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**Jonathan Rowell** (jtrowell@uncg.edu) and **Jan Rychtar** (j\_rychta@uncg.edu). *Friend or  
Foe? A Continuous Ideal Free Distribution Approach to Dynamics of Individualistic, Cooperative,  
and Kleptoparasitic Populations.*

Populations distribute themselves throughout their habitat based upon a range of environmental factors. In this paper, we extend a reaction-advection model of ideally motivated populations to describe the local and regional consequences of interactions between three populations distinguished by their levels of intraspecific cooperation and interspecific competition and exploitation. These populations are taken as three stereotypical expressions of cooperative-exploitative behavior in resource collection and include: a baseline non-cooperative population that engages in interference competition, obligate cooperators who initially benefit from the presence of conspecifics, and - in a pathological example of defection - kleptoparasites who require heterospecifics to extract resources from the environment. Using both analytic techniques and simulations, we determine where different populations can coexist within the environment and investigate under what conditions one population will invade another. Kleptoparasites can initiate a long term dynamic instability when invading cooperators at high resource levels. Non-cooperators and cooperators are primarily allopatric with respect to one another and capable of resisting low-level invasions. (Received September 23, 2014)