

Inferrring the relationships of rice injuries from co-occurence networks based on crop health surveys within and between different geographical locations.

Sith Jaisong [EDIT](#)

Introduction

Farmers, every year loss their rice yields around 37 percent because of pests and diseases. injuries

The use of in-field surveys is a useful tool to develop ground-truth databases that allow one identify actual constraints due to pests in an agricultural productions system. These sorts of databases provide an overview of the complex relationships between the crop, its management, pest injuries, yields. Understanding theses relationships may lead to better management, and guide researchers the new research hypotheses .

Several previous studies involved surveys that have been used to identify relationships in an individual production situation (a set of factors that determine agricultural production) and the injury profiles (combination of disease and pest injuries that may occur in a given farmer's field) using nonparametric multivariate analysis such as cluster analysis, correspondence analysis, multiple correspondence analysis. Performing correspondence analysis , they characterized the relationships between categorized levels of variables: actual yield, production situations, and injuries profiles. Their results led to the conclusions that observed injuries profiles were strongly associated with production situations and the level of actual yields.

this is the para three

Here, we use a network approach to infer the relationships species roles in the metacommunity structure of a desert ecosystem in the Atacama Desert, Chile. Starting with the incidence matrix of species across local communities, we built a unipartite species network such that any two species that co-occur, more frequently than expected by chance, in local commu- nities were linked. Using this positive co-occurrence network, we: (i) carried out a modularity analysis and classified species into different topological roles; and (ii) tested for the importance of trophic status, body size, numerical abundance and incidence of the species as the biological attributes that could determine these roles. The resultsherein reported identify modularity as a main component of species co- occurrences networks and, body size and trophic position as chief determinants of the ecological role of species within metacommunities.

Material and methods

Survey sites and data collection

We conducted the surveys located in the South and South East Asia, Kerala, India(Lat , Long), Indonesia (Lat , Long), Philippines (Lat , Long), Central Plain, Thailand (Lat , Long), and Mekong Delta Vietnam (Lat , Long). Theses are the important rice growing areas, where use irrigated lowland rice ecosystem. intensive condition, which grow twice per year.We sampled in , under same standardized protocol described in the IRRI publication, "A survey portfolio to characterize yield-reducing factors in rice", was used for data collection.

We collected the injury variables, which are consiste of the groups of injuires caused by insect pests, pathogens, and weeds. The injuries were grouped in the field assessment procedure according to