

Restoration of riparian vegetation in the Hunhe River basin, Liaoning, China

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Acknowledgements

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Outline

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1. Introduction
2. Situation & Problems
3. Solutions
4. Application

Introduction

What is conservation biology?

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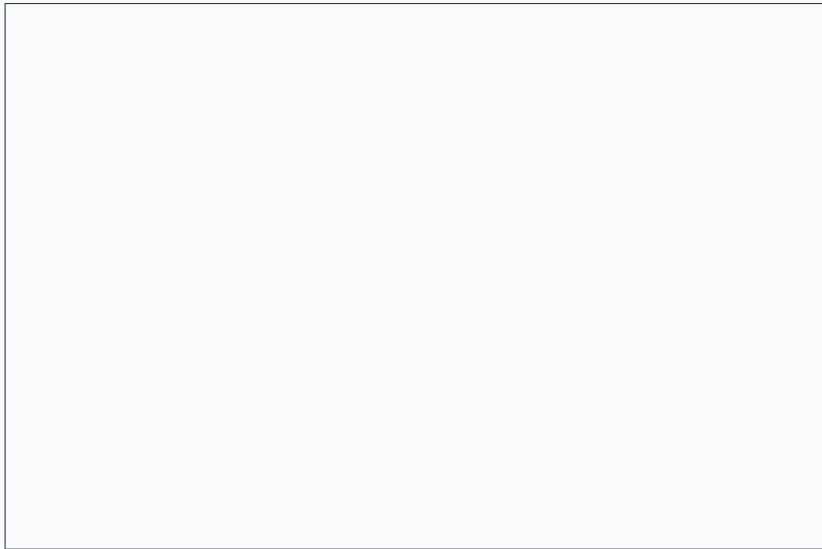
It has two central goals

- to evaluate human impacts on biodiversity
- to develop practical approaches to prevent the extinction of species[2] (Soulé 1986, Wilson 1992)

We are losing biodiversity

- Modern extinction rates are at 100 to 1000 times greater than background extinction rates calculated over the eras [1]
- Existing species go extinct at a rate 1000 times that of species formation*
- The primary cause of today's loss of biodiversity is habitat alteration caused by human activities

Deforestation in Amazon



Proportion of population using improved drinking water sources (%), 1990

figures/Global_water_1990.png

Proportion of population using improved drinking water sources (%), 2000

figures/Global_water_2000.png

Proportion of population using improved drinking water sources (%), 2015

figures/Global_water_2015.png

Proportion of population using improved sanitation facilities (%), 1990

figures/Global_sanitation_1990.png

Proportion of population using improved sanitation facilities (%), 2000

figures/Global_sanitation_2000.png

Proportion of population using improved sanitation facilities (%), 2015

figures/Global_sanitation_2015.png

Surface water quality in China

figures/Global_sanitation_2015.png

Water quanlity of China's lakes

figures/Global_sanitation_2015.png

Situation & Problems

Situation

Current situation

- Water source of city group in the lower reaches
- 110km^2 , 7 bil. m^3 water for 12 mil. people per year

Mian problems

- River bank damaged, riparian vegetation destroyed
- Wetland degraded, soil and water conservation capacity decreased
- Water-conservation-stands (WCS) structure single and simple, ecological functions lost
- Water pollutants: $\text{NH}_3\text{-N}$ (9.73 mg/L, 3.87 times higher) and TP (0.84 mg/L, 1.1 times higher)

Solutions

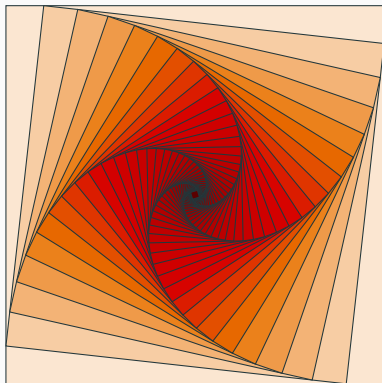


Figure 1: Rotated square from texample.net.

Table 1: Largest cities in the world (source: Wikipedia)

City	Population
Mexico City	20,116,842
Shanghai	19,210,000
Peking	15,796,450
Istanbul	14,160,467

Blocks

Three different block environments are pre-defined and may be styled with an optional background color.

Default

Block content.

Alert

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Example

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Application

Demonstration projects

There were three demonstration projects.

Take home message

The study was successful. But it was expensive.

Questions?

Thanks for listening!

Personal thoughts

Conservation is very complicated. It involves many things and corporation.

References i



C. Hambler and M. R. Speight.

Extinction rates and butterflies.

Science, 305(5690):1563–1565, 2004.



E. O. Wilson.

The diversity of life.

Cambridge, Mass.: Harvard University, 1992.