

# Roads and Urbanization

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## Lecture Outline

- Impacts of roads on Amphibians
- Impacts of urbanization on Amphibians
- Future Direction

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## Outline of Road Impacts



- Roads as Barriers
- Road Mortality
- Possible Solutions
- Additional Problems with roads

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### Roads as Barriers

- Fragmentation
- Movement Barriers:
  - To breeding grounds
  - To more suitable habitat
  - To Life

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### Amphibian Decline

- Road Mortality coupled with habitat fragmentation is a potential contributor to amphibian declines

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### Road Mortality

- 95% of 10,515 road-kill animals were amphibians in one study.
- 1,671 were bullfrogs
- Many specimens were not identified
- Mass migrations to breeding grounds
- Bullfrogs are also predators of other species

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**Possible Solutions**

- ???
- Drift fences utilizing existing culverts
- EcoPassage
- Not aesthetically pleasing

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**Drift Fence**



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**Ecopassage**



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**PARC Ideas**

- New roads minimized
- Take habitat and migration into account
- Minimize soil erosion
- Seasonal road closures

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**Additional problems with Roads**

- Oil leaked from cars
- Exhaust from cars
- Others
- Salt (NaCl) used as a de-icer
  - See Abstract

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**Outline of Urbanization**

- Major Problem
- Other Problems
- Possible Solutions

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**Major Problem**

- Urbanization causes habitat loss and fragmentation, thus it is a potential factor in global amphibian declines

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**Other problems with Urbanization**

- Contaminants
- Eutrophication
- Alterations in hydrology

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**Possible Solutions**

- Natural areas
- Riparian zones, wetlands, and other special habitat
- Native species
- Garden pools

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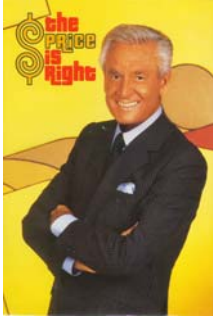
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**Possible Solutions**

- Spay and neuter, and keep indoors



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**Future Research**

- Know that it has a negative impact on Amphibians
- Don't know much about solutions
- In the future focus on the impact of solutions

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Questions?

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