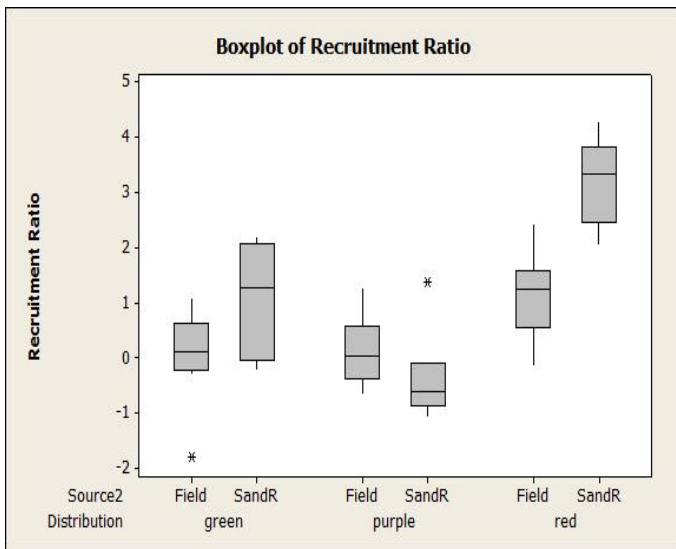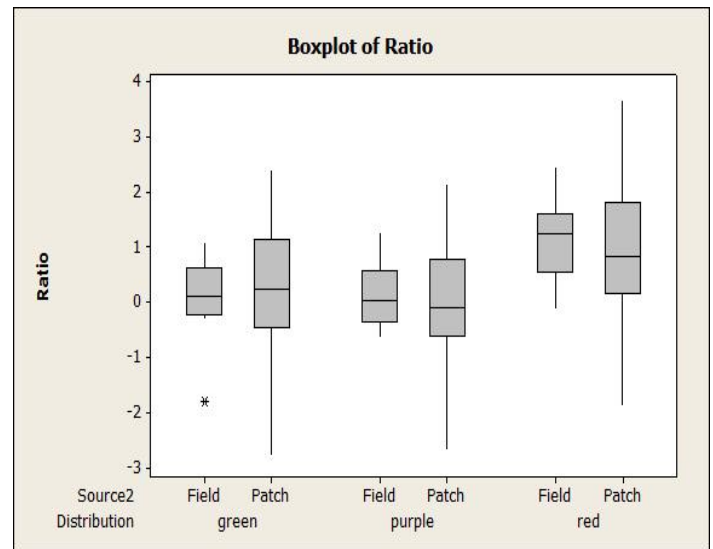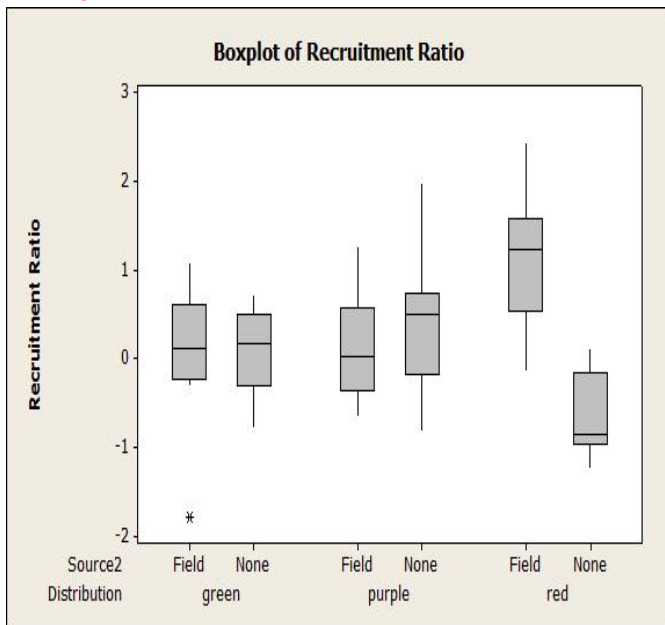**1.) Field data vs. Both models.**   **2.) Field data vs. Site Fidelity only model.**
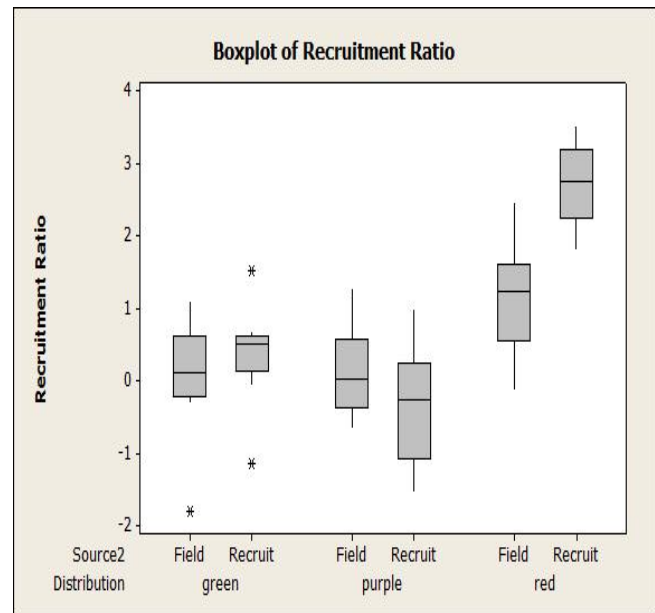

3.) Field data vs. None model.   **4.) Field data vs. Recruitment only model.**

Conclusion

For this research project I created an analysis tool (the AFSA) with a graphical user interface to analyze data from the Ant Foraging System. I used this tool to test which behaviors encoded in the AFS are consistent with observed foraging behaviors of real ants. Real ants in the field experiments were simultaneously searching for bait food and natural background food. Because we don't know what those background distribution looks like, we ran our simulations with both a random and a powerlaw distributed set of background seeds. Given randomly background food, only the site fidelity model is indistinguishable from the field data. Site fidelity also has the highest p-value for the simulation with powerlaw distributed background seeds. This provides support for the hypothesis that the real ants use a site fidelity strategy ants use to forage for food.   (…..See final report for more details)