

INTRODUCED SPECIES

By: Melissa Henney
Major: Wildlife and Fish w/ concentration in wildlife health

OVERVIEW

- What is an introduced species?
- How does it cause declines or die offs?
- What are some introduced species?

WHAT IS AN INTRODUCED SPECIES?

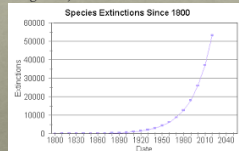
- Also called alien species, they have been moved by humans to an environment where they do not naturally occur.
- Get here by shipping for the pet trade, research, bait etc.
- Or released into the wild and they thrive



picture: <http://www.california>

IMPACTS ON AMPHIBIANS

- Direct Affect
 - Predation, competition for food and living space, bring disease
- Why is this the most important factor?
 - Causing great declines and extinctions (Vredenburg 2004)



IMPACT: CANE TOAD IN AUSTRALIA

- This study looked at the affect of Cane toad's in Australia
- They used a field enclosure to look at the Cane toad interaction with the
- The results: cane toad's are much bigger than native frogs, took up a lot of the land the frogs needed
- Cane toads were eating the frogs



(Greenlees, et al, 2006)

Picture: <http://www.natureworldnews.com/articles/2777/20130703/deadly-cane-t-nearly-wiped-out-dwarf-crocodile-population-australia.htm> and <http://wetlandinfo.ehp.qld.gov.au/wetlands/ecology/components/species/tiloria-dahili>

IMPACT: DISEASE AND BULLFROGS

- Study took place in China
- China did not have Chytrid fungus
- They went to 5 different sites and tested bullfrogs and native species
- Results: introduced bullfrogs infected China with BD
- These bullfrogs came from the US and went to China and Taiwan
- From China they then exported to Europe, Mexico, Malaysia



(Bai, et al, 2010)

Picture: <http://www.marylandzoo.org/animals/conservation/amphibians/african-bullfrog/>

YELLOW-LEGGED MOUNTAIN FROG

- Found all around Sierra Nevada and Southern California
- Trout were introduced into the water at a high elevation
- These frogs are now extinct in 93% of their old homes
- The trout eat the tadpoles, and juveniles



(Vredenburg 2004)
Picture: <http://www.myfrog.info/threats/introducedfish.html>

EXAMPLES OF INTRODUCED SPECIES

- Bullfrogs and mosquitofish are having great effects on the Red-legged frog
(Lawler, et al, 1999)
- The Puerto Rican Coqui was introduced into Hawaii
(www.nwf.org)
- African Clawed Frog introduced in the United States
(wdfw.wa.gov)



Picture: <http://www.sccgov.org/sites/vector/Pages/mosquitofish.aspx>



PICTURE CITATIONS

- <http://www.mylfrog.info/threats/introducedfish.html>
- <http://www.marylandzoo.org/animals-conservation/amphibians/african-bullfrog/>
- <http://www.natureworldnews.com/articles/2777/20130703/deadly-cane-t-nearly-wiped-out-dwarf-crocodile-population-australia.htm>
- www.californiaherps.com/frogs/pages/1.catesbeianus.html
- <http://www.sccgov.org/sites/vector/Pages/mosquitofish.aspx>

CITATIONS

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- Greenless, M., Brown, G., Webb, J., Phillips, B., & Shine, R. (2006). Effects of an invasive amuran [the cane toad (*Bufo marinus*)] on the invertebrate fauna of a tropical Australian floodplain. *Animal Conservation*, 431-438.
- Lawler, S., Dritz, D., Stange, T., & Holyoak, M. (1999). Effects of Introduced Mosquitofish and Bullfrogs on the Threatened California Red-Legged Frog. *FWS*, 613-622.
- Puerto Rican Coqui - National Wildlife Federation. (n.d.). Retrieved April 15, 2015, from <http://www.nwf.org/wildlife/wildlife-library/amphibians-reptiles-and-fish/puerto-rican-coqui.aspx>
- Vredenburg, V. (2004). Reversing Introduced Species Effects: Experimental Removal Of Introduced Fish Leads To Rapid Recovery Of A Declining Frog. *Proceedings of the National Academy of Sciences*, 101(20), 7646-7650.

QUESTIONS?