Testimony for LD 1323-An Act To Prohibit the Use of Neonicotinoid Pesticides and the Use and Sale of Neonicotinoid-treated Seeds

Senator Talbot Ross, Representative William Pluecker, and members of the Agriculture, Conservation and Forestry Committee,

My name is Jane Dunstan and I live in Newcastle on the banks of the Dyer Neck River in the picturesque Sheepscot Valley watershed. I began keeping bees 15 years ago rather serendipitously. While renovating my 230 year old farmhouse the carpenter noticed honey bees entering through a pine knot hole in a weathered shingle. The use of an infrared device detected a 3 ft by 3 ft area of bees with comb which had been constructed in the area between the outer and inner walls. In a heroic attempt to remove the bees in November so that renovations could continue, the bees were moved yet did not successfully overwinter in a modified environment. Feeling saddened by that failed attempt, I made the decision to become educated about honey bees and purchased equipment and bees the following spring, hoping to provide them with a legitimate environment in which to live. Fast forward to now and 40 colonies thrive on the pastures and fields surrounding my home, with rich farmland, wildflowers, lush vegetation and vernal streams that navigate through the Sheepscot watershed.

The scientific evidence regarding the risk and damage to not only honey bees, but bumble bees and native bees is well documented. My testimony will hopefully give you an intimate look at what happens when honey bees encounter neonicotinoids and bring them back to their colonies inhabited by their sisters and brothers. Honey bees are exposed to these toxic chemicals through pollen, nectar, dust, dew droplets on the leaves of plants and the soil where native bees nest.

I would like to tell you about the honey bee colony which is made up of a queen, a small percentage of drones or male bees (less that 20%) and female worker bees who comprise 80% of the total population. The average life span of a worker bee is about 35 days. Honey bees participate in different jobs within the hive based on a phenomenon called temporal polyethism which simply means division of labor based on age. As worker bees mature through their life span, they perform a wide variety of duties for the good of the community as a whole. Perhaps the most dangerous job is assigned to the older ladies who at 20 days old (half their lifespan) leave the colony for the first time to forage for nectar, pollen and water. Threats of birds, spiders, other insects, strong winds and a host of other natural occurrences threaten their lives each day; however, none of these are as potentially dangerous as visiting a flower to harvest pollen and nectar poisoned by a neonicotinoid which is absorbed by the plant thus making the plant itself and its gifts toxic. The unknowing forager then brings this toxin back to her colony unaware of the devastating effects it will have. The longstanding effects of these neonicotinoids remain in the plant which in turn potentially harm other pollinators who visit that same plant.

For honey bees in the hive who partake of the deadly gifts a number of sobering realities take shape:

-Bees who ingest toxic pollen or nectar may exhibit tremors or twitching caused by a surge of activity at the nerve cells and over stimulation which further impairs the honey bee's ability to control her movement. As a result, paralysis often follows which impairs the honey bee from flying effectively to either find food sources or return to their hive with food. Some immediately die.

Cognition is impaired by bees who ingest the toxin. Bees exhibit difficulty learning, remembering and navigating which is crucial in their plight to find reliable and beneficial food sources. For anyone who has ever witnessed the waggle dance, you know this is a complex activity which bees use to communicate with each other. By means of a dance, done in the dark, a scout bee describes precisely

where a valuable resource is by exact direction (degrees to the right or left of the sun) and distance. All this is accomplished by an insect with a brain the size of a sesame seed.

Flight and foraging are then negatively impacted which results in a deleterious effect upon the colony as a whole. Without a constant and safe source of nutrition, brood development is impaired leading to a decline in overall colony health.

Sublethal doses of neonicitinoids weaken the honey bee immune system which is necessary to combat viruses, diseases and the onslaught of the varroa mite.

You now have the visual in your mind's eye of the effects of neonicitinoids on honey bees.

As a beekeeper, I manage my colonies carefully. Hive inspections are performed regularly, alcohol washes done to assess varroa mite prevalence, treatments given, and manipulation made to provide more space or less space. While we have no control over weather or climate and its effect upon bees, we are ultimately responsible for habitat loss, the use of treated seeds and application of neonicotinoids.

Knox Lincoln County Beekeepers offer a bee school every February for seven weeks. While participants learn a tremendous amount of information about bees in the seven-week course, the key thread which weaves through all instruction is that of stewardship...the careful and responsible management of something entrusted to one's care. As an instructor I tell participants "They did not choose us, we chose them. In making that choice, you are called to be both vigilant and diligent in your care of them."

I care tremendously about my bees and the welfare of my colonies. They are blessed by being immediately surrounded by abundant and safe foraging resources. Not all bees are as fortunate. With a flight radius of up to 6.6 miles from their colony in dire situations to retrieve necessary resources (two to three miles more commonly traveled) bees may encounter potentially risky forage resources.

Picture 40,000 beings who live in absolute harmony with each other in such a small space. Each member has a role and purpose, which is performed perfectly for the good of the community. None of these creatures sleep and their wings stroke 11,400 times per minute. Despite having a brain the size of a sesame seed, bees have the capacity to learn and remember...to make calculations on distance traveled for efficiency in foraging.

Honey bees are amazing insects who play a vital role in our ecosystem and agricultural success. On behalf of honey bees, I would urge you to vote **Ought to Pass on LD 1323**.

Jane Dunstan
Newcastle, ME