Seed dispersal can play important roles in how plants are spatially distributed at different scales. While some processes may remain important across scales, others may be prominent only at particular spatial scale.

Seed dispersers such as frugivorous birds or mammals can carry seeds away from their parent tree and deposit them elsewhere. How these dispersers select these resources are complex and mediated through both plant and animal traits (*I will have some question here*).

Once the seeds are dispersed, they can establish them as seedlings if both the habitat is suitable and they escape seed predation. Thus, only a proportion of seeds are likely to become seedlings. While, the rest are not successful, some of them can still contribute their nutrition to the seedlings through decomposition. Such processes are likely to happen at small spatial scales.

Seeds, once deposited are in the neighborhood of adult trees. Adult trees can impact seed mortality by attracting seed predators. As, seed disperses fail to consume fruits, they would drop near the parent tree and attract predators. However, these fruits are also rich in nutrients. As they decompose, fruits can provide essential nutrient like phosphorous to seedlings. If the neighboring adult trees are leguminous plants, seedlings may further benefit from nitrogen fixation. Such processes are likely to occur at larger scales.

Thus, seed dispersers can play important role in how plants are spatially distributed. While they can effectively carry seeds, their failure to do so can also trigger other ecological processes that can have important impacts.

I, therefore plan to study how dispersers can influence seedling recruitment by influencing both their mortality through predation and survivability from nutrient cycling.

Nutrients

Predators

Fruits

Trees

Dispersers

Seedling

Seeds

Fig: A schematic describing how seed dispersal by animal seed dispersers can influence seedling fate. Dispersers can bring seeds to the right habitat. However, not all seeds will germinate. While some are predated, others can decompose to provide soil nutrients. These are small scale processes. Dispersers can also play important role in shaping the neighborhood of seedlings. The neighboring adult trees can influence seedlings by attracting predators or influencing the nutrient cycles. One major way this can happen is through fruits that failed to disperse. These are mostly larger scale processes.