

Goal

You will estimate the size of a population using aerial imagery.



Figure 1: Picture taken of the National Mall on August 28, 2010. Source: <http://www.foxnews.com/slideshow/us/2010/08/28/glenn-becks-restoring-honor-rally-lincoln-memorial-washington-dc/#slide=6>

Motivation

Glenn Beck, host of a syndicated radio program and a show on the Fox News cable channel, was the driving force behind the “Restoring Honor” rally held on August 28, 2010, at the National Mall in Washington, D.C. Given the controversial nature of the rally (and Beck), the size of the crowd that gathered on the Mall was a source of debate, especially between those on the political right and left (see attached article). Crowd sizes “estimates” reported in the media ranged from just under 100,000 to over 1 million (from Minnesota’s U.S. Rep. Michelle Bachmann).

To do

In this assignment you and your partner will design and implement a sampling scheme to estimate the size of the crowd (population) shown in Figure 2. You must use a probability-based sampling design and you must be able to compute the standard error of your crowd size estimate under this design. Give careful consideration issues like sample size and, most importantly, what actually constitutes a sampling unit. Censuses are not allowed with this assignment so don’t bother counting all the dots!

Turn in

(1) Report your results in a two page paper that includes the following sections: Introduction, Methodology (your sampling design, units, sample size), Results (discuss graphs, stats and estimates), and Discussion (difficulties in implementing your design, any unaccounted for error). Include and discuss one graph of your data and, of course, provide a crowd size estimate and margin of error. The audience for this paper is journalists who have some experience reading and writing about statistics. Forbidden to turn in: a paper containing R code or an Appendix. (2) Also turn in a printout of your data in an Excel spreadsheet format.

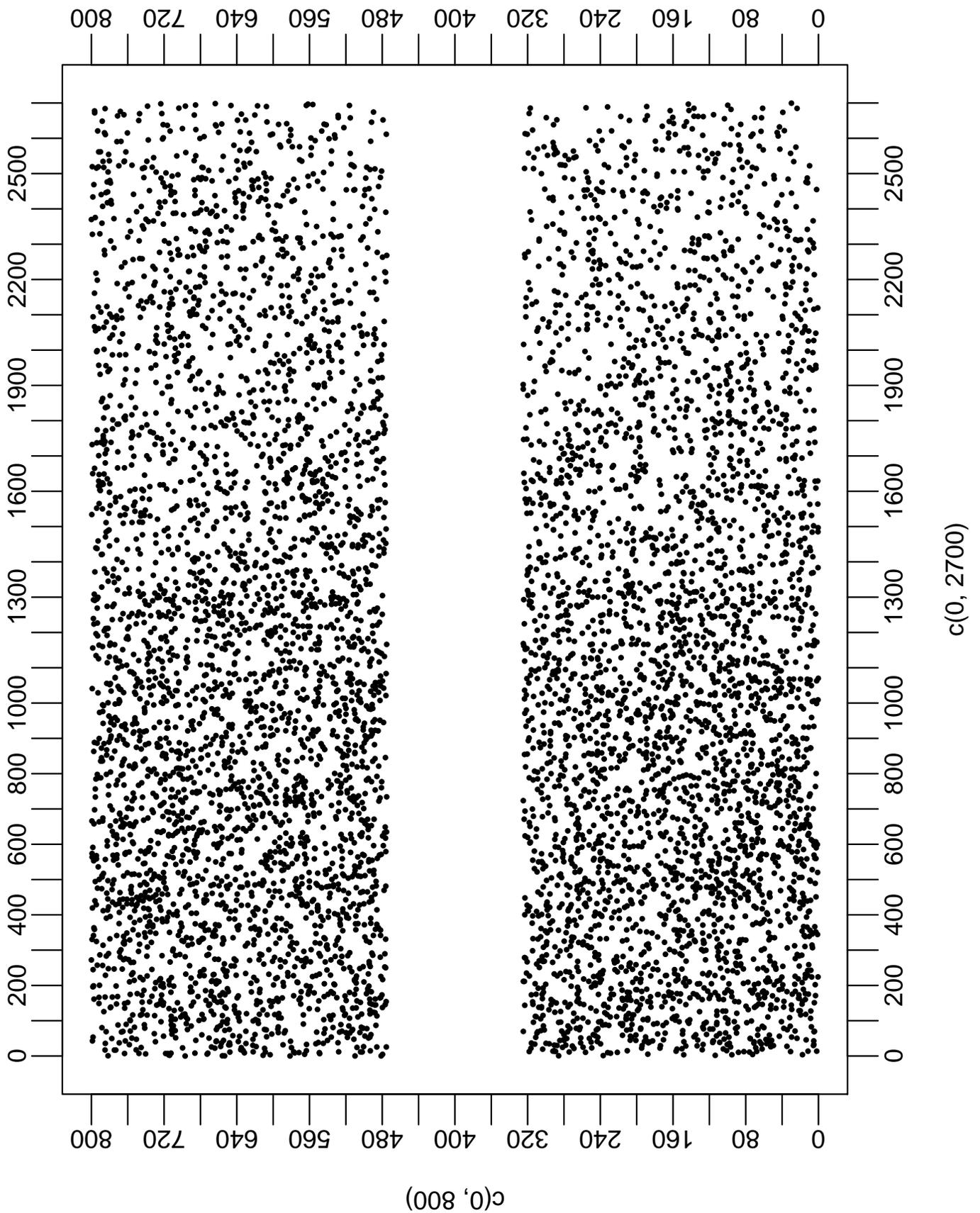


Figure 2: This is your R generated population dispersed over an area that measures 2700 feet by 800 feet, roughly the size of the national mall. Each dot represents one person.