

## Testify Re S325, Road Rule, Tier 3

Good Morning - Thank you all, for your willingness to listen to my comments. I hope you don't mind that I am reading from notes!

### Introduction -

My name is Li Shen. I have a background in Zoology, from that start I moved into a career in biomedical research. Now I am a citizen volunteer. I served on the Thetford Conservation Commission for 8 years, and was the chair for 6 years. I am also currently in my 10th year on the Thetford Selectboard.

-----I'm going to preface my remarks with some general comments;

Vermont is part of the Northeastern US temperate broadleaf and mixed forest. This is a globally significant forest and one of the world's most diverse temperate forest eco-regions. It provides critical ecological services including:- climate change mitigation, habitat biodiversity, and hydrological regulation - critical in light of two things - First: the extinction crisis in which the rate of extinction is ONE THOUSAND to TEN THOSAND times its natural rate, and Second: the increased flooding in VT.

One of the stated the Goals of Act 181 (see p.60 of the Statute) reads: "Vermont's forestlands should be managed

so as to maintain and improve forest blocks and habitat connectors.

In VT, roughly 5,000 acres of forest are converted to non-forest land uses PER YEAR. But what is equally insidious is the construction of roads and driveways penetrating once-intact forests that are critically important wildlife refugia. We assume roads do not affect the health of the forest because most trees are left standing. What we don't see are the effects of these intrusions on wildlife.

Surrounding every forest road or trail or driveway is a zone, referred to as a "corridor of influence." This has been extensively researched and documented - for instance by the NH Department of Fish & Game in their publication Trails for People & Wildlife, which applies to roads too. Within the Corridor of Influence, wildlife are stressed by human presence, which causes animals to alter their behaviors. They may even become alarmed enough to flee. Mammals become alert to human presence at a distance of 400 ft, birds at 150 ft, reptiles and amphibians at 60 ft. Because the corridor of influence extends on both sides of the road or driveway, each road or driveway creates a swath of disturbance 800 ft wide for mammals, 300 ft wide for birds and 120 ft wide for reptiles and amphibians.

The proposed Road Rule would allow up to 2000 ft of road plus driveway, before Act 250 would be invoked. Thus a 2000 ft long access into a forest would be allowed to

negatively impact an area of ONE MILLION, SIX HUNDRED THOUSAND square feet (that's two times 200 ft, on either side of a road, multiplied by 2000 ft) - this equals 36.7 acres of mammal habitat --- and this would not be regulated under the Road Rule in its current version.

For comparison an 800-ft long driveway or road, as in the original Act 250, impacts 14.7 acres.

When wild animals are flushed repeatedly it imposes an energetic drain that may be DEADLY in seasons of low food availability, such as in winter or in a drought. Studies show increased mortality under such conditions. Bird nests near roads and access ways suffer greater predation and birds are prone to abandon nests when there is repeated disturbance. Forest roads can force many species to avoid what would otherwise be desirable habitat for FORAGING or denning.

Roads also increase the introduction of non-native INVASIVE species that further degrade forest health and reduce biodiversity.

At the global level, invasive species are a LEADING cause of extinction. Access roads are often the first step towards parcelization and degradation of forest blocks, with the consequence of broad loss of habitat connectivity.

Parcelization also results in disjointed land lot ownership which impedes the practices of FORESTRY and timber harvesting.

The intent of the Road Rule is to encourage the clustering of rural development and to discourage habitat fragmentation caused by roads, by invoking Act 250 oversight for building roads (or roads plus driveways) beyond a certain length, currently 2000 ft. It does not mean people can't build roads for Tier 2 subdivisions.

Perhaps the Road Rule could be tweaked to curtail the hidden degradation of wildlife habitat caused by the "Corridor of Influence" surrounding a road.

Regarding Tier 3 - There has been a lot of misinformation about Tier 3, -- for instance VT Digger reported that a senator -- who was an organizer of the rally against Act 181, argued that the entirety of his Northeast Kingdom district would fall into Tier 3 and that a majority of Vermonters currently live in Tier 3 areas. That's not true. (Such fear-mongering is guaranteed to fuel the public mistrust referred to by an earlier speaker.)

In fact the area presently proposed for Tier 3 is shockingly small, between 4 and 8% of the state, -though a previous speaker claimed it is 11% - it all depends on what natural resources it finally includes. Much of what it contains consists of the most important wildlife road crossings and a small amount of buffer zone around them. And I have to challenge the statement from a speaker yesterday that the wildlife crossings mapped by the state are theoretical only.

In Thetford we hired a wildlife biologist to verify those crossings. All the ones identified on state maps were indeed used by wildlife, PLUS we identified several more. So I would say that the state maps underestimate the number of wildlife crossings.

In addition, because wildlife cross at places along roads that are densely vegetated and often forested, I'm not sure that a lot of those places in fact contain homes, as was claimed.

Under Tier 3, driveways, roads and house lots are still allowed in these habitat connectors. This does not do the wildlife crossing any good, but that is what is allowed - even though increasing those developments will act as a deterrent to wildlife trying to use these crossing points

Protecting wildlife crossings is justified and necessary, they are critical to allowing wildlife to move in response to accelerating climate change. The ranges occupied by wildlife - the areas that provide essential food, water, shelter and breeding terrain, are moving north at the average rate of ONE MILE per year due to climate change.

Tier 3 also includes the rarest natural communities and headwater streams. I would argue that soils maps showing hydric soils around headwater streams are not "faulty" - as claimed by a speaker yesterday. In fact, in my experience, soils maps are remarkably accurate. A soils

map showing a narrow finger of sandy soil, less than 100 ft wide on our parcel in fact, predicted exactly the location of that soil.

Protecting stream headwater zones, the areas surrounding the actual visible stream, is the foundation of water quality and ecosystem integrity. As stated by the EPA: "Headwater streams trap floodwaters (which is critically important in VT) , they recharge groundwater supplies, remove excess nutrients and pollution, provide fish and wildlife habitat, and sustain the health of downstream rivers, lakes and bays."

Stream headwaters are also biodiversity hotspots, they are unique habitats that support smaller life forms (amphibians, insects) that do not occur in larger streams. Please don't remove any stream headwaters from Tier 3.

I'm puzzled that Tier 3 doesn't include Vermont's valuable agricultural soils, or VT's very scarce undeveloped shoreline habitat, --and many exemplary natural communities are omitted. These resources ought to be safeguarded against further loss to land conversion and development. I'm also puzzled that there are no Tier 3 areas in or around downtowns and Village Centers and in Tier 1A and 1B areas. Critical habitats and rare natural communities can be anywhere - depending on under-lying geology and surface conditions --- and not on degrees of urbanization.

In wrapping up....

I applaud the efforts of the LURB who are steadfastly and carefully working to craft statute into rules, in the face of pressure, misrepresentation and fearmongering. I am dismayed at the degree of opposition from the Governor and I urge our legislators to stand by the Road Rule and Tier 3 and not retreat from these important aspects of Act 181.

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Reference: Trails for People & Wildlife:

<https://www.wildlife.nh.gov/sites/g/files/ehbemt746/files/inline-documents/sonh/trails-for-people-wildlife.pdf>

### **An Assessment of Road Impacts on Wildlife Populations in U.S. National Parks**

Rob Ament, Anthony P Clevenger, Olivia Yu, and Amanda Hardy

<https://largelandscapes.org/wp-content/uploads/2019/06/Assessment-Road-Impacts-on-Wildlife-in-Natl-Parks.pdf>

Tuscon Sentinel Jul 18, 2021

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## Maine DOT: Conserving Wildlife on and Around Maine's Roads