SCORE:001305
SLOW
Roads
An Inconvenient Death / A Leading Cause of Amphibian Mortality
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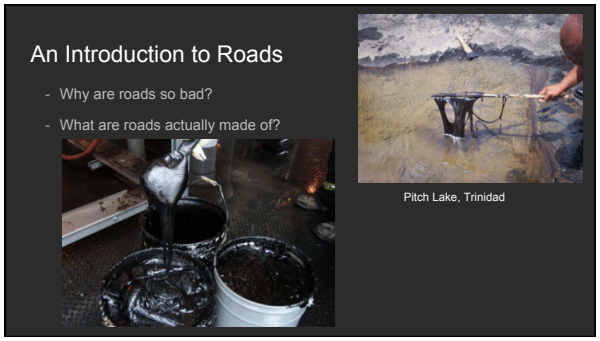
TIME
HIGH SCORE:001535

Roads in the US
6.3 million km of roads in U.S. (USDT 2002)
4.8 million ha of land and water bodies removed
Cover 1% of the U.S.
Influence 15 to 20% of U.S. land area
16% total land area in lower 48 is within 100 m of a road

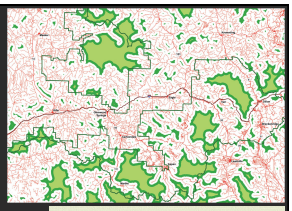

An Introduction to Roads
- Why are roads so bad?
- What are roads actually made of?
Pitch Lake, Trinidad

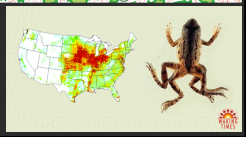
Direct effects

- Creates barriers
- Restricts water levels
- Individual deaths from road construction or hit-and-runs
- Restricts and interrupts movements
- Species richness
- More exposed/visible to predators
- Lower success at breeding sites

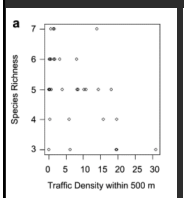
Indirect effects

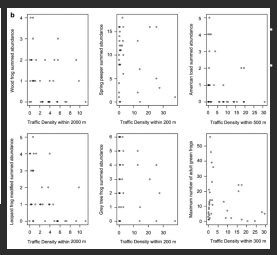
- Temporal and spatial variation in movements
- Chemical alteration of the environment
- Isolation of subspecies and subpopulations (gene flow)
- Population stability (more tolerant species can outcompete others)
- Difficult to quantify due to lack of data





Eigenbrod et al. 2005 study





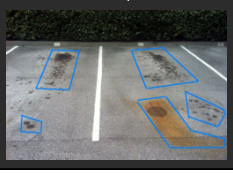
- Negative correlation between traffic density and species richness
- Decrease in abundance of six common species with an increase in traffic density

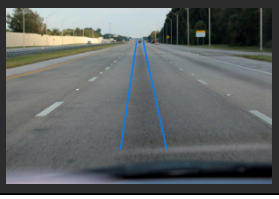
Contributing Factors to Non-Vehicular Deaths

Roads affect more than just amphibian movements and the lack there of (squishing)

Non-porous materials

Concentrates other pollutants





Mitigating the Problem

Research (need more long-term studies/surveys)

Drift fencing system aka "amphibian tunnels"

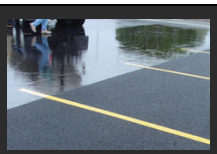
Possible Solution: Porous Asphalt

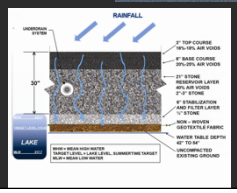
Asphalt rests on a stone bed

- Must be 18-36 inches deep

Allows water to be absorbed

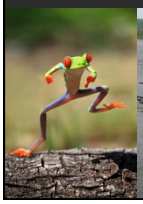
Has a long life span





It's the primary cause of mortality because…

Roads, unlike disease or bacteria, cause both direct and indirect mortality.



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Questions