

# Mapping Boundaries

## Exploring design decisions for a neutral mapping of border disputes



by LIAM FLEMING

**Border disputes are extremely complex and mapping them is just as complex. Despite the importance of mapping these complex issues in an impartial manner almost no research is available on it. In fact, very little research goes into border dispute mapping explicitly, even though maps make up the figures of many geopolitical focused papers on disputes.**

### BORDER DISPUTE DESIGN

Most border disputes have a plethora of available information explaining them [1]. Despite this, cartographers, whether they be atlas editors, global web-map providers, or visual journalists, struggle to map these phenomena, and all do so differently, both in terms of what they include and most notably for this thesis how they visualize it. Even though maps make up the figures of many geopolitical focused papers on disputes, research on the topic of border dispute design is practically non-existent, and so this thesis attempts to amend that, specifically exploring how one might design these disputes in a neutral or impartial manner.

### LITERATURE REVIEW

As part of the general overview of border dispute research into dozens of border disputes on the geopolitical level was conducted.



Fig 1. A map poster of a fictional region & dispute that was designed following neutral map design methods.



Fig 2. Spread in the Neutral Map Design Guideline about the philosophy of neutrality as well an introduction to neutral map design as a concept.

A wide array of maps from an array of different sources are analysed visually, particularly their map symbols and aspects most relevant and unique to maps that contain border disputes.

There is also an imperative to introduce map design basics through some fundamental material [2][3][4].

Finally brief foundational research into neutrality as a philosophy is conducted, a field that is also not very expansive beyond its connection to the geopolitical realm[5]. At the end of the literature review A definition for neutral map design could be established as simply the application of cartographic features & design principles through the lens of a neutral philosophy.

### GUIDELINE

The literature review helps establish a preliminary guideline that collects and explains pre-existing potentially neutral design methods for border dispute maps in one place and offer help and basic suggestions to aid one map border disputes in a more impartial manner broadly. From the beginning the thesis acknowledges cartographers are often limited in how they get to represent things whether it be because of map policy, clients, or local governments, or otherwise. Because of this the guideline focuses on broad ideas,

suggestions, and concepts, rather than strict rules for a reader to follow. The guideline is in written form in the methods section of the thesis, however a more visual example for public use is in the works (Fig 2).

### EVALUATION & RESULTS

Evaluation of the preliminary guideline was done by creating maps that followed it's written rules (Fig 1) to be compared against a set of created maps that went against it. Through polling, mostly of other cartographers, the preliminary broad design guidelines were deemed a success. The neutral map presentations were perceived as more neutral than ones that were created going against the guideline, in that respondents were much less inclined to support one side over the other when reacting to them, and when they did it was more often based on available information rather than how the map felt.

### CONCLUSION

The thesis provides a method of border dispute map design that is perceived to be impartial. It also highlights the need for more research into border dispute map design overall.

### THESIS CONDUCTED AT

Department of Geo-Information Processing  
Faculty of Geo-Information Science and Earth Observation  
University of Twente (UTwente)



### THESIS ASSESSMENT BOARD

Chair Professor & Supervisor:  
Prof. Dr. Menno-Jan Kraak, UTwente  
Reviewer:  
Mathias Gröbe, TUD

### YEAR

2023

### KEYWORDS

Border dispute, border dispute mapping, mapping boundaries, neutral map design

### REFERENCES

- [1] Brunet-Jailly, Emmanuel. Border Disputes: A Global Encyclopedia, 2015.
- [2] Brewer, Cynthia A. Designing Better Maps: A Guide for GIS Users. Second edition. Redlands, California: Esri Press, 2016.
- [3] Field, Kenneth. Cartography: A Compendium of Design Thinking for Mapmakers. Redlands, California: Esri Press, 2018.
- [4] Dent, Borden D., Jeffrey Torguson, and T. W. Hodler. Cartography: Thematic Map Design. 6th ed. New York: McGraw-Hill Higher Education, 2009.
- [5] Ackerman, Bruce A. 'What Is Neutral about Neutrality?' Ethics 93, no. 2 (1983): 372–90.