

Transportation, Globalization, and Widespread Havoc

Student Group #11

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[Heathrow Airport ad](#);
[Infant in a car seat on an airplane](#);
Any photo of flight attendants.

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[Poster, Imperial Airways](#);
[Leonardo DiCaprio, *Catch Me If You Can*](#).



Harsh Treatment of Chinese Immigrants During the 19th Century

Transcontinental Railroad

- Wanted to connect Western states to Eastern ones
- “Manifest Destiny”
- 1st **Pacific Railway Act** was passed on July 1, 1862



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Starting the Build

- "Fifty Chinese were hired [at first]. They were hauled to the end of the track. They disembarked, glanced without curiosity at the surrounding forest, then tranquilly established camp, cooked a meal of rice and dried cuttlefish, and went to sleep. By sunrise, they were at work with picks, shovels, and wheelbarrows. At the end of their first twelve hours of plodding industry, Crocker and his engineers viewed the result with gratified astonishment."

Chinese vs. White Workers

Chinese Workers

- Chinese people only made \$25 a day
- Drank boiled tea
- Washed and put on clean clothes every day
- Sent money home to families
- Reliable

White Workers

- White people made \$35 a day
- Drank out of puddles
- Hardly ever bathed
- Spent money on hookers and gambling
- Drank and fought at work
- Often quit when they got to gold mines

Job Description

- Average Chinese man was 4'10" and weighed 120lbs.
- Had to handle 80 lb. ties and 560 lb. rail sections
- Organized into labor crews of 12 to 20 men
- Three shifts of 8 hours a day 7 days a week

Photo by [David McMahan/US Fish and Wildlife Service](#).



Desert Hardships

Averaged over a mile a day

worked in 120 heat

breathed alkali dust

bled constantly from the lungs

Mountain Hardships

- ❑ Sierra Nevada Mountains
- ❑ 8 inches a day
- ❑ 7000 ft incline in 100 mi
- ❑ Up to 40 feet of snow during winter
- ❑ Camps were swept away by avalanches
- ❑ Many didn't see daylight for months



Photo by [Jeffrey Burton/NPS](#).

Accidents

"Dynamite was used to blast a rock cave. Twenty charges were placed and ignited, but only eighteen blasts went off. However, the white foreman, thinking that all the dynamite went off, ordered the Chinese workers to enter the cave to resume work. Just at that moment the remaining two charges suddenly exploded. Chinese bodies flew from the cave as if shot from a cannon"

Asian Carp: a Highly Invasive Species

Image removed due to copyright restrictions. Please see any image of *Hypophthalmichthys molitrix*, the [silver carp](#).

Asian Carp Invasion 1997-2006



Maps from USGS.

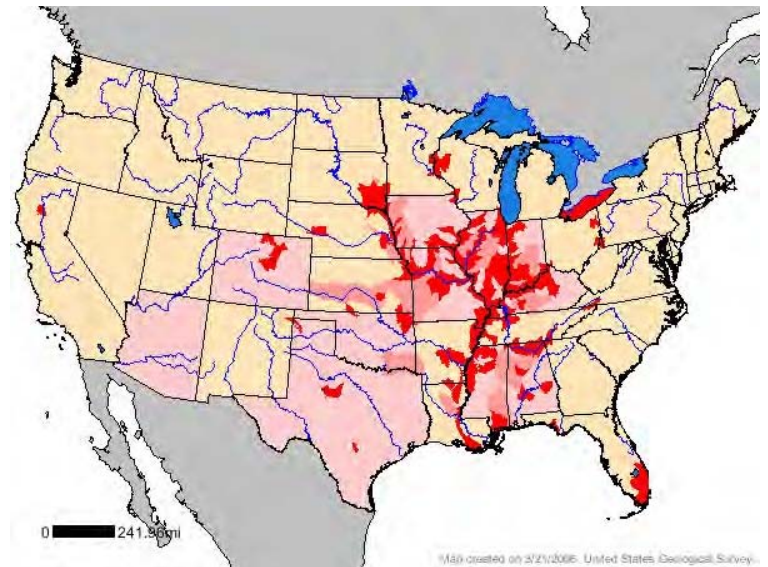


Photo removed due to copyright restrictions.
Please see any photo of large carp ([example](#)).

Photo by US Fish and Wildlife Service.



What makes Asian Carp so invasive?

- Size
- Diet
- Ability to travel quickly

Resistance to Spread of Asian Carp

- Electric fish barrier
- Dumping toxins into Chicago Sanitary and Ship Canal

Photo removed due to copyright restrictions.
Please see William DeShazer, "[Toxin dump](#),"
Chicago Tribune, December 3, 2009.



Courtesy of Phil Moy. Used with permission.

Dangers of Asian Carp

Image removed due to copyright restrictions. Please see any image or video of jumping Asian carp, such as: natureconservancy. "Tracking Asian Carp in the Mississippi." January 19, 2010. YouTube. Accessed July 7, 2010. http://www.youtube.com/watch?v=h_UjXsf3EDs

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- Endanger native fish, plant life, mollusks, and waterfowl
 - Affect commercial fishing industry
 - Danger caused by jumping
 - Spread to Canada



Photo by [planegeezer](#) on Flickr.

Air Travel and the Spread of Disease



LC-USZC4-4188

Let's Go Way Back...

- Age of Exploration (15th-17th centuries)
- European explorers brought diseases such as Smallpox and Tuberculosis to the New World (Columbian Exchange)
- Europeans had developed antibodies for these diseases because they had been around for centuries, but the native populations in the New World had never previously been exposed to them
- Two-way Exchange: Columbian Theory of Syphilis

Flash Forward...

- 39 new pathogens now exist that did not a generation ago
- Diseases of Recent Concern:
 - Tuberculosis
 - Meningitis
 - Measles
 - SARS (2002-2003)
 - Influenza
 - Avian Flu: H5N1 (2005)
 - Swine Flu: H1N1 (March/April 2009-present)

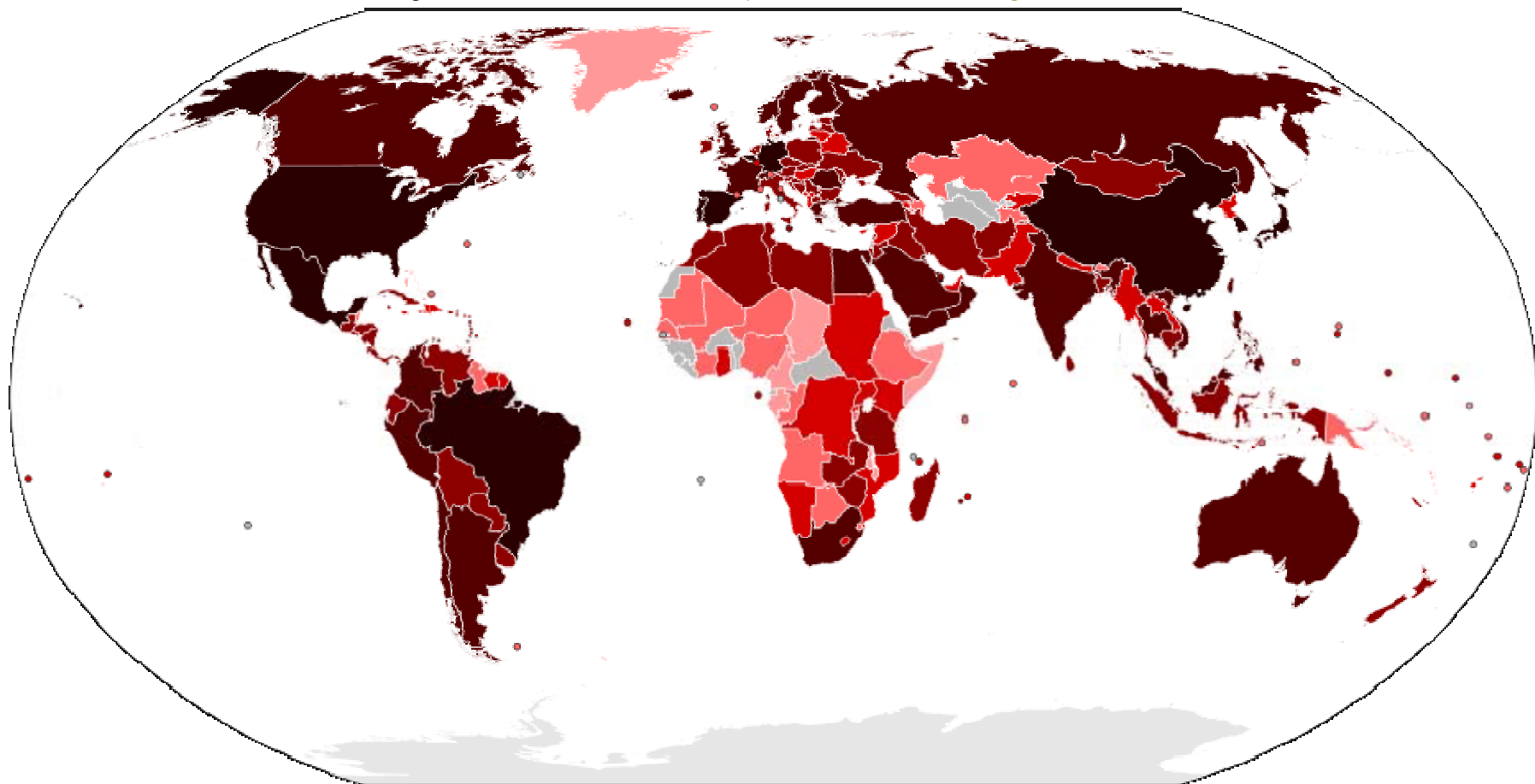
Airline Travel and the Spread of Influenza

- Estimated 2.1 billion airline passengers travel per year
- Study performed between 1996-2005 proved:
 - A relationship exists between air-travel volume and pneumonia and influenza mortality in the U.S.
- Inverse correlations observed in the fall months, found between:
 - U.S. domestic air-travel volume and time to transnational influenza spread
 - timing of an influenza season and the volume of international air travel

Path of Disease Transmission

Image removed due to copyright restrictions. Please see Fig. 1 in Khan, Kamran, et al. "Spread of a Novel Influenza A (H1N1) Virus via Global Airline Transportation." *New England Journal of Medicine* 361 (July 9, 2009): 212-214.

Image from Wikimedia Commons, <http://commons.wikimedia.org>



Current Reported Cases of Swine Flu

International Travelers May Be Asked To...

- Have your temperature taken with an oral or ear thermometer, or via body temperature scanner
- Fill out a sheet of questions about your health
- Review information about the symptoms of H1N1
- Give your contact information
- Be quarantined for a period of time if a passenger on your flight is found to have symptoms of H1N1
- Contact health authorities in the country you are visiting to let them know if you become ill

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Temperature Scanning Procedure

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["Fièvre."](#) *Un oeil sur la Chine*, June 11, 2009;

["Thermal Scanners Hunt for Swine Flu."](#) *TIME*, May 1, 2009;

["Swine Flu Outbreak Dampens World Markets."](#) *San Francisco Sentinel*, April 27, 2009.

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Brown Tree Snakes and Guam

A link between Globalized Transportation and undesirable ecological side-effects

Brown Tree Snake

Boiga irregularis

- Arboreal
- Weakly Neurotoxic and Cytotoxic
- Nocturnal
- Aggressive
- Normally 1 to 2 Meters Long

Brown Tree Snake

Boiga irregularis

Image from Wikimedia Commons, <http://commons.wikimedia.org>



Brown Tree Snake

Boiga irregularis

Photo by [Ann Hudgins/US Fish and Wildlife Service](#).

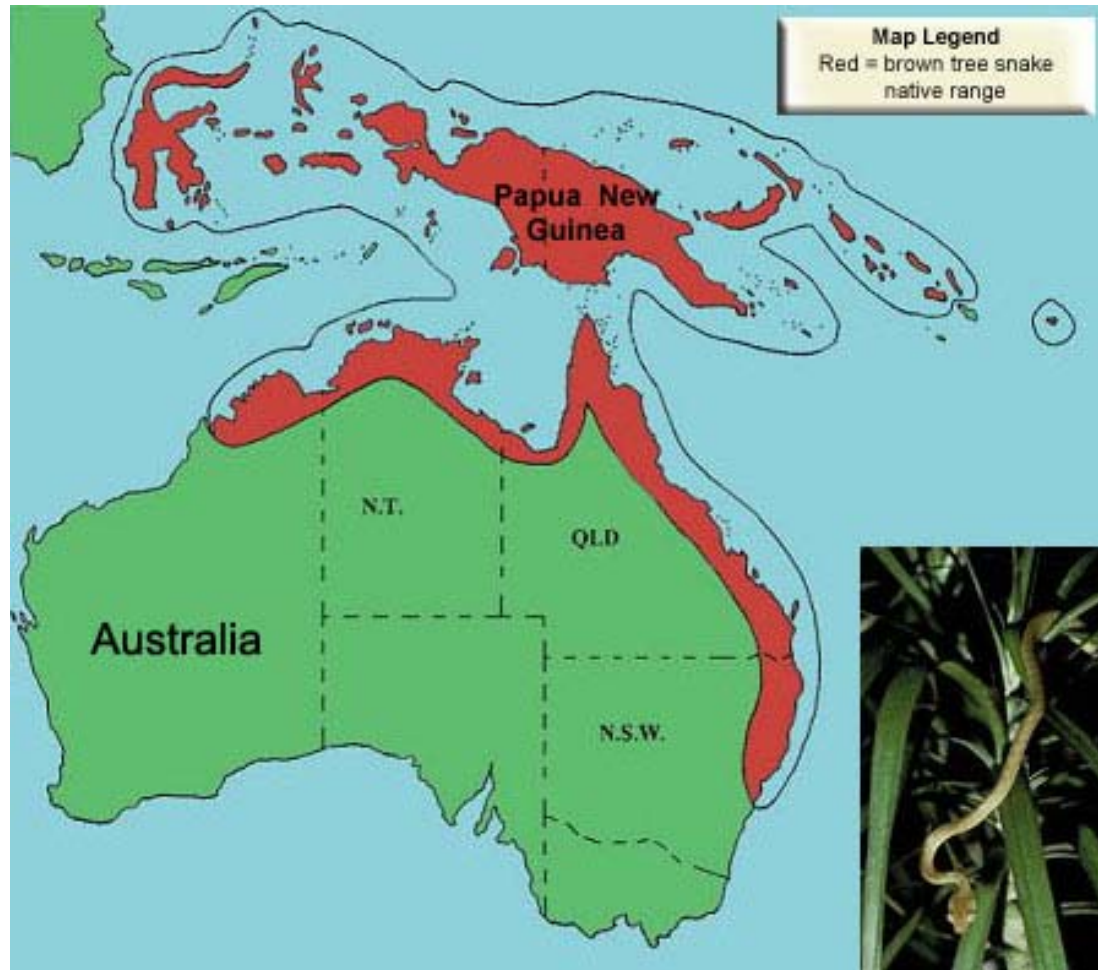


Photo by [Vermin Inc](#) on Flickr.



Photos of a [Guam rail](#) and [lizard](#) removed due to copyright restrictions.

Image by [USGS](#).



Brown Tree Snake

Boiga irregularis

Guam



Image from [Terraprints](#).



Image from CIA Factbook.

Guam

The Problem

- Unintentionally brought over from Australia ca. 1952 by the American military
- Unloaded along with cargo transported on cargo ships and planes

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Please see [*Snakes on a Plane*](#), 2006.

The Problem

- Brown Tree Snakes took to the island and proliferated greatly in a matter of years
- Prior to the Brown Tree Snake, the only snake on Guam was the Blind Snake

The Problem

- Brown Tree Snakes have decimated native bird and rodent populations on Guam
- Most of the original forest bird species has become extinct; lizards are next
- What solutions are there?

The Problem



Photo by [Bilby](#) at Wikimedia Commons.

Photo by [Gordon H. Rodda/U.S. Fish and Wildlife Service](#).



The Problem

- Guam can't introduce another species to control snake populations
- They don't want to disturb the ecology further

What Now?

- Guam has decided to control the snakes by trapping, lighting, poisoning and habitat manipulation

What Now?

- In the meantime, the snakes continue to
 - Eat native species
 - Eat pets
 - Cause electrical outages
 - Disrupt military exercises
 - Prevent reproduction of trees

Guam and Beyond

- Guam is an important Southern Pacific Hub for trade
- This increases the chances for the Brown Tree Snake to spread to other areas

Guam and Beyond

- Brown Tree Snakes have commonly been seen falling out of aircraft landing gear upon takeoff
- Some snakes manage to stay on the departing plane
- Now snakes have been sighted in places such as Wake Island, Hawaii, Okinawa, and Texas

Conclusion

- Transportation within an increasingly Globalized world has obvious benefits to commerce and trade
- However, it is becoming clear that more precautions must be taken in order to prevent unintended side-effects, such as species extinction and disruptions

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