

Testimony of Michele Frank
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SB 113—Fireworks Legalization and Regulation
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Chairman Hoagland, Vice Chairman Johnson, Ranking Member Thomas, and members of the Senate Veterans and Public Safety Committee: I appreciate the opportunity to speak to you in opposition to Senate Bill 113. My name is Michele Frank and I stand before you as the widow of a Marine and the Executive Director of a non profit I founded based out of Findlay Ohio named Pawsible Angels whose mission it is to increase the mental health of communities through the human animal bond.

Fireworks and other explosive materials, whose reactions can produce sparks, flames, and fumes, cause various harms to nonhuman animals. These often affect animals who are human companions, and whose reactions we can easily see. They also harm the other animals who are around us, both in urban environments and outside them, as well as those who are on farms or confined in other spaces.

Physical damage to the hearing organs of animals:

The hearing of many animals is much more sensitive than it is in humans, so the explosions of fireworks are not only more disturbing to them, but they can damage their hearing more severely. Fireworks can emit sounds of up to 190 decibels (110 to 115 decibels above the range of 75 to 80 decibels where the damage to the human ear begins). Fireworks generate a higher noise level than firecrackers, gunshots (140 decibels), and some jet planes (100 decibels).

Noises caused by fireworks and firecrackers can lead to loss of hearing and tinnitus. Dogs are known to suffer irreversible hearing loss caused by proximity to the noise of gunfire.

Fear and stress:

In addition to these harms, the noises caused by fireworks harm animals by causing fear. In fact, repeated exposure to unexpected, unpredictable loud noises can cause phobias in many animals, increasing panic reactions to loud noises in the future. 40% of all dogs in the United States suffer from noise phobias.

Fear risk increases with age in dogs, which can be connected to pain, but also to how they perceive sound. Older dogs first lose the ability to detect higher frequency sounds, which give important location cues. The inability to locate sounds can increase the severity of stress for a dog.

It is estimated that one-fifth of disappearances of animals who are companions to humans are due to very loud sounds, mainly fireworks and storms. Studies in humans and animals show that mothers who experience high levels of stress during pregnancy can pass on a propensity for anxiety to their young via the stress hormone cortisol.

When signaled by a stress-inducing event, the brain's hypothalamic-pituitary-adrenal axis (HPA) becomes active and produces cortisol, which then travels throughout the body keeping an

individual on “high alert.” High cortisol levels in the mother’s bloodstream have subsequent negative effects on the developing baby, or in this case, baby animal. The effects of fireworks on animals can be observed very clearly in zoos. It has been shown that the noise of fireworks makes animals such as rhinos and cheetahs very nervous, also visibly affecting others such as elephants, while rodents continue running minutes after the noises cease.

Harmful effects by chemical particles:

In addition, firecrackers and other backyard fireworks are poisonous, and their explosion releases harmful particles such as fine dust (PM10) that is toxic to inhale. It can worsen existing diseases and cause others.

Therefore, fireworks represent a danger both to animals who live in areas where they explode, or in relatively distant locations when the wind transports the particles. There is also a risk of ingestion of the residue of fireworks and firecrackers. The proximity of the animals to the areas where the fireworks are set off often causes burns and damage to the eyes.

The chemicals are also dangerous for cats and dogs, just as they are for humans with respiratory diseases such as asthma. Careless use of fireworks can also cause mutilations and fatal accidents in animals near the event, as well as causing fires that harm animals.

When accidents of this type occur that affect humans, it is common for us to talk about it, but we must remember such things often affect animals of other species even when humans aren’t badly affected.

Here are some ways that different animals are affected by fireworks:

Dogs:

Dogs are able to hear up to 60,000hz, while humans can’t hear anything above 20,000hz, which is only a third of the capacity of dogs. This auditory acuity of dogs is one of the reasons the sound of fireworks can be so harmful to them. They show signs of overwhelming anxiety as they are unable to escape from the sound.

Dogs, like many other animals, also suffer from other phenomena that produce loud sounds, such as storms. However, in the case of storms, the noises are accompanied by previous warning signs, so that animals can perceive them in advance. This can cause them anguish in anticipation, but it does not cause them the unexpected fright caused by fireworks, which are sudden and not identifiable. The fear of noise among older dogs is more common, as previously stated.

Many urban dogs suffer negative symptoms from the explosions of fireworks. Common reactions are freezing or paralysis, uncontrolled attempts to escape and hide, and tremors. Other more intense signs may also be present, such as salivation, tachycardia, intense vocalizations, urination or defecation, increased activity, hyper alertness and gastrointestinal disorders. All these signs are indicative of great discomfort.

It has been pointed out that the reaction of dogs to the sound of fireworks is similar to

post-traumatic stress in human animals. However, this effect could be much more harmful in dogs, because they do not have the ability to rationalize their anxiety, or the possibility of an immediate cognitive response that allows them to respond to their fear. It is likely they experience a deeper and more intense form of terror. This is in addition to the noise phobia which can be greater in some dogs due to personality differences. It is important to keep in mind that in the first years of their lives, dogs are especially vulnerable to the development of phobias, and exposing them to sounds like fireworks contributes to future fear responses that they might not otherwise have had. It has been estimated that one in two dogs has significant fear reactions to fireworks.

Cats:

The effects of fireworks on cats are less obvious, but their responses are similar to those of dogs, such as trying to hide or escape. However, regardless of the fear they have, they have a higher risk of being poisoned. Many cats who are near areas where fireworks are made ingest them or their parts. In addition, they can go blind or be seriously injured by the explosions of fireworks.

Horses:

Horses can easily feel threatened by fireworks due to their hypervigilance since they are constantly on high alert due to possible predators. Horses also act quite similarly to dogs and cats, showing signs of stress and fear, and trying to flee or escape. It is estimated that 79% of horses experience anxiety because of fireworks, and 26% suffer injuries from them. Sometimes they react to fireworks by trying to jump fences and flee to dangerous areas where they can be run over by cars.

Birds:

The noise of fireworks can cause birds tachycardia and even death by fright. The high degree of stress birds experience is indicated by the fact that birds may temporarily or permanently abandon the places where they are. Disorientation and panic from fireworks can cause birds to crash into buildings or fly towards bodies of water. The species of birds who nest in high densities, are at greater risk of this during explosions of fireworks. Many birds who flee from their nests due to the sounds do not know how to return to their nests once the noise ends, which leaves many of their young helpless.

Chairman Hoagland, Vice Chairman Johnson, Ranking Member Thomas, and members of the Senate Veterans and Public Safety Committee, thank you for receiving my testimony. Whether to legalize discharge of 1.4g fireworks may seem like a simple question, but I fear it could be deeply impactful to many Ohioans, their companion animals, and Ohio's wildlife who are just trying to live normal lives.

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