
This study looked at the effect habitat complexity, in terms of plant heterogeneity, has on ant diversity. While much of the literature on the effects of habitat complexity show a positive correlation with species diversity, Lassau and Hochuli found that ant richness is negatively correlated with habitat complexity. While it is assumed that increased habitat complexity would provide more environmental niches and foraging opportunities their results indicate this is not the case for all organisms. Thus, the effects of habitat complexity can not be generalized. Even within ant communities ground dwelling ants may differ in the preference for habitat complexity versus tree dwelling and species suggesting the need to group species by functional groups.


They used artificial branches with different foliage densities to look at the effect habitat complexity had on spider abundance by looking at the variation in spider guilds. They found that plant dwelling spider abundance was positively correlated with branch foliage densities. By keeping both branch biomass and surface area constant they were able to remove these confounding variables which previous studies failed to control for. Finding higher spider abundances in denser vegetation may imply that refuge plays an important role in spider habitat choice. This study pointed out that even with in spiders, different guilds will need different habitat qualities. Night active spiders may benefit from increased foliage density for protection during the day from predators and other spiders.


This paper was interesting in that it highlighted ways to increased habitat complexity in agriculture by incorporating non-crop habitat to bolster predatory arthropod populations. This is important because enhancing agricultural pest management could decrease the need to use harmful pesticides and reduce many of the negative side effects they cause.


In this paper they looked at the possible habitat complexity provided by flowering plants. They did not find any real difference in spider size, distribution or richness depending on the flower plant complexity. However, due to environmental constraints, they only had
one type of flower to work with. It would be interesting to look at how arthropod diversity differs between numerous different flower types.


This paper looked to see if there was a shortcut to assessing spider species diversity in forests by surveying for lichen abundance which provides refuge for many arthropod communities. They also looked at the effect of forest management on lichen richness. They found that old forests had higher levels of lichen and spider species, whereas newly forested (highly managed areas) areas tend to have lower lichen species. Thus, I still feel further research has to be done before one can look at lichens to predict spider richness as it could vary greatly with season, weather, etc.


This study examined the effects of habitat disturbance through anthropogenic means to elucidate the impact decreased structural complexity has on species richness. They found that physical modification to a habitat influences the species richness of such communities. Such changes could potentially have drastic trophic cascade effects as arthropods are associated with a range of community functions.


An interesting paper that looked at wasps as possible biological species indicators for arthropod abundance due to the fact a great number are believed to be host specific parasitoids of arthropods. They found that pitfall trap results showed wasp richness was highest in complex habitats. However, winged wasps (trapped by flight intercept traps) showed no relationship between habitat complexity and wasp assemblage. This is probably due to winged wasps’ ability to be more spatially mobile. As such, effects of habitat complexity would be less pronounced than for wingless wasps. It is important to note that even between similar functional guilds (winged and wingless parasitoid wasps) the effects of habitat complexity are not as clear cut.

I liked this paper because it tied habitat complexity with predator and herbivore abundances. It was interesting to see that increased habitat complexity increased predatory arthropod abundance. However, this paper went on further to look at the effects this had on phytophagous insects. The result, increased habitat complexity increased predator arthropod abundances which decreased herbivore abundance. While allot of other papers imply this relationship, few papers actually look at the effects increased habitat complexity has at various trophic levels.


This study was unique in that it looked at various habitats to evaluate any relationship between habitat complexity and spider richness. This study found no significant difference between drastically different habitats in terms of spider abundance or richness. This is probably due to the multiple confounding variables such as prey availability, competition, predation, environment stability, spatial heterogeneity and productivity (Rosenzwerg 1995). However, when spiders were groups by guilds, there was a significant affect of habitat complexity on spider richens, with increased habitat complexity increasing plant wandering and web building spiders. Thus grouping species by guilds or functional groups may help elucidate complex species assemblage patterns.


They looked at the densities of pasture arthropods in 2 types of upland pastures. They found that all three arthropod assemblages (insect forb-feeders, insect grass feeders and web-building spiders) were found to have higher diversity in structurally complex habitats.


I liked this paper because it addressed how anthropogenic disturbances affect habitat structure which then affects species assemblages. Not surprisingly, they found that many of these transformations alter and decrease the structural complexity of the system, which in turn decreases species richness. Additionally, changes in microhabitat conditions alter conditions such that species are more hard pressed to survive in them, effectively decreasing species richness. This is especially true for amphibians (frogs, salamanders, etc.) which are very sensitive to climatic condition changes such as decreased humidity and increases in temperatures.