Protecting wildlife from noise impacts: A review of legislation and legal precedents in New England and by the Federal Government

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Noise pollution and its effects on humans is well studied and moderately regulated in the United States. There is also a body of research on noise impacts on wildlife, although this information is not widely dispersed or understood by the general public. In addition to the lack of dissemination of this information, state governments do not typically account for what is known about wildlife impacts when developing noise policy or wildlife law. The federal government has considered noise impacts on wildlife on occasion, but with wildlife being held in the public trust of the individual states and regulated primarily at the state level, it is important for states to take up this practice as well. This paper provides a brief review of some ways in which noise can impact wildlife, a review of how noise impacts on wildlife have been addressed in various legal settings in New England, and a discussion of what the future may hold for wildlife and noise impacts.

1 INTRODUCTION

Noise pollution is not what is commonly thought of as pollution by the general public. Pollution is usually associated with resources such as water and air. Water in its natural form is a natural resource, as is air. Pollution of water and air can harm those resources. What is noise in its natural form? Some might consider natural sound itself to be a natural resource. One might say that quietness is a natural resource, but nature itself is not quiet. The sound of a storm coming signals humans to take shelter or higher ground. The sound of a brook signals the deer of a water supply nearby, and the sound of a twig snapping signals the hare of its predator. These natural sounds are useless when they are masked by noise pollution.

It is commonly accepted and understandable how noise can cause impacts on humans such as speech interference, sleep disturbance, and health effects. Much of noise pollution policy has been anthropocentric in that it concentrates on these impacts. Natural sound or the absence of noise pollution may provide less quantifiable benefits to humans, and hence, there is less policy related to natural sound. Mark Sagoff, director of the Institute of Philosophy and Public Policy at George Mason University, has said that “Americans could find in the experience of nature the

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condition of spiritual awakening.” He has also argued that the expressive values in nature should be considered in developing policy. These expressive values may be natural sounds, or it may be the opportunity to experience wildlife in their natural settings. So there is a wide spectrum of possible regulation for noise pollution. Do governments seek to protect the natural sounds of the land, do they seek to protect wildlife, or do they seek to protect themselves against hearing loss? There is a wide range of possibilities between these options.

Noise pollution and its effect on humans is well studied and moderately regulated in the United States. The impacts on wildlife though are less understood. That is not to say that we do not have a body of knowledge on the topic. In fact, there is a wide range of research on noise impacts on wildlife from underwater noise impacts on whales to noise affecting the fecundity of ovenbirds (Seiurus aurocapilla). The problem is that this information is not widely dispersed and understood by the general public. In addition to the lack of dissemination of this information, state governments do not typically account for what is known about wildlife impacts when developing noise policy or wildlife law. The federal government has considered noise impacts on wildlife on occasion, but with wildlife being held in the public trust of the individual states and regulated primarily at the state level, it is important for states to take up this practice as well. This paper provides a brief discussion of some ways in which noise can impact wildlife, a review of how noise impacts on wildlife have been addressed in various legal settings in New England, and a discussion of what the future may hold for wildlife and noise impacts.

2 NOISE IMPACTS ON WILDLIFE

How noise impacts wildlife is a complex issue that is difficult to study scientifically. Lab tests can be done in a controlled environment, but real noise pollution is not contained by a lab. It is outdoors in a complex environment with multiple uncontrollable variables where noise pollution is found. If one wants to look at how noise affects wildlife in a forest from a new road, it is extremely difficult to isolate roadway noise impacts from other environmental factors. The visual impacts of the roadway and the division of the landscape may cause adverse impacts on wildlife. The air pollution from vehicle exhaust may have an effect as well. It is difficult to separate these factors from the noise component of the roadway.

Despite the difficulty, some good scientific research has been conducted on this issue. Generally speaking, noise has been found to cause increased energy expenditures in various species, decreased reproduction rates, and increases in stress hormones and vigilance activity. Some specific examples of impacts caused by noise include:

- Decrease in pairing success of ovenbirds near industrial noise sources
- Increased vigilance and energy usage by rats and impalas when exposed to noise
- Increased vigilance by squirrels when exposed to wind turbine noise
- Increased heart rates in pigs when exposed to artificially generated sounds
- Increase in loudness of vocalizations of songbirds when exposed to noise causing increased energy expenditures

In addition to these examples, the Federal Highway Administration (FHWA) and the National Parks Service (NPS) keep rather lengthy lists of references to studies addressing noise impacts on wildlife.

3 LEGAL PROTECTION OF WILDLIFE FROM NOISE IMPACTS
The U.S. legal systems provide some protection to wildlife from noise impacts, but rarely are noise pollution impacts explicitly addressed in state statutes or agency rulemaking. Rather, wildlife is often protected from noise under rules that prohibit disturbance of wildlife or impacts to their habitat. One example of this is Maine’s Site Law which is an environmental review of projects that have a potential to cause substantial impact on the environment. Chapter 375.15 of the law deals with wildlife impacts and prohibits “unreasonable disturbance” to some deer wintering areas, habitat of threatened and endangered species, and various avian sites. Chapter 375.10 regulates noise and is geared mostly towards human impacts, but it explicitly states that the Board can require a lower sound limit to protect wildlife from disturbance or adverse effects to populations.

Another example of a state statute with the ability to protect wildlife from noise impacts is Vermont’s Act 250, the State’s environmental permitting system. The extent to which wildlife is protected under this law can be illustrated by two key cases: Southview Associates and Alpine Stone.

### 3.1 Southview Associates

In *Southview Associates* a developer had applied for an Act 250 permit for a 33-lot subdivision for vacation homes on an 88-acre parcel. The application was denied by the District II Environmental Commission, and the applicant appealed the decision to the Environmental Board where they held a *de novo* hearing on the application. The appeal was denied by the Board primarily because the development would cause an undue adverse impact on “necessary wildlife habitat”. This action is prohibited under 10 V.S.A. §6086(a)(8) which states that the District Commission must find that the development:

(8) Will not have an undue adverse effect on the scenic or natural beauty of the area, aesthetics, historic sites or rare and irreplaceable natural areas.

(A) Necessary wildlife habitat and endangered species. -- A permit will not be granted if it is demonstrated by any party opposing the applicant that a development or subdivision will destroy or significantly imperil necessary wildlife habitat or any endangered species; and

(i) the economic, social, cultural, recreational, or other benefit to the public from the development or subdivision will not outweigh the economic, environmental, or recreational loss to the public from the destruction or imperilment of the habitat or species; or

(ii) all feasible and reasonable means of preventing or lessening the destruction, diminution, or imperilment of the habitat or species have not been or will not continue to be applied; or

(iii) a reasonably acceptable alternative site is owned or controlled by the applicant which would allow the development or subdivision to fulfill its intended purpose.

The habitat in question specifically was an active deeryard that supported approximately 20 deer during the winter and was the only active deeryard in the 10.7 square mile watershed. The Board denied the application for three primary reasons. First, the proposed development would likely destroy a large softwood stand that provides winter cover for the local deer population. Secondly, the “wintertime noise and activity of people, vehicles, and pets” could cause additional
stress on the local deer population which in turn would cause an ecological expense by using up the deer’s fat reserves making survival in the winter more difficult. Lastly, the applicant failed to show that it met any of the conditions in V.S.A. §6086(a)(8)(A)(i) – (iii).

Southview did not end with the Environmental Board’s decision. The case was appealed to the Supreme Court of Vermont, and the Court upheld the Board’s decision. In addition, the applicant filed a civil suit against the individual members of the Board claiming that they deprived them of the economic use of their property and that the denial under Act 250’s Criterion 8(a) was unconstitutional. For reasons outside the scope of this paper, the U.S. District Court dismissed the case.

Southview is significant in that it is one of the few cases in Vermont and all of New England that considered the impact of noise on wildlife especially from an ecological standpoint. Noise impacts were considered on the basis that they would cause an increase in physical activity of the deer and that this increase would be a burden on the ecological energy requirements of the deer. They also considered the possible impact on fecundity given the stress conditions. The Environmental Board made five key findings on this issue:

18. The rate at which deer are forced to use their fat reserves that they store during the late summer and early fall is critical to the survival of deer through the winter. Any increase in physical activity of heart rate due to human or pet activity would cause the deer to use their stored fat.

19. Types of human activity that cause stress to deer include operating automobiles, slamming car doors, radios playing outdoors, dogs barking or running free, people entering the deeryard on snowshoes or cross-country skiis, and snowmobiles travelling in or near the deer area.

20. Studies have demonstrated that the heart rate of deer increases when there is human activity nearby. A 300-500 foot buffer zone between the deer and human activity is considered necessary to prevent disturbance of deer. There is a level of human activity that deer will not tolerate: they will abandon a winter’s habitat if such a level is reached.

21. Under severe snow conditions, deer are not able to move out of their cover area. Snow depth up to the deer’s brisket causes severe restriction to deer movement. When deer are confined and unable to move about to obtain food, conservation of their fat reserves is critical to their survival. The increase in metabolic rate experienced when restricted deer are disturbed can cause death.

22. The reproduction rate of deer that are subjected to considerable stress decreases. Even if not all the deer leave the area, the ones that remain could have significantly lower reproduction rates.

Southview serves as an excellent example of scientific understanding in ecology and noise informing law for better land use planning and protection of wildlife resources.

3.2 Alpine Stone

Another example from Vermont in which noise impacts on wildlife were considered was an Act 250 application for a rock quarry. Alpine Stone was a rock extraction project that was located in an area that was “excellent habitat” for bobcat and supported an “excellent prey base for the
There was also evidence of bobcat in the area given the presence of bobcat scat, urine, bedsites, trails, and possibly dens.\textsuperscript{18} Opposition to the project argued that noise from the quarry would be in conflict with the bobcat habitat.\textsuperscript{18} The quarry planned to use an excavator, backup alarms, and a dump truck.\textsuperscript{18} A noise study was completed for the project that looked at possible noise impacts under Act 250’s Criterion 1 (air pollution), and Criterion 8 (aesthetics), but it did not consider possible noise impacts under Criterion 8(A)(wildlife habitat).\textsuperscript{18} The Board heard testimony from biologists on the issues of bobcat and noise impacts, but received conflicting opinions and unclear facts. One case finding stated,

\begin{quote}
\textit{111. Human disturbance, especially unpredictable, loud noises can lead to various physiological responses by wildlife in general, such as increased heart rate, increased body temperature, and reduced blood flow to skin and digestive organs. The type and severity of physiological impacts vary with the intensity of disturbance, season, individual variations, access to escape cover, and other factors. Continued disturbances may cause individual animals to use up valuable energy and be adversely impacted.}\textsuperscript{18}
\end{quote}

In conflict with this finding was the next point:

\begin{quote}
\textit{112. There is no data on the effect of noise on bobcats, and information on the ability of bobcats to adapt to human disturbance is conflicting.}\textsuperscript{18}
\end{quote}

Testimony of a state biologist provided the opinion that “the direct and indirect impacts of the project pose a risk to the long-term survivability of the bobcats using the site”, but the same biologist also stated that she was “not able to conclusively state that [ledge] habitat is decisive to the survival of the [bobcat] species because very little scientific information exists on the subject.”\textsuperscript{18}

Unlike the \textit{Southview} case, the Board found that there was not enough evidence under Criterion 8(a) for them to conclude that the possibly threatened habitat was in fact “necessary wildlife habitat.”\textsuperscript{18} This was due in part to an opinion that the ecological impacts of disturbances on deer was scientifically defined, but there was a lack of evidence to support the claim that the ecological impacts of noise on the bobcat would threaten its survival.\textsuperscript{18} The Board pointed out though that this conclusion was not due to “failure on the parties, who put on thorough and extensive cases”, but that “this is simply a reflection of the current state of scientific information available on this issue.”\textsuperscript{18}

In \textit{Alpine Stone} a member of the Board, Nancy Waples, offered a dissenting opinion on Criterion 8(A).\textsuperscript{18} In the dissent, Ms. Waples highlights the fact that the quarry will start operation each year immediately following the birth of kittens and that the ledge where these kittens may be born is only 100 yards from the quarry.\textsuperscript{18} She stated that, “it does not require conclusive scientific evidence to show that the noise from the heavy equipment, drilling, and the impulse noises from banging and scraping of rock, will disturb the bobcats at a very vulnerable period in their lives.”\textsuperscript{18} Ms. Waples also thought that the ledge was important habitat because it provided “seclusion, security, and proximity to prey they require to survive the winter and raise kittens successfully.”\textsuperscript{18}

\textit{Alpine Stone} is an interesting case where the Board did not think that science had developed enough to support a claim under the law, but one member of the Board disagreed with this line of thought. It is really a question of whether or not V.S.A. §6086(a)(8) requires completely conclusive scientific evidence or whether or not it is appropriate for the precautionary principle to be employed.
There are other cases throughout New England that represent other ways that wildlife can be protected from noise impacts. *Maykut v. Plasko* is as an example of how a landowner could use a private nuisance case to protect wildlife from noise impacts, and *Rhody Rovers Motorcycle Club v. Reitsma* illustrates the power of state agencies to conduct rulemaking to protect wildlife from noise.

### 3.3 August P. Maykut v. Marten Plasko

In *Maykut v. Plasko*, the plaintiff filed a nuisance case against the defendant for noise caused by a corn cannon which the defendant owned and operated. The corn cannon sounded like an explosion and was used to scare away “marauding birds” to protect the defendant’s corn crop. The plaintiff won the case, but an interesting component was that the action taken by the defendant was permitted by law. In Connecticut General Statutes § 26-47a, noise-making devices were allowed for repelling “marauding birds and wildlife” for agricultural purposes by permit from the Commissioner of Environmental Protection. In this case, the court found that by having this permit, the defendant could not cause a public nuisance as the action was allowed by law, but could still cause private nuisance and hence be sued for damages or injunctive relief. This case was decided in 1976, and Connecticut General Statutes § 26-47a was repealed in 1993. While the plaintiff may not have been concerned about the wildlife, this case does serve as a good example of how a plaintiff who is concerned about noise impacts on wildlife could bring a private nuisance case against another landowner to achieve the same end results.

### 3.4 Rhody Rovers Motorcycle Club, Inc. v. Reitsma

In *Rhody Rovers Motorcycle Club v. Jan H. Reitsma*, the plaintiff challenged the process by which the Director of the Department of Environmental Management promulgated a rule on special events at the Arcadia and George Washington Management Area in Rhode Island. The Department had just issued a rule that special events which require a permit be limited to June 20 through September 30, and such permits could be issued on a lottery basis. The rule also limited the use of motorcycles in the Arcadia Management Area. Rhode Island statutes allow for an interested party to request a “concise statement of the principal reasons for and against” a rule’s adoption. With a statement requested by the plaintiff regarding the motorcycle limitations, the Director responded,

...the operation of motorcycles creates noise which disturbs the type of wildlife which is normally found in the subject area....Noise caused by motorcycle operation also disrupts the use of the area by hunters, fishermen, and hikers.

While protection may not be explicitly provided in state statutes, it is clear from this case that noise impacts on wildlife is something that is taken into consideration by the Rhode Island Department of Environmental Management. The Court in this case also points out that the Department had information which showed that regulation was “necessary to protect wildlife habitat and to avoid disruption to wildlife reproductive cycles...” indicating that the department considers scientific information about noise impacts when developing rules.

### 3.5 Federal Cases

While wildlife is held in the public trust of the states, the federal government developed several of its own regulations on wildlife over the 20th-century including the Endangered Species
Act (ESA), the National Environmental Policy Act (NEPA), the Lacy Act, and the Migratory Bird Treaty Act, among others. Due to these fairly rigorous federal environmental regulations, noise impacts on wildlife have been taken into account to a certain extent at the federal level as well.

As an example, in a case before the U.S. Court of Appeals for the Tenth Circuit, the plaintiffs, an environmental group, sought to have the Court remand the environmental impact statement (EIS) for the Legacy Parkway project back to the responsible agencies, the Federal Highway Administration and the U.S. Army Corp of Engineers, for not evaluating all project impacts. One specific concern of the plaintiffs was that the agencies failed to consider noise impacts on wildlife. The Court chose not to rule on this issue, but instead found the EIS to be inadequate in its assessment of wildlife impacts for other reasons.

There are also a number of other cases where noise impacts on wildlife have been taken into consideration at the federal level. Some of these include:

- Impacts from snowmobiles in national parks
- Impacts from wind power projects on U.S. Fish and Wildlife Service (USFW) lands
- Impacts from personal watercrafts in the Curecanti National Recreation Area
- Rulemaking for the National Forest roads
- Land use planning by the Department of Energy
- Impacts from Navy aircraft and equipment
- Prohibition of disturbing wildlife in National Parks

There seem to be more cases of the federal government taking consideration of the effects of noise pollution on wildlife than individual states at least when compared with New England. It is unclear why this would be so. One reason may be that the government is listening to citizens through the NEPA process. It seems that there is a growing concern by the general public regarding noise impacts on wildlife as evidenced by numerous public comments to environmental impact statements.

4 THE FUTURE OF WILDLIFE V. NOISE POLLUTION

As the human population continues to balloon, the world is likely to become an even noisier place. Wildlife will continue to be exposed to increasing amounts of environmental stressors including air pollution, global warming, loss of habitat, and noise pollution, among others. The need for legal protection on all fronts, including noise impacts, will become critical to the survival of some species. As noted here, our legal system has really just begun to address the potential impacts caused by noise pollution.

Moving forward, federal and state legislatures and agencies have a difficult task of determining how they will deal with noise impacts on wildlife. While impacts on humans are moderately understood, continually being studied, and are addressed in noise policy to a certain extent, impacts on wildlife pose some challenging legal issues. It is understood that noise can have a negative impact on wildlife in general, but as Alpine Stone has demonstrated the law sometimes requires good scientific information regarding species specific impacts in order to account for them. The noise threshold level that causes an impact for one species may be different for another. The response of those species to a certain level may be different, and the ability of those separate species to habituate to the noise may also differ.

This type of refined scientific detail is typically left up to federal and state agencies, but do these agencies have the legal backing and expertise to address noise impacts on wildlife? It seems as though the federal government is starting to address this issue in part through the
Natural Sounds Program through the National Parks Service. Some states may also have the ability to address it through agencies and permitting systems as is evidenced by Southview, but to date, with the lack of legal precedent on the issue save for a couple of examples, it does not seem to be a high priority for state wildlife or environmental management agencies.

Given our understanding of how noise can impact wildlife in general, it may be best to invoke the precautionary principle and not require species specific details to protect wildlife. Lastly, the larger question we face is not if we should protect wildlife, but to what extent. Is a simple nuisance to wildlife acceptable? Does an impact need to go as far as threatening the survival of an individual or population before the legal system affords protection against it? These questions remain largely unanswered, but will slowly work themselves out as protection of wildlife, in general, and the possibility of wildlife rights are explored further in our legal systems.

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