



Japanese Knotweeds Effect on Erosion Rates in Riparian Corridors

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Japanese Knotweed

(*Fallopia japonica*)

- Member of buckwheat family
- Native to Eastern Asia
- **Habitat:** Along streams and rivers, in moist low-lying and disturbed areas.
- Introduced to the U.S. as an ornamental on estates in the 1800s



Why is it a problem?

- Rhizomal propagation
- Fragile root structure
- Allelopathic properties
- Monoculture



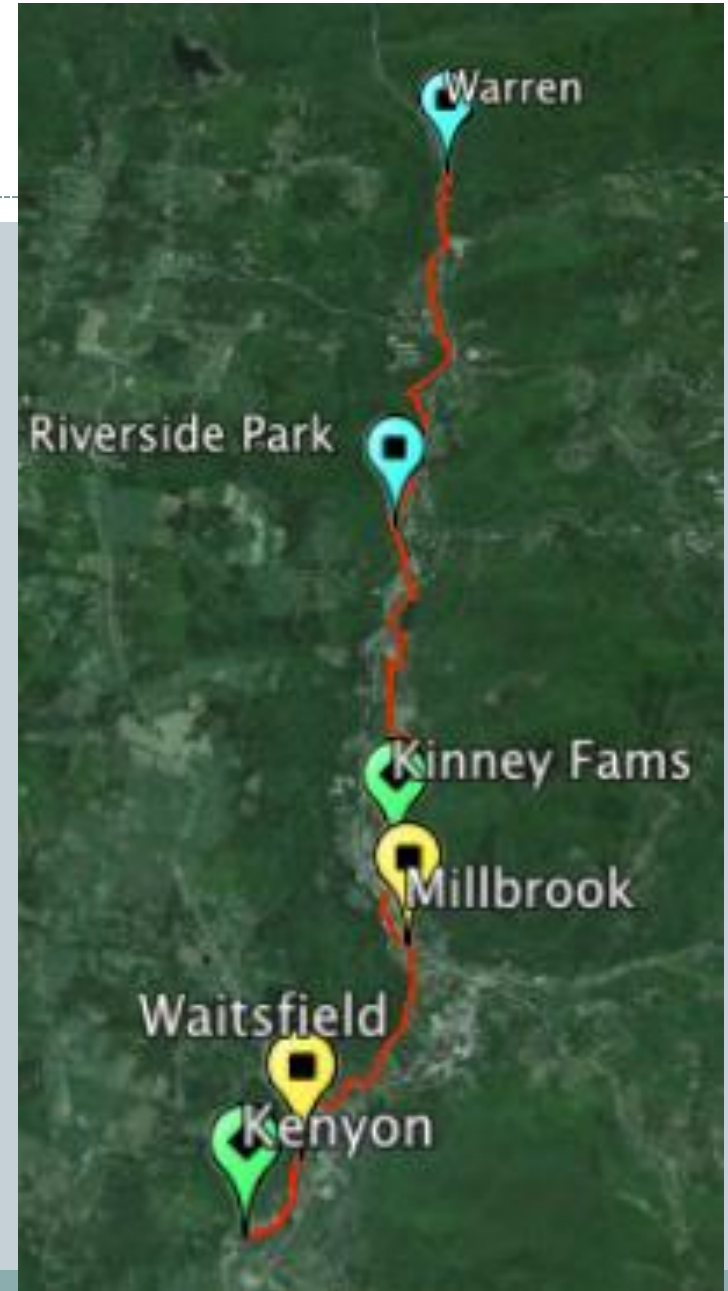
Hypothesis



**JAPANESE KNOTWEED WILL
INCREASES THE RATE OF EROSION
IN RIPARIAN CORRIDORS DUE TO
ITS ALLELOPATHIC PROPERTIES
AND FRAGILE ROOT STRUCTURE.**

Site Locations

- Mad River
- 3 different buffers
 - 2- Knotweed
 - 2- Forested
 - 2- Bare Bank
- All eroding river banks
- 10 mile long transect



Methods

- Erosion Pins = 2 ft long rebar
- 5 Pins hammered into eroding bank
- Covered a width of 5m
- Measure receding bank
 - Periodic interval or after rain storm



Results

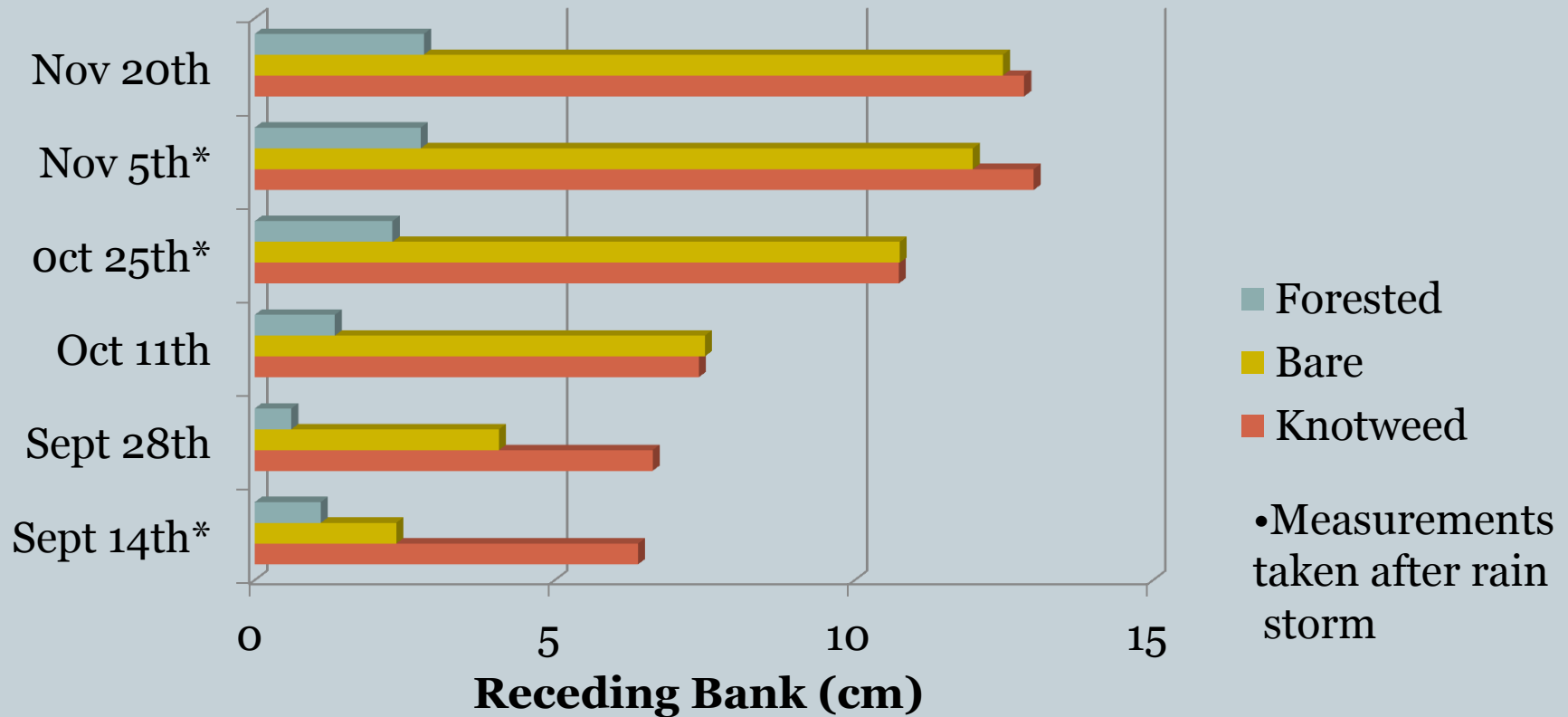


Figure 1: Receding bank measurement over time compared to three different buffer types.

Rate of Erosion

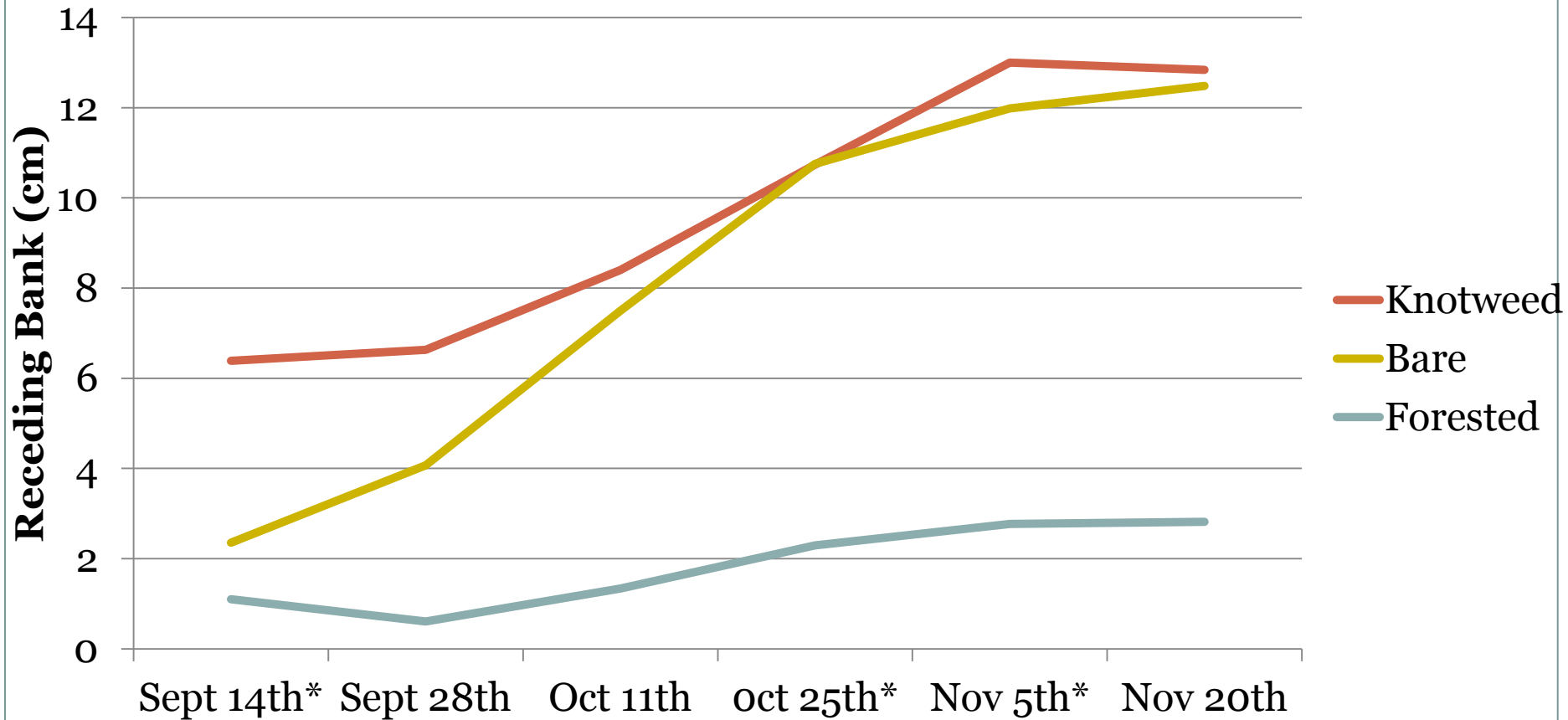


Figure 2: Rate of stream bank erosion compared to different vegetative buffers.

Erosion in Bank Profile

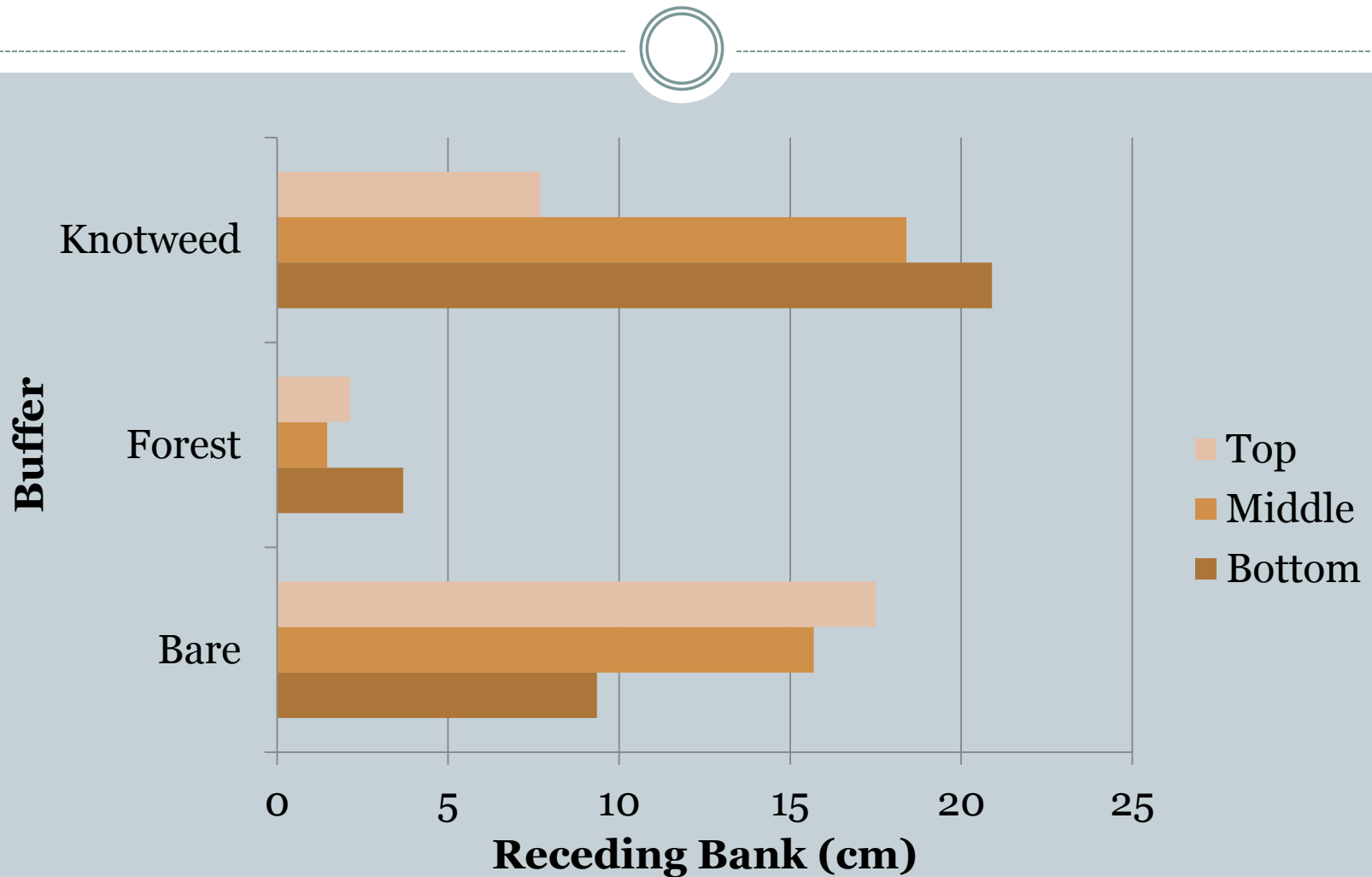


Figure #3: Shows the difference in erosion locations compared to vegetative buffer



Source of Error



Statistics:

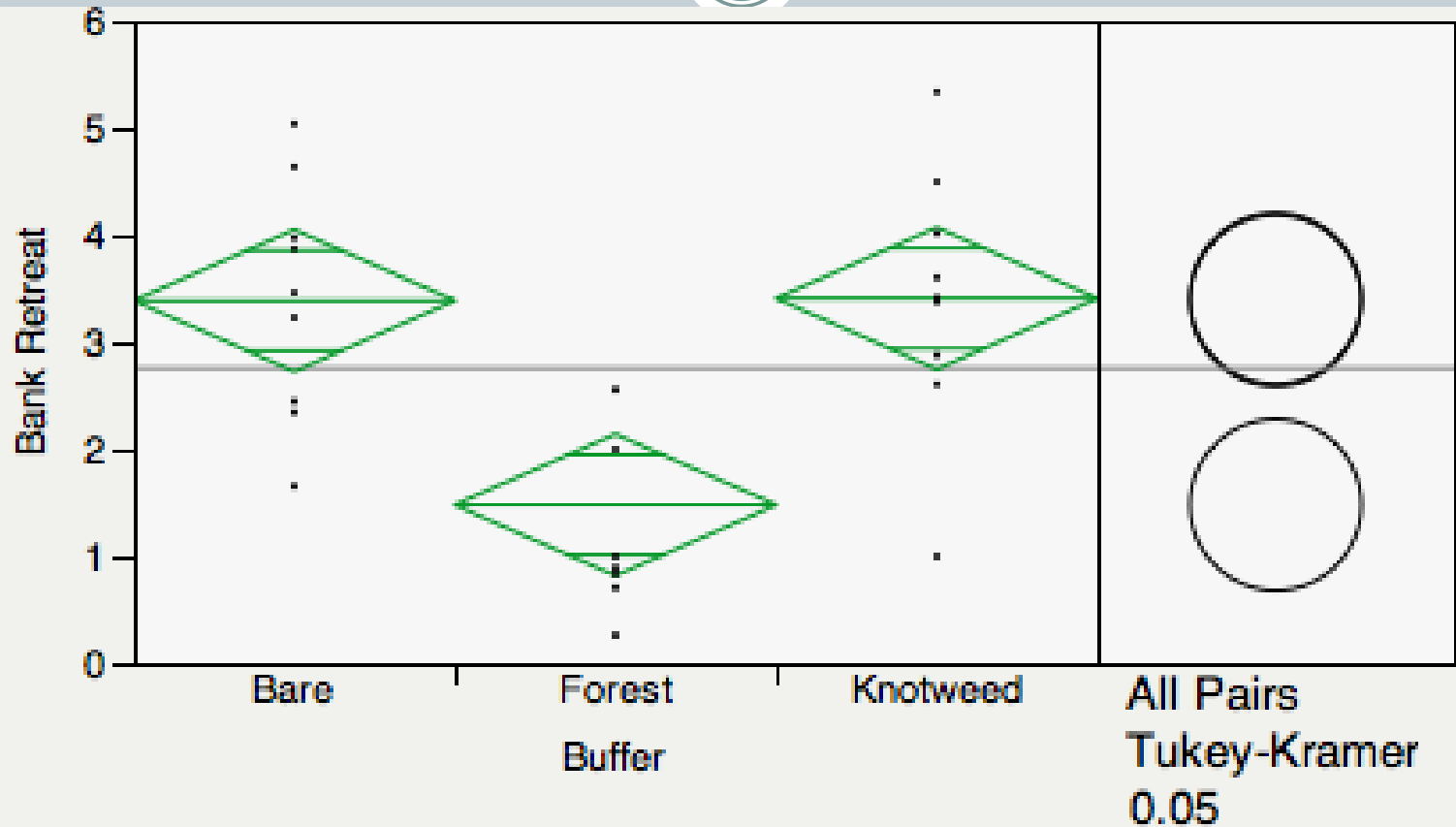


Figure #3: Oneway ANOVA determined that there is a statistical difference in bank retreat between buffer types ($F_{(2,271)}=11.7713$, $P=0.0002^*$). The Turkey-Kramer means comparison also determined that both a bare stream bank and Japanese Knotweed buffer are significantly different than a forested buffer.

Conclusion



**JAPANESE KNOTWEED DOES INCREASE THE RATE OF
EROSION AND SHOULD BE HELD TO THE SAME
URGENCY OF RESTORATION AS A BARE BUFFER .**



References



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Questions

