Land-Cover Disturbance Increase due to Urban Development

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How is land-cover change disturbed due to urban development over the course of a year?

Introduction

- When houses are built, through urban development, original greenery and land-cover are cleared or disturbed
- Little land-cover that is present before development is still present after.
- Physical, chemical, and biological changes to sediment, habitat, geomorphology, and grundwater. (Karamouz et al.)

Figure 1 (above): A) Urban Development at West Stroh Gulch, CO. B) Undisturbed Land-Cover. C) Disturbed Land-Cover.

Methods

- Monitoring land-cover disturbance throughout development process
- Drone and satellite images were captured months apart and digitized, in a mapping software, with their varied levels of disturbance
- The areas of disturbance were then calculated and compared

QGIS

Results

- The progression of the urban development was positively correlated with land-cover disturbance.
- Over time, from March 2023 to February 2024, the land-cover at the site became increasingly disturbed

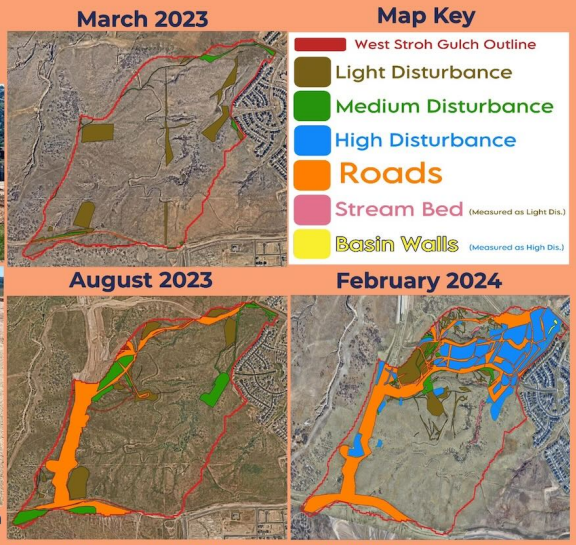
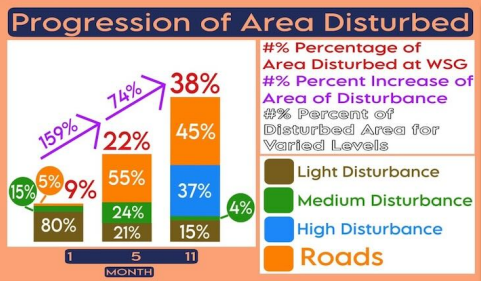


Figure 2 (above): Aerial images with digitized levels of disturbance.



Discussion

Inspiration: Watersheds in Clarksburg, Maryland, USA (Hopkins, 2019).

- Planning for hydrological events, ike flooding
- Urban development practices that incorporate preservation
- Improve water management

Future: This study can be continued throughout the development and expanded to incorporate hydrologic change.

Conclusion

This study is an example of the increasing percentage and area, by square meter, of a development site disturbed in the first year, and allows comparison between months one, five, and eleven of urbanization.

Contact Information

QR code directs to a PDF with Anacarina Acuña's email, social media, and additional info.

SCAN ME

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