



# Effect of record-breaking rainfall on the spread of Oriental Bittersweet in the Bellamy River watershed

Jessica S. Graustein, Yanzhe Jerry Chen, Minghao Max Ye

## BACKGROUND

Oriental Bittersweet (*Celastrus orbiculatus*) is an invasive liana that girdles and overtakes trees, making them susceptible to windthrow, which in turn disrupts the soil and promotes erosion.



By the end of Summer 2023 after record-breaking rainfall, new lianas seemed to be popping up everywhere. Since the PCA campus drains into a tributary of the tidal Great Bay of New Hampshire, it was important to assess OB presence and spread so that control measures could be implemented in the most efficient manner possible.

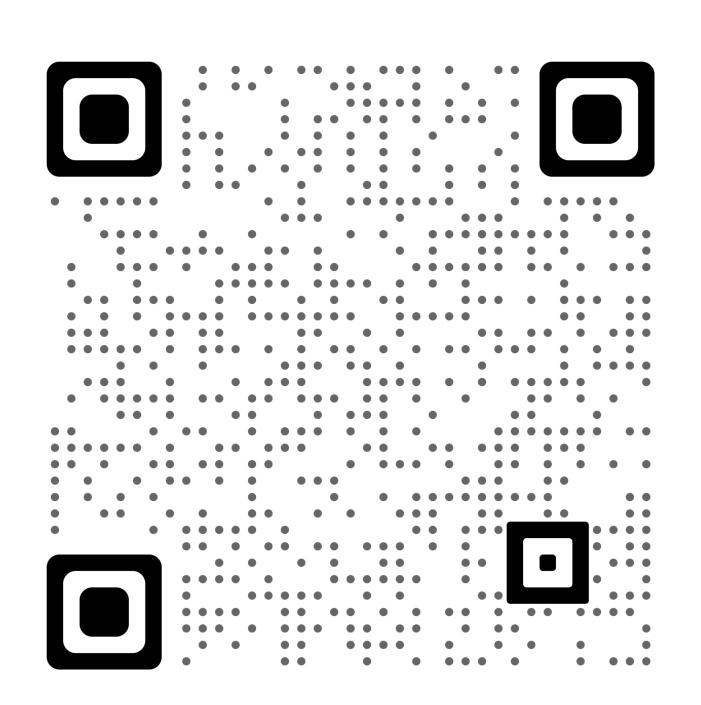
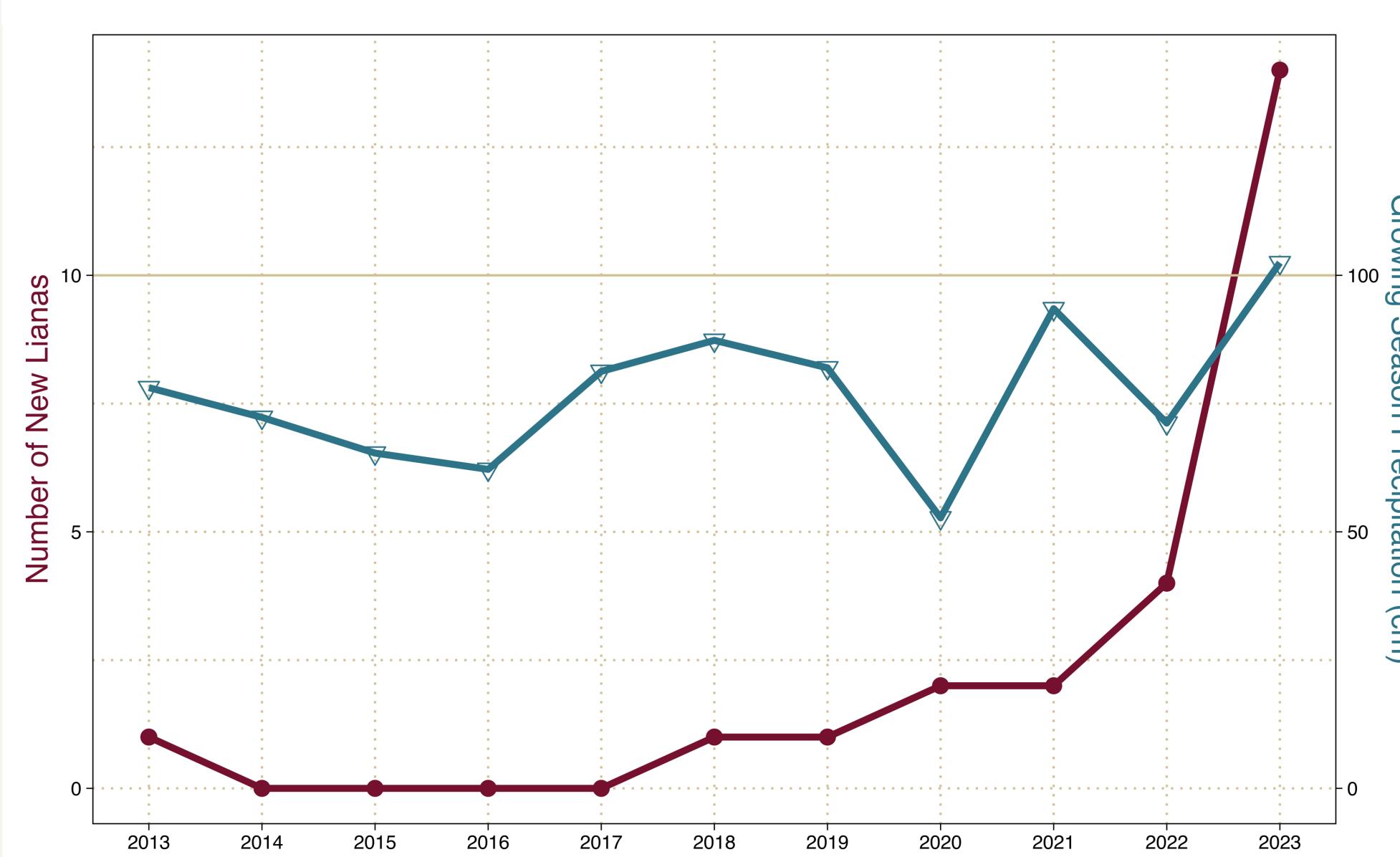
## MATERIALS & METHODS

- Dendro-ecological approach: counting lianas plus calculating their age from # of rings
- 3 transects of 50 m each, 6 quadrats/transect
- Transects placed along edge habitats which drain into brooks that feed the Bellamy River

## RESULTS

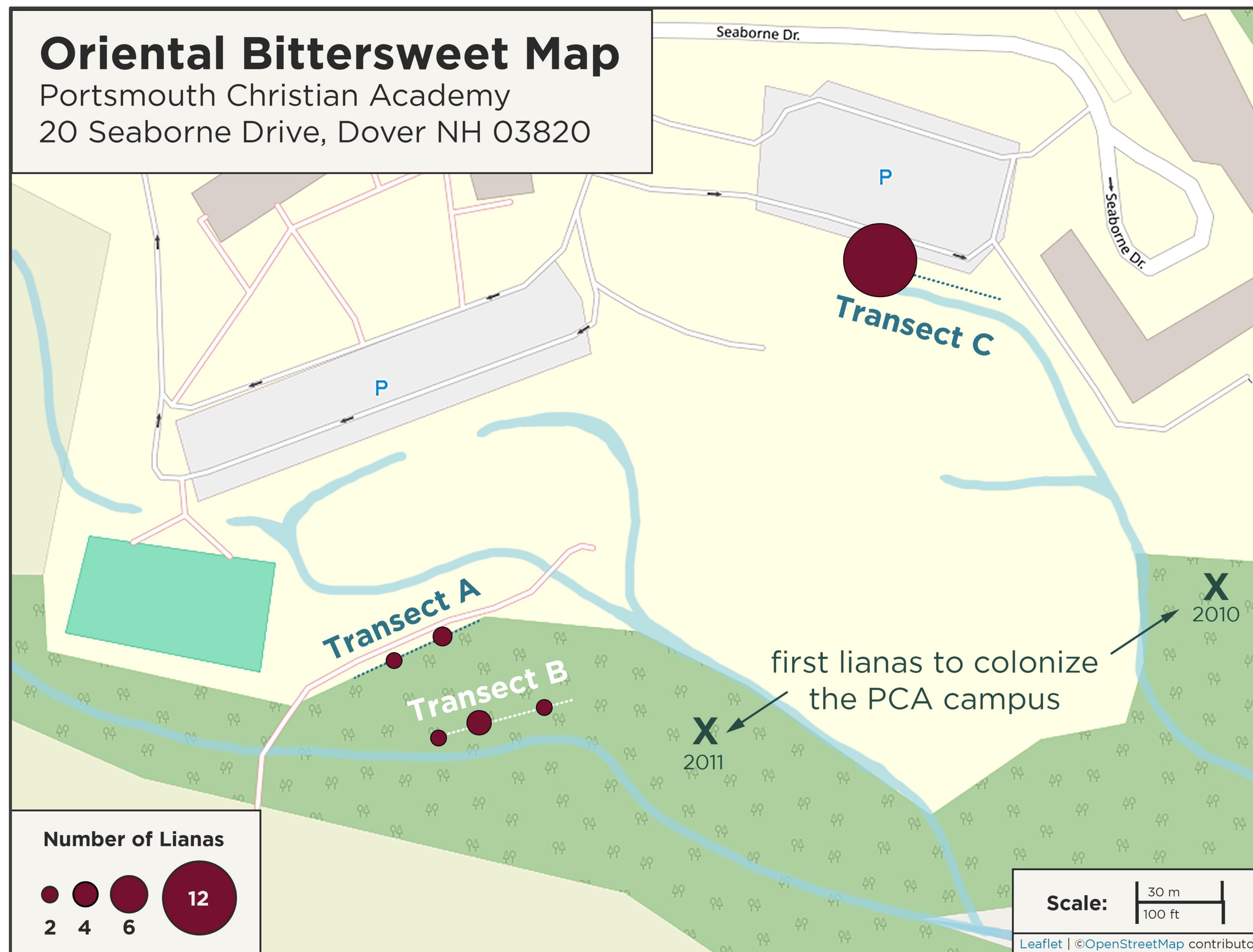
- 2023 = 14 new lianas, 102 cm rainfall Mar-Oct
- 2013-2022 = 11 new lianas total, <95 cm rain/M-O
- 12 of 18 quadrats had not yet been invaded

Figure 2: Recruitment & Rainfall 2013-2023



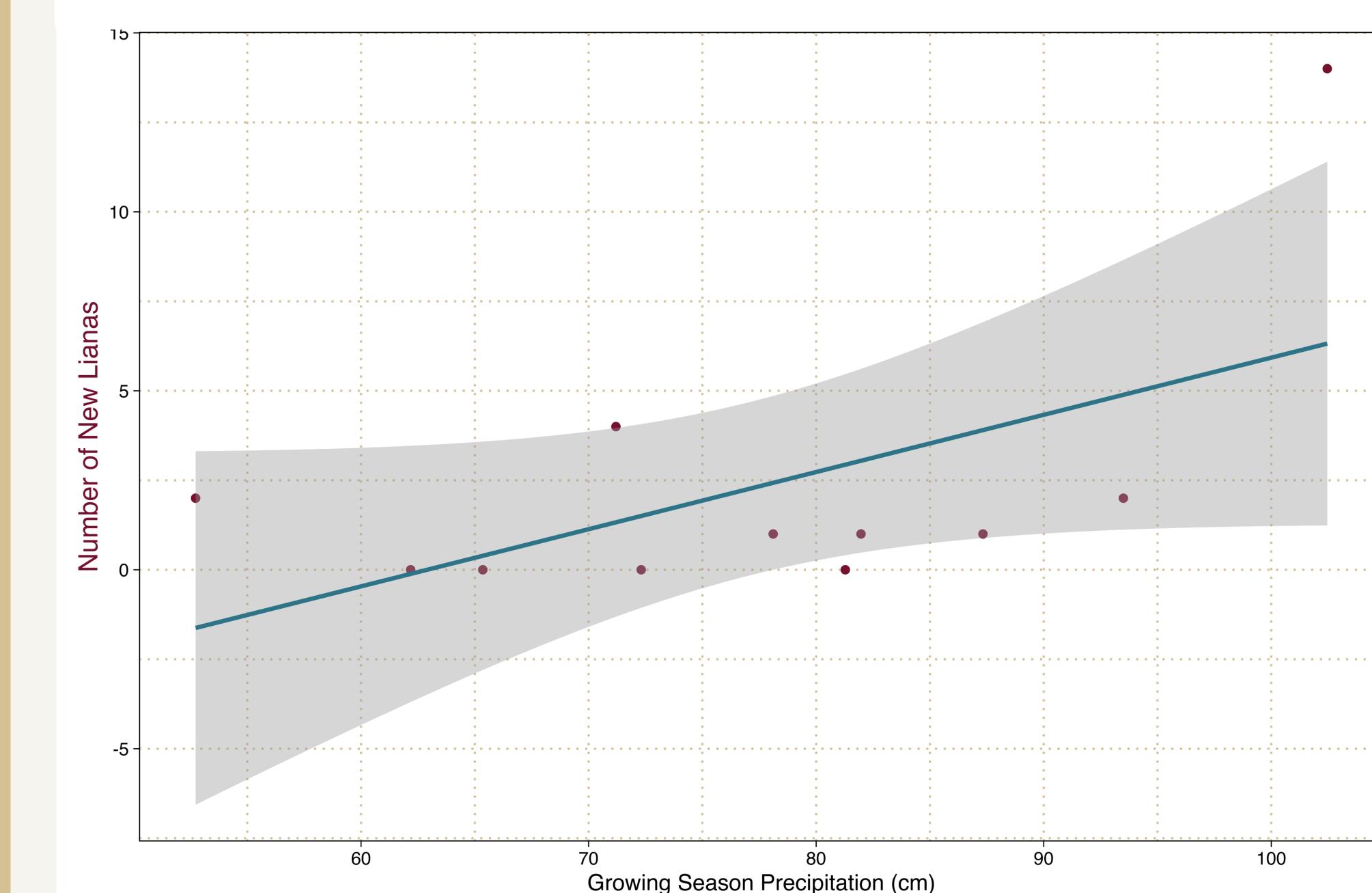
Scan the QR code to access a digital copy of this poster, along with data sets, and R scripts.

**Record-breaking rainfall during the growing season of 2023 corresponds with a spike in new Oriental Bittersweet lianas. However, many sections of edge habitat still have no bittersweet.**



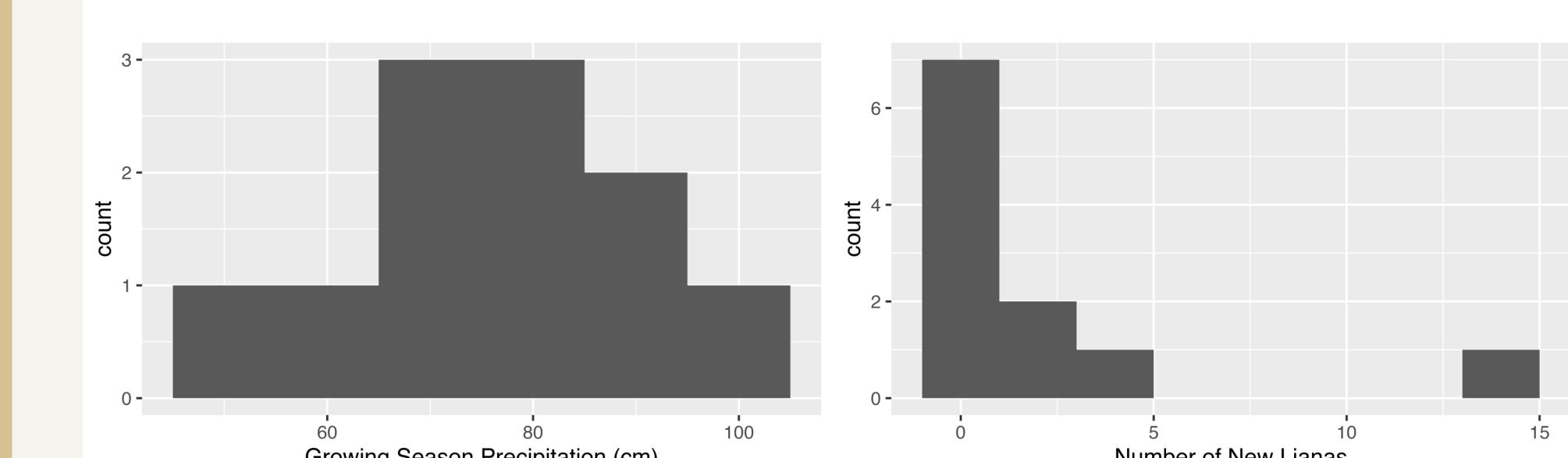
## ADDITIONAL INFORMATION

Figure 3: Effect of Rain on Recruitment



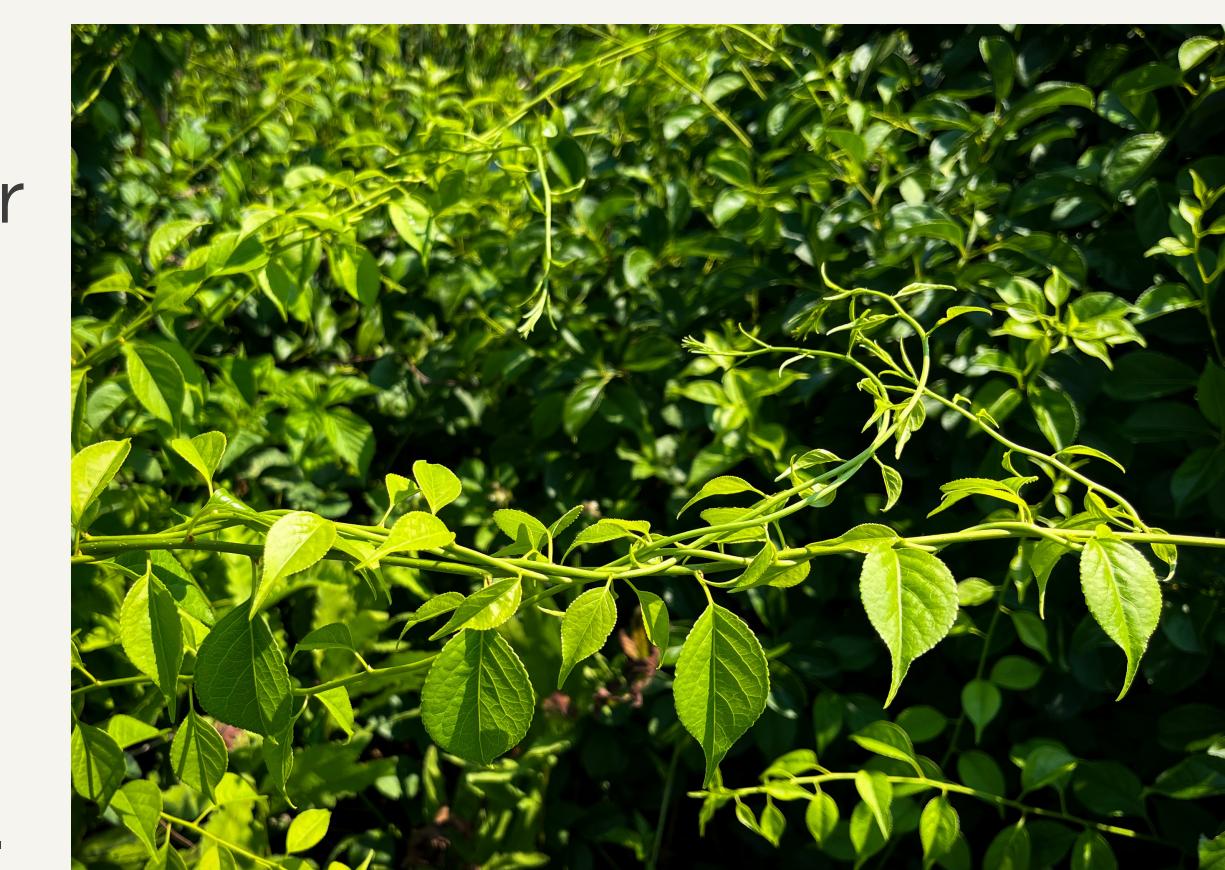
MAR-OCT rainfall and *C. orbiculatus* recruitment seem to be linearly correlated, except when rainfall exceeds 100 cm/growing season. This may indicate that 100 cm is a threshold for rapid expansion in NH seacoast habitats. (Grey = 95% CI)

Figure 4: Precipitation & Recruitment Histograms



MAR-OCT rainfall seems to be normally distributed while the number of new *C. orb.* lianas does not.

Note:  
After a mild winter and wet spring, 2024 *C. orbiculatus* recruitment looks strong. Control efforts began in June and will continue into Dec.



## ACKNOWLEDGEMENTS

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