Livestock and Amphibian Decline

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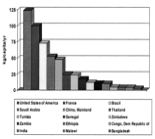
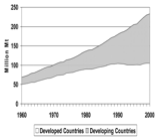
Outline

- Introduction
- Negative Effects of Livestock
- Evidence
- Why most important?

Introduction





- Livestock numbers increasing/ Amphibian numbers decreasing
- Livestock range increasing/ Amphibian habitat decreasing
- "The Food and Agriculture Organization of the United Nations (FAO) data show that livestock production is growing rapidly, which is interpreted to be the result of the increasing demand for animal products. Since 1960, global meat production has more than trebled, milk production has nearly doubled and egg production has increased by nearly four times. This is attributed partly to the rise in population"

(Speedy, 2003)

Negative Effects of Livestock

examiner.com

blog.nature.org

- Livestock trample egg masses
- Water temperature increased
- Erosion

Negative Effects of Livestock

uri.edu

blisterfree.wordpress.com

- Compaction of soil
- Loss of vegetation
- Urination and defecation produce nitrogenous waste which negatively effects post metamorphic recruitment on amphibians
- Fecal coliform bacteria and streptococcus bacteria

Negative Effects of Livestock

vnpa.org.au

- Habitat Fragmentation

Negative Effects of Livestock

pateblog.nma.gov.au

- Degrades riparian zone

Evidence

- "A 1994 U.S. Forest Service report concluded that livestock grazing was the 4th major cause of overall species endangerment and the 2nd major cause of plant endangerment" (Belsky et al. 2002).
- "An analysis of 54 scientific papers on the impacts of grazing on lands in the west between 1945 and 1996 found that total vegetation biomass (weight of vegetation per hectare of land) was detrimentally affected by grazing in comparison to non-grazed plots in 91% of the observations made by biologists" (Jones, 2002).

Evidence

- Cattle farming has an impact on larval stage amphibians "by decreasing water quality through deposition of nitrogenous waste, causing eutrophication, and grazing shoreline vegetation that contributes to detrital cover and food."

(Shumutzer, Gray, and Burton, 2008)

Evidence

- "Farm ponds often represent the only habitat available for breeding and larval development"
  (Knutson et al.2004)
- "Shoreline vegetation grazing negatively effect post metamorphic amphibians by reducing foraging sites and escape cover"
  (Healey et al.1997, Jansen and Healey 2002)

Why Most Important?

- World human population in 1970 was 3.9 billion and in 2015 it increased to 7.0 billion.
  (US Census)
- As the human population increases, so do livestock populations.
- Livestock trends will not change due to revenue.

Why Most Important?

- Diseases can be cured
- Pathogens can be controlled
- Amphibian have survived through many climate changes
- 260 million acres of BLM and US Forest Service land grazed annually (conservation and preservation lands)
  (Wuerthner and Matteson, 2002)

Why Most Important?

Research References

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6) Speedy AW. Global production and consumption of animal source foods. J Nutr 2003;133:4048S–53S.

Picture References

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4) pateblog.nma.gov.av
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6) vnpa.org.au