Why stemmed points? Understanding the usage of the Korea Late Paleolithic stemmed points using tip cross-sectional area

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Text of abstract

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Keywords: keyword 1; keyword 2; keyword 3

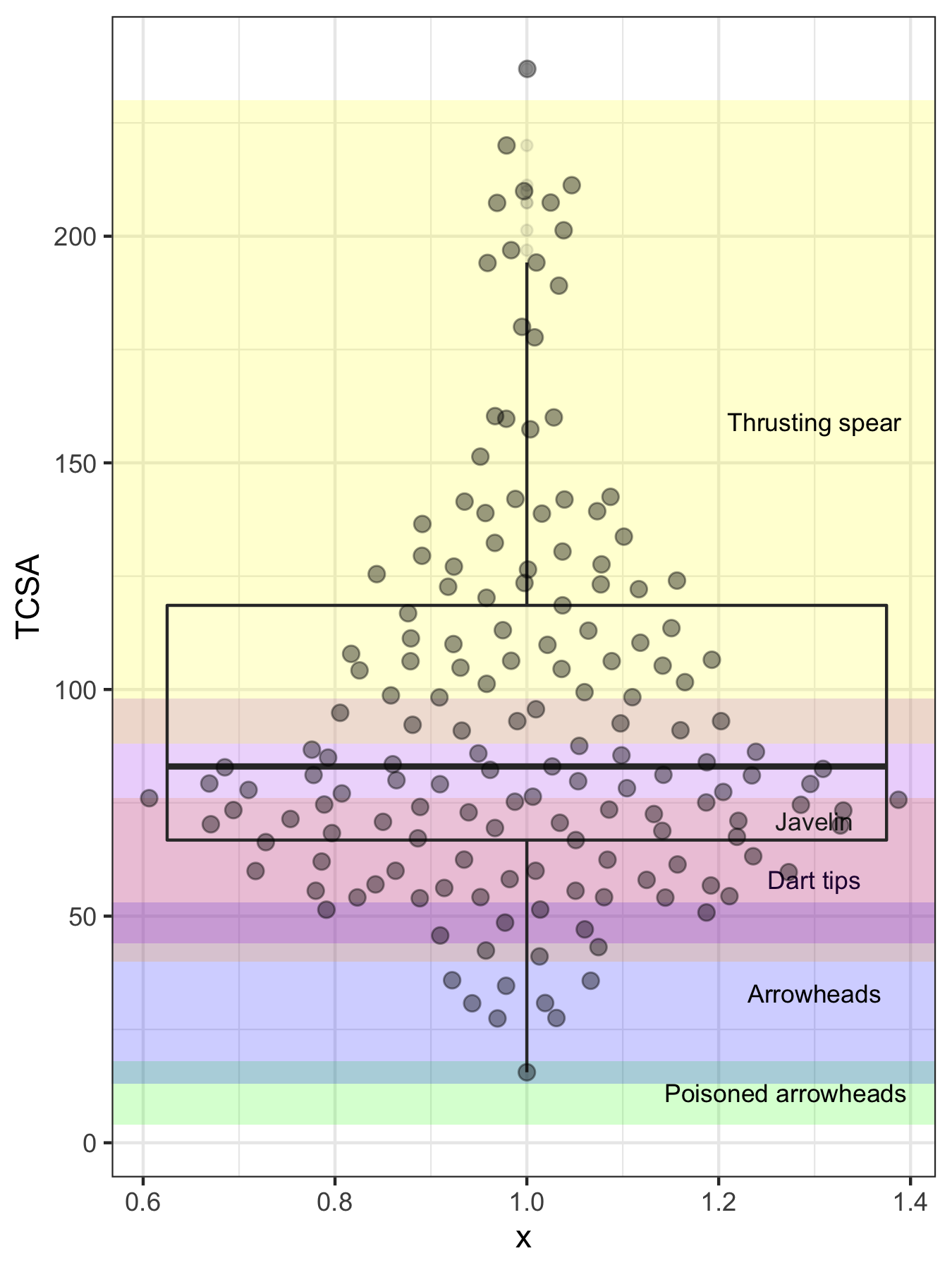
Highlights: These are the highlights.

# 1 Introduction

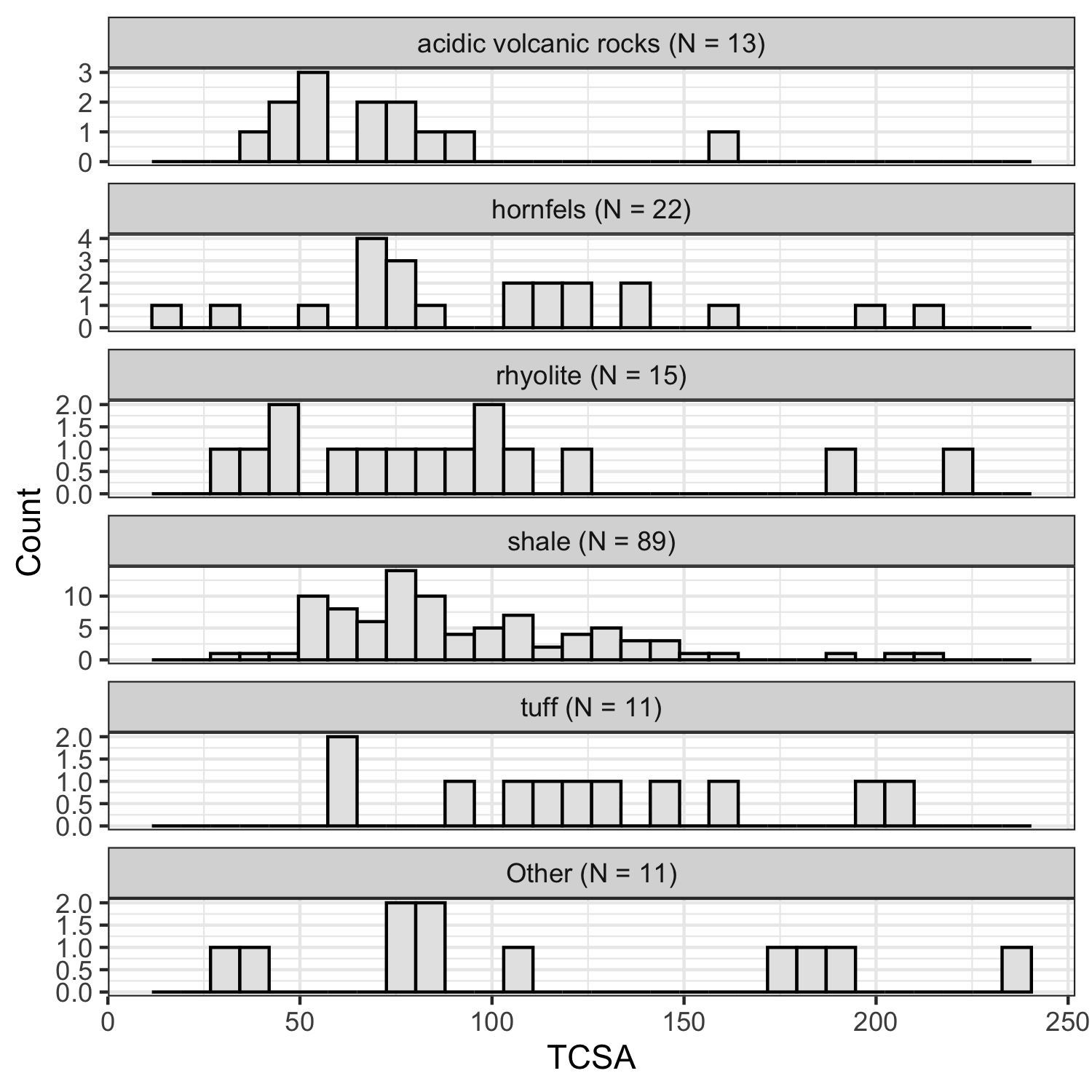
# 2 Background

# 3 Methods

# 4 Results

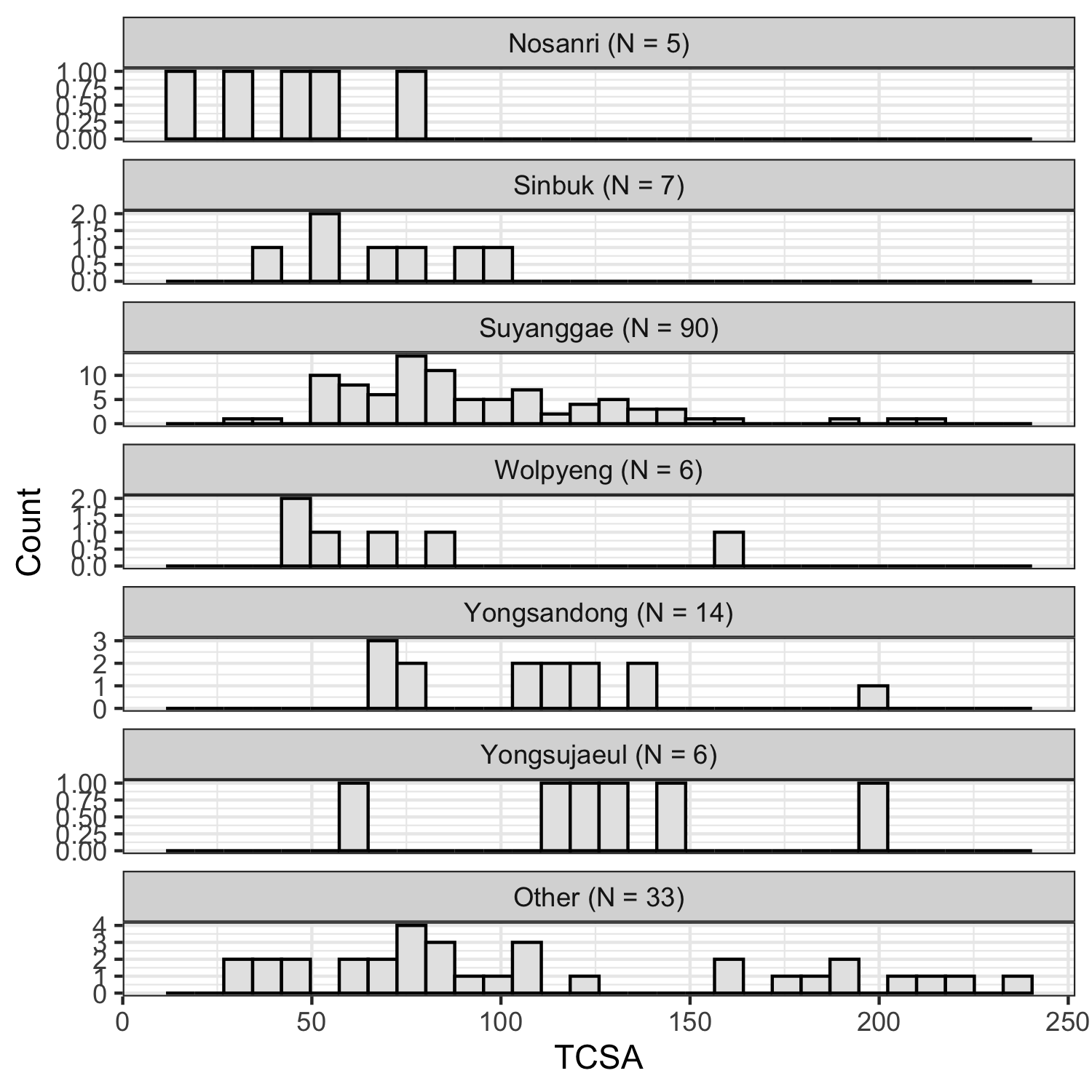
 1) The mean TCSA of the Korean stemmed point is 95.5, and SD TCSA is 44.1.  
2) According to the Lombard’s TCSA range, Korean stemmed points are included mostly in the categories of javelins and thrusting spear tips but overall the boxplot represents wide TCSA variation.  
3) The individual weapon categories of TCSA range are overlapped a lot. We chose the specific colors for the annotation boxes to match with Figure 5 of Lombard’s 2021 QSR paper.

## 4.1 Raw materials



1. About half of the stemmed points made out of shale.
2. Acidic volcanic rocks tend to have more screwed and lower TCSA value.
3. But overall, there is no clear pattern.

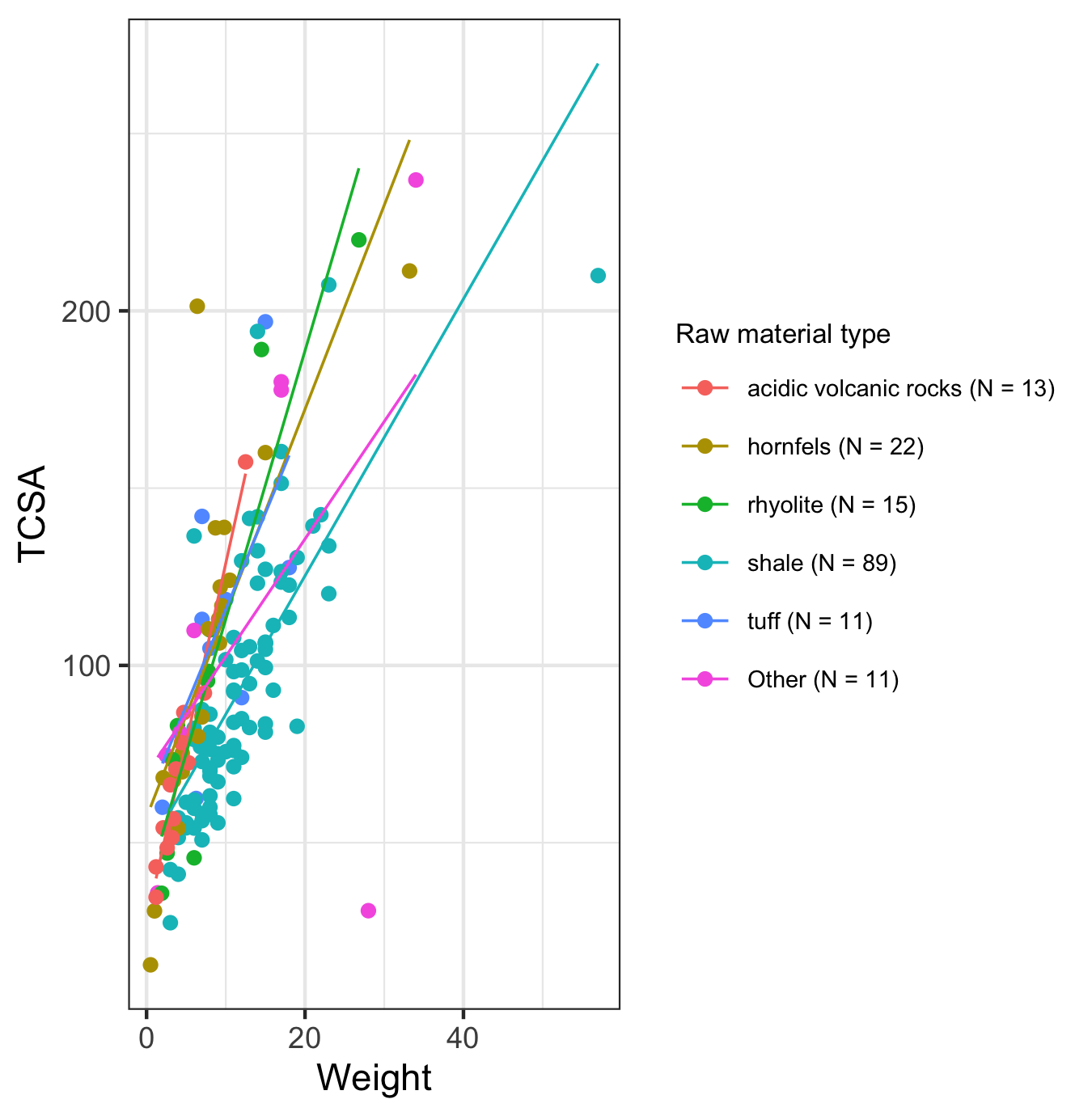
## 4.2 Variation by site



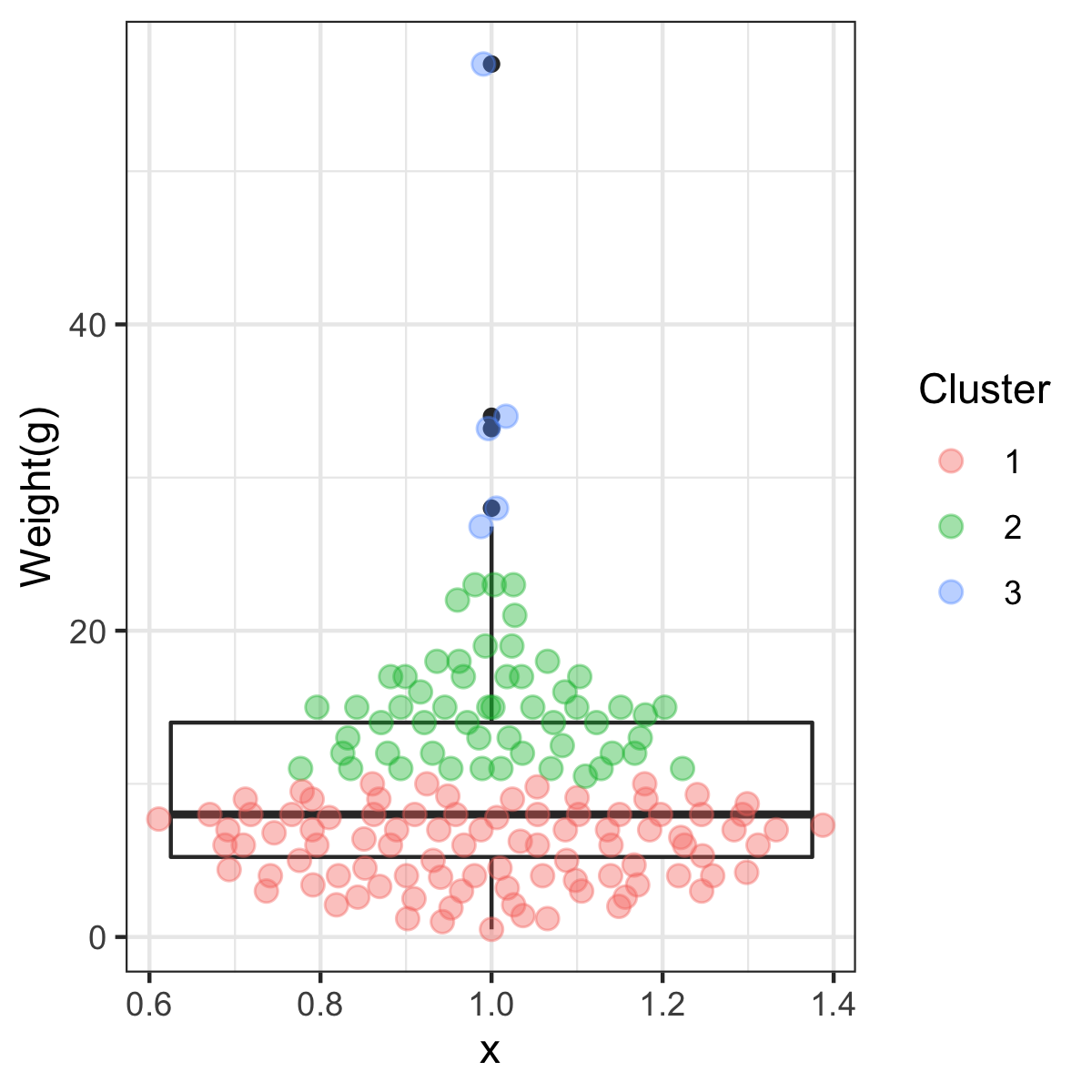
1. We computed TCSA for sites that include >= 5 stemmed points.
2. Suyanggage has the most stemmed points and the range of TCSA is wide. We can assume that people used stemmed points with different purposes.
3. Nosanri and Sibuk have skewed and smaller TCSA values.
4. The bigger ones are mainly in the category of Other.

## 4.3 Variation by artefact size

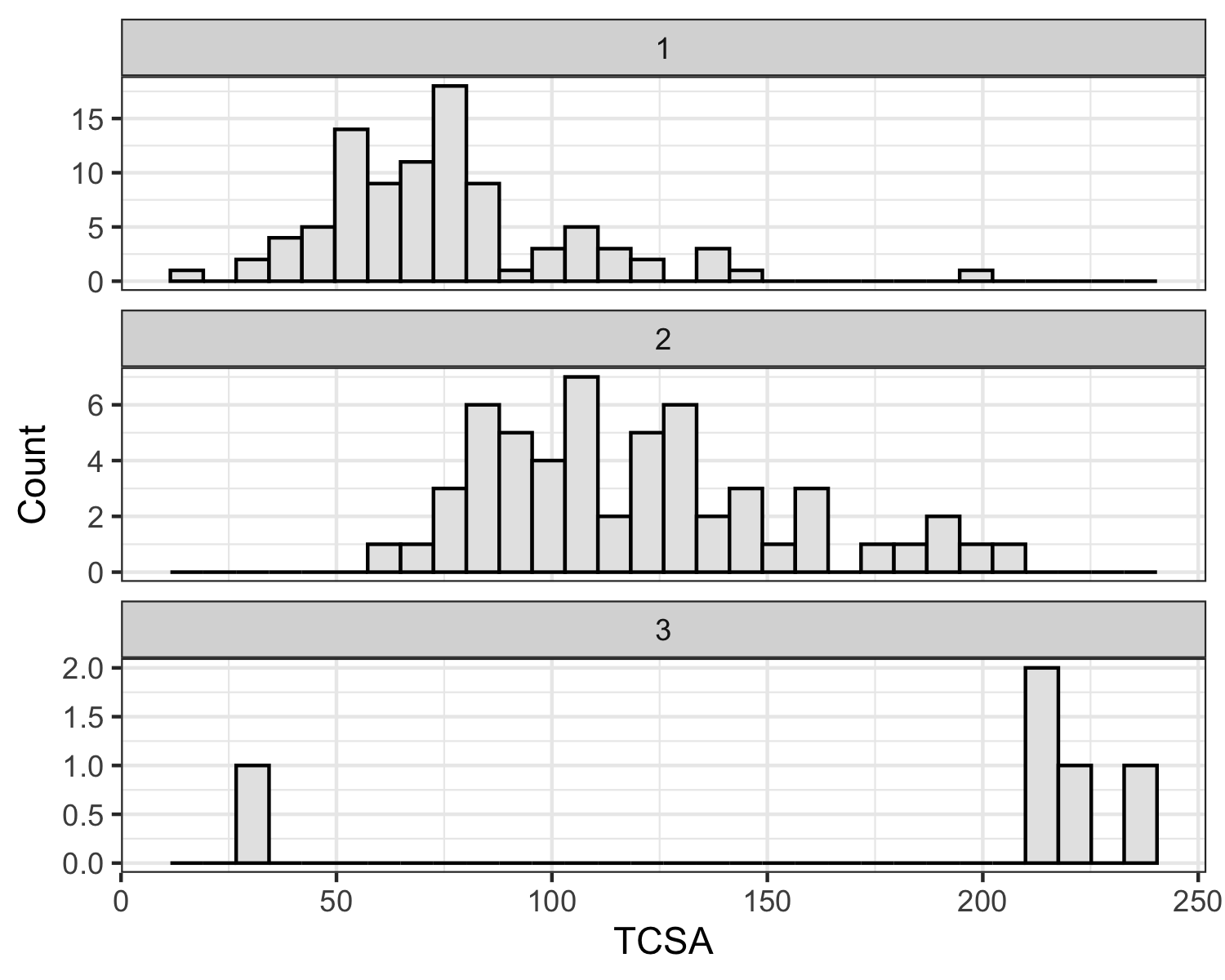
We wanted to check the relationship between TCSA and size. Weight can represent overall tool size.



1. TCSA and Weight have positive relationship.
2. Shale stemmed points tend to be heavier than the other raw materials, while acidic volcanic rocks are lighter.



1. Determined by Bayesian information criterion, our weight data is divided into three cluster.
2. Most artifacts are under 20.

 1) TCSA of the three cluster shows clear pattern.  
2) Cluster 1, the smallest (lightest) artifacts, is the lower TCSA, compared Cluster 2. TCSA of Cluster 3 is the highest, except for one artifact, which is lower than 50.  
3) We can assumed that artifacts in different clusters might be made for different purposes.

# 5 Discussion

# 6 Conclusion

# 7 Acknowledgements

# 8 References

### 8.0.1 Colophon

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