Grouping Badger Social Networks

Karl Menzel
Biology Department, Reed College
Portland, Oregon
menzelk.edu

ABSTRACT

Understanding badger social networks can be important for understanding the distribution of tuberculosis in the badger populations. To understand these networks, I used interaction data from 51 badgers in multiple setts. I calculated both node and edge ow-betweenness for the network using the Ford-Fulkerson method. I also attempted to cluster the badgers into the de ned social groups using the Girvan-

The goal is to nd the ow-betweenness centrality of all of the nodes in the graph. To do this I use alorgithm 2 to get the normalized amount of ow calculated though each pair of points. This algrorithm uses the Fodr-Fulkerson method to caluclate individual ows though nodes. I seperate the ows into four di erent sections which use di erent subsets depending on which social group the node in question and to the sorce and target node are from. First, c_{total} inlcudes all of the possible pairing of source and sink nodes. Seccond c_{btwn} consists of sorce and target are not from the same socal group. The next two are if the source and the target are in the same social group: c_{inter} has the node in question in that same socialin th1(e)-376(a)1(n)1(d)-375(t)1(h)15(a)1(re)-376(10.46947723)-4.utTd [(total)]TJ/F31 85.862 46947723h1(iat)-493(t)1
tu1(e)-37in hi.063 Td mab-27(en)1(d)a347(s)1(ec)1(ti)1(o)1(i1(ll)-305302(of)-303(s)1(eti)1(o)1(i)1(e)-376(a))-352(2)-376(eti)1(o)1(iwg)1(r)1

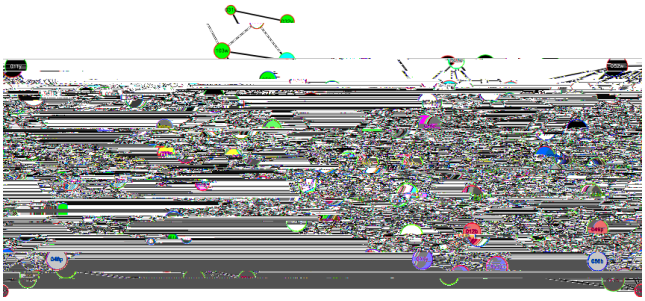

Figure 2: Graph of the interactions of the badgers.

networks correlate with tuberculosis infection. *Current Biology*, 23(20):R915{R916, 2013.