Research project of counterparts funded at IPB

Name	Counterpart	Title
Damayanti Buchori **Rion Apriyadi,** **Rizky Nazarreta**	**Z02**	Population structure of the invasive Yellow Crazy Ant *Anoplolepis gracilipes* across land-use systems in Jambi, Sumatra, Indonesia

The invasive Yellow Crazy Ant *Anoplolepis gracilipes* is commonly found in agricultural landscapes in Southeast Asia. It forms large polygynous and ploydomous supercolonies which in their extreme can span over dozens of kilometres, containing thousands of queens. Its geographical origin is still under dispute, as is its potential use as a biocontrol agent in oil palm plantations. Our aim was to study its spatial distribution and population structure in Jambi Province (large scale) and Bogor Botanical Garden (small scale). Sampling in Jambi was done between April and August 2013 in EFForTS core plots as well as in nearby plots. Ants were collected from PVC plates baited with honey (Fig. 1) and presence/absence of *A. gracilipes* and other ants was noted after 30min and 60min (Fig. 2). In Bogor, baited PVC plates with honey were distributed in a 50*50m grid throughout the entire Botanical Garden to map the spatial distribution of *A. gracilipes* colonies (Fig. 3). *A. gracilipes* was encountered at ca 70 bait plates or 25% of the entire area of Bogor Botanical Garden, and between 10–20 individuals sampled in 99.8% EtOH p. A. We furthermore measured intercolonial aggression between workers of 5 putative supercolonies using standard behavioural assays. Ant samples from Jambi Province and Bogor Botanical Garden were brought to molecular biological facilities at the University of Göttingen. We extracted DNA from 8 individuals per sample which we then genotyped using 6 variable microsatellite markers specifically designed for *A. gracilipes*. Our results suggest that our initial assignment of individual nests to putative supercolonies was largely correct, and that overall intra- and intercolonial genetic variability is similar to previous findings from northern Borneo and north-eastern Australia. While the work on population structure of *A. gracilipes* in Jambi is currently on halt due to shortages in manpower, the work on *A. gracilipes*' population structure in Bogor Botanical Garden resulted in a master thesis by Rion Apriyadi MSc.

Figure 1. A PVC plate baited with honey has attracted *A. gracilipes* workers. The usually smooth sides of the bait plates were roughened up with sandpaper to ease access of small ant species who might otherwise slide down. Ca. 55 individuals of *A. gracilipes* are shown on this picture.

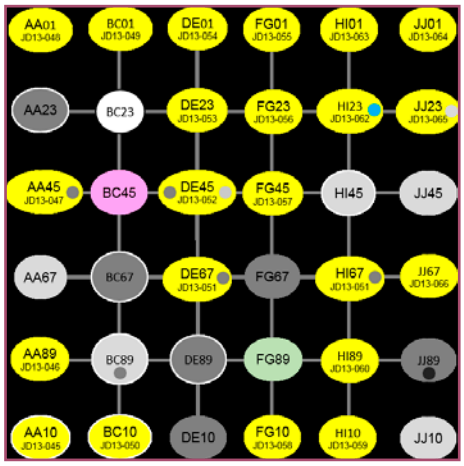

Figure 2. Example of a distribution map of *A. gracilipes* in core plot HR3. Yellow ellipses represent intersections of the 10 m x 10 m core plot grid at which *A. gracilipes* was found during baiting, and contain the code of the intersection and the code of the Ethanol vial that was used for sampling. Ellipses with colours other than yellow were not visited by *A. gracilipes* nut by other ant species during the 60 m of baiting.

Master thesis

Apriyadi, Rion 2014. Struktur populasi semut invasive *Anoplolepis gracilipes* Smith (Hymenoptera: Formicidae) di Kebun Raya Bogor. Sekolah Pascasarjana, Institut Pertanian Bogor.

Figure 3. Distribution of *A. gracilipes* in Bogor Botanical Garden (Aerial view, Google maps). Triangles represent the position of bait plates at which *A. gracilipes* was found, and numbers indicate the ethanol vial used for sampling.