens, fairways and nicer suburban lawns very well, but if your lawn has more in common with the rough or a sand bunker, an electric mower might be a better choice.

For Small and Medium Lawns— Electric Mowers (60-65 dBA @ 25 feet)

We've tested a number of electric mowers, from a little 13-inch mower to an electric riding mower. Our favorites are the Brill (Sunlawn) cordless electric reel mower (basically the same as the reel mower above, but with a cute little battery and electric motor) and the Neuton cordless electric mower. Both of these have narrow cutting widths, so they are better on smaller lawns. They have removable batteries, so you can buy a second battery and keep mowing larger lawns. Both have accessories such as weed whackers too.

The Brill is our choice on nicer lawns (see comments above), while the Neuton is a better choice for lawns that don't get as much care and attention.

For Medium or Large Lawns— Large Electric Mowers or Quieter Gas Mowers (70-75 dBA @25 feet)

For lawns that require a wider cutting width, Black and Decker makes an 18 inch cordless and 19 inch corded electric mower. Our testers have had some problems with the batteries in the cordless model. The batteries are not removable as in the Neuton, and did not in all cases retain their charge after the first year. (Be sure to take good care of all mower batteries, following the directions to ensure longer life.) The corded version eliminates this problem, but running extension cords across your yard is an issue. Also, the cutting blades on these mowers are not as durable as gas-powered mowers, so keeping them sharp is important.

The noise levels of both the Black and Decker mowers are comparable to that of the quietest gas powered equipment. For Black and Decker mowers and the quieter gas powered mowers, the deck noise, and not the motor noise is the most important issue. All too often, mower decks act as large, noisy fans with rattly housings. The biggest factor in how much deck

If everyone in your neighborhood was mowing at the same time with a quiet electric mower, it would probably be quieter than if just one person in your neighborhood was using a typical gas-powered mower.

noise you hear is the type of discharge. For example, a side discharge creates a large gap in the deck for noise to escape. Deck height is an important factor — a higher deck height setting also creates a larger gap for noise to escape. The Black and Decker mowers varied by 6-12 decibels depending how they were set up. You don't see that much variability

in a typical gas-powered mower because the engine noise masks the deck noise.

The quietest gas-powered mower we tested was an Ariens Model 911097 with a Honda engine. Honda claims they make the quietest lawn mower engine and that appears to be the case, but it makes a big difference which mower you put the quieter Honda engine on, because of the issue of deck noise. It also makes a big difference which Honda engine is used. Honda engines powered both the quietest and noisiest mowers we tested.

Other gas-powered mowers that were quieter than most include the Honda HRX217HXA, Craftsman 37910, Toro Personal Pace 20031, Murray 225112X92A and 226111X92A. Each of these was less than 85 dBA for the operator and 75 dBA at 25 feet. In addition, the Craftsman 37778, 37784 and 38746, as well as the Yard-Man 12A978Q each met one of the two criterium (75 dBA criterium at 25 feet or 85 dBA criterium at the operator's ear), and were very close to meeting the second.

The loudest mowers we tested were a Husqvarna 5521CHV and Snapper RP215517HC and MR216517B. These exceeded either 90 dBA for the operator or 80 dBA at 25 feet.

For Very Large Lawns— Riding Electric Lawn Mower (60-65 dBA)

The Electric Ox sounds more like a small window fan than a mower. This mower is perfect for large, noise sensitive lands such as parks, schools if mowing is done during school hours, hospitals, etc. Unfortunately the Electric Ox is definitely not for everyone. Since there are still very few of these made, they have not yet reached economies of scale needed to reduce costs. The Electric Ox costs a couple thousand dollars more than similar gas riding mowers. But it is very impressive, with a five-hour battery life and a 42" deck, and a noise level only slightly louder than an electric push mower. The exceptionally quiet mower deck is its most impressive feature.

AFTER THE ENGINE, THE DECK

For smaller lawns, electric and human powered mowers are an excellent match. For larger lawns, because of the role of deck noise in larger mowers, quieting the motor alone is not enough to protect the soundscape. The Electric Ox, however, has shown the way in terms of how to quiet deck noise. Even though the Electric Ox has a 42" deck, its noise was less than all the 18" or greater mowers we tested. That is because it employs many small, electrically powered blades that are recessed in a fiberglass shell. Perhaps the best short-term solution for larger lawns is a hybrid—gas-powered riding mowers with electric decks. So far NPC hasn't found any manufacturers willing to try this venture, but the need may be out there. A couple years ago, the US manufacturers were complaining that they couldn't meet new European noise standards for riding mowers because even with a quiet engine, the deck noise was too great. All those rattling belts and pulleys and blades and levers can be eliminated with an electric deck.

CONSUMER REPORTS

Quiet mowers are only half the story. It does no good to buy a quiet mower you don't use or you want to replace within one year. In the Table of Mower Noise Levels, we identify all the mowers tested by *Consumer Reports* for overall performance in their June, 2004 issue. The magazine is available at your local library, at many newsstands for \$3.99, online at www.ConsumerReports.org for a fee of \$5.95 for one month's access, or you can subscribe by writing them at Consumer Reports, P.O. Box 2109, Harlan, IA 51593-0298 (one year's subscription is \$26). Finding the right mower for your lifestyle and lawn involves balancing

The Quiet Zone

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The Quiet Zone is published twice a year by the Noise Pollution Clearinghouse, a non-profit organization dedicated to creating more livable cities and more natural rural and wilderness areas by reducing noise pollution at the source.

issues of air and noise pollution for the operator as well as the community, with performance and performance options such as mulching, bagging, or efficient side discharge. Rarely does one mower do everything well, but you should be able to find a quieter mower that does what you want well.

THE NOISE POLLUTION CLEARINGHOUSE

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Does quieter lawn equipment really make a difference?

YES!

It would take about 150 Brill or Neuton electric mowers, operating side-by-side, to make the same amount of noise as just one Husqvarna 5521CHV. It would take 17 Brill or Neuton electric mowers to equal even the quietest gas-powered mower we tested, the Ariens 911097. If everyone in your neighborhood was mowing at the same time with a Brill or Neuton mower, it would probably be quieter than if just one person in your neighborhood was using a typical gas-powered mower.

Quiet Lawns can work! Quiet neighborhoods can happen!

The table below provides the brand, model, published price, and noise levels of mowers. For noise levels for the operator above 85 dBA (color coded red), hearing protection should be worn. Between 82 and 85 dBA, hearing protection is advisable if your exposure is unusually long, or if you are engaged in other loud activities throughout the day. For noise levels under 82 dBA, hearing protection is not needed.

Noise levels at 25 feet are more representative of noise exposure for the community. The decibel level is given as well as the number of 60 dBA electric mowers it would take to make as much noise as the mower in question.

Brand	Type	Model	Price	Noise at Operator	Noise at 25 feet	# of 60 dBA Electric Mowers to Which Noise is Equivalent
McLane*	Reel Mower	17" Front Throw	\$200	63	54	(continues on back)
Brill/Sun Lawn	Reel Mower	Luxus 38	\$200	68	55	Hearing Protection Not Needed
Brill/Sun Lawn*	Cordless Elec Reel	380 ASM	\$350	68	56	
Silent Reel	Reel Mower		\$249	74	58	
Neuton*	Electric-Cordless	EM 4.1	\$400	77	59	
American	Reel Mower		\$130	76	60	
Yard Machines	Electric-Corded	13 inch	\$200	79	60	
Black & Decker*	Electric-Cordless	CMM 1000	\$464	79	62	
Electric Ox	Electric Riding		\$7,500	82	63	
Black & Decker*	Electric-Corded	MM875	\$244	80	64	
Ariens*	Gas—Self Prop	911097	\$470	82	72	
Honda*	Gas—Self Prop	HRX217HXA	\$700	84	74	Hearing Protection Needed
Bolens*	Electric-Corded	18A-V17-765	\$190	85	74	
Toro*	Gas—Self Prop	PP Recycler 20031	\$420	85	74	
Murray*	Gas—Push	225112X92A	\$155	84	75	
Craftsman*	Gas—Self Prop	37910	\$280	84	75	
Murray*	Gas—Self Prop	226111X92A	\$215	85	75	
Craftsman*	Gas—Push	38746	\$200	86	75	
Toro*	Gas—Push	20008	\$350	86	75	
Craftsman*	Gas—Self Prop	37778	\$330	86	75	
Craftsman*	Gas—Self Prop	37855	\$330	86	75	
Craftsman*	Gas—Self Prop	37784	\$400	85	76	
Yard-Man*	Gas—Self Prop	12A978Q	\$400	85	76	
Yard-Man*	Gas—Self Prop	12A445E755	\$260	87	76	
Lawn-Boy*	Gas—Self Prop	Gold Series 10655	\$400	87	76	
MTD*	Gas—Push	Pro 11A588Q	\$200	88	76	
Craftsman*	Gas—Push	38855	\$229	89	74	
Bolens*	Gas—Push	11A-584E765	\$170	89	76	
Yard-Man*	Gas—Self Prop	DLX 12A567A	\$300	88	77	
Craftsman*	Gas—Self Prop	37894	\$280	88	77	
Troy-Bilt*	Gas—Self Prop	TuffCut 230	\$400	89	77	
Yard-Man*	Gas—Push	11A435D775	\$190	89	77	
Bolens*	Gas—Push	11A084C163	\$170	88	77	
Husqvarna*	Gas—Self Prop	55R21HV	\$480	86	78	
Snapper*	Gas—Self Prop	RP215517HC	\$660	91	80	
Snapper*	Gas—Push	MR216517B	\$410	90	80	
Husqvarna*	Gas—Self Prop	5521CHV	\$350	91	82	

Data sources: Noise Pollution Clearinghouse and Consumer Reports

*Evaluated by Consumer Reports in their June 2004 issue.

AS A GENERAL RULE, YOU SHOULD WEAR HEARING PROTECTION WITH GAS-POWERED LAWN AND GARDEN EQUIPMENT

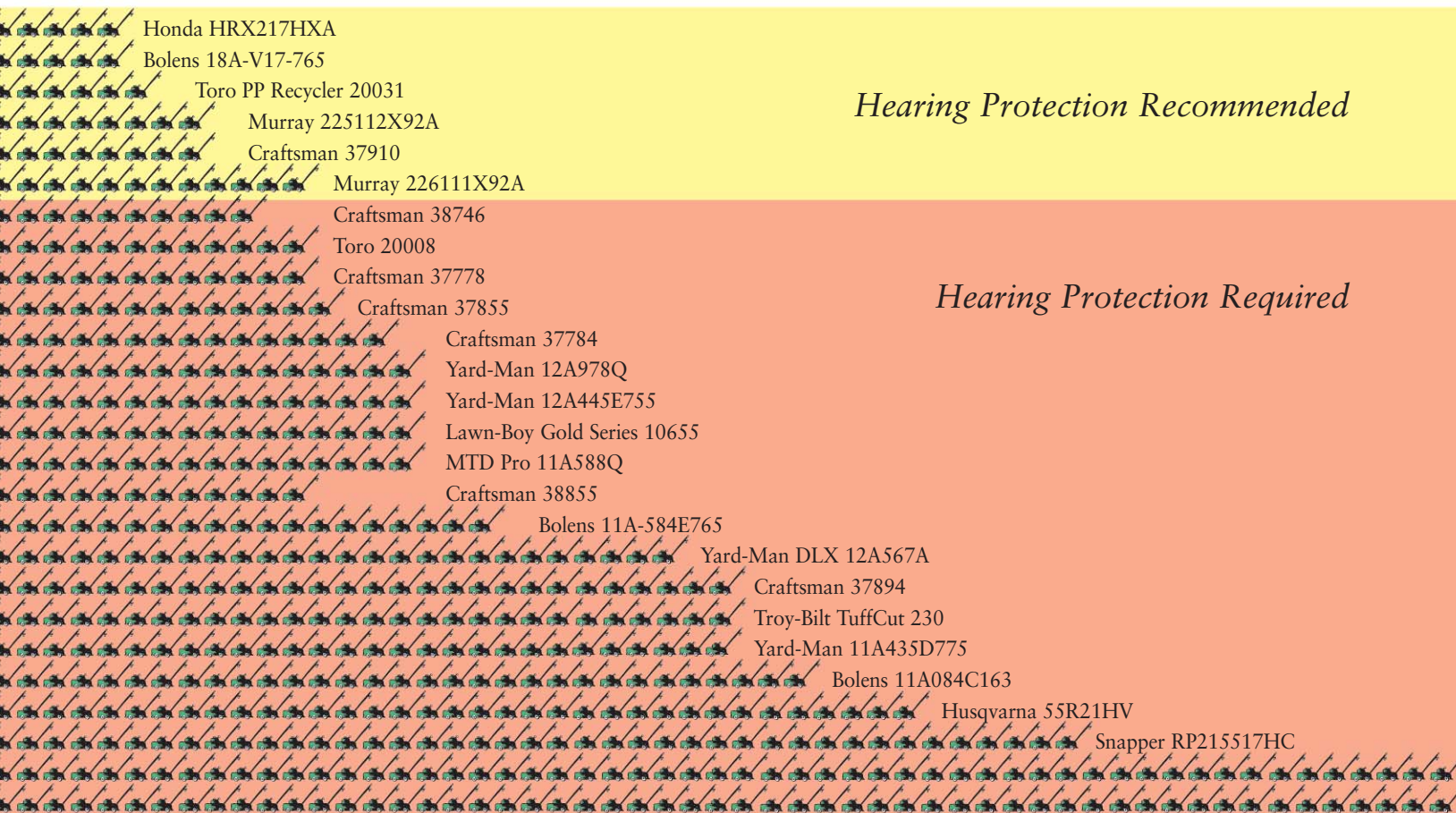
Advocates of Peace and Quiet often have noisy appliances, because when they purchased those appliances, they had no way of knowing which were the quieter ones. That now has changed for lawn mowers, and will hopefully change for other lawn equipment soon, as NPC tests trimmers and other lawn equipment. Until you buy that quieter mower, however, make sure whoever is using the equipment—you, your children, or the neighborhood kid—is wearing hearing protection. And make sure it is worn properly. Most people don't use earplugs properly, and therefore do not get the full protection from them. To learn more about hearing loss, go to the National Hearing Conservation Association web site (www.hearing-conservation.org) or the NPC Hearing Loss Library (www.nonoise.org/hearing.htm).

ABOUT THE TESTING

Except as otherwise noted, mowers were tested on grass with a 3.5" cutting height and with a side discharge. Because of the dominance of deck noise for electric mowers, noise increases as deck height increases. For gas-powered mowers, changes in noise from the mower deck are often lost in the motor noise. Therefore we have given a range of noise levels for some electric equipment based on deck height (see shaded mowers on opposite page).

Mowers were tested for noise at the operator's ear to assess the potential for hearing damage, and at 25 feet to assess community noise impacts. 50 feet is a more standard measure for some lawn equipment, but background noise levels at testing sites did not permit testing of the quietest lawn equipment at 50 feet. Three tests were conducted at 25 feet for each mower. One, a stationary test with the discharge directed toward the sound level meter. The second and third 25 foot tests were walk-by tests in opposite directions, with the highest noise level of these three tests reported.

Sound level meters meeting the American National Standards Institute Type I standard were used for the measurements. They were calibrated before and after testing. Wind levels were less than 4 mph.



Hearing Protection Recommended

Hearing Protection Required