

Succession is a progressive, directional change involving the replacement of ~~dominant~~ species within a biotic community. The ecosystem of Lake Lag contains such a community, consisting of the combination of all organisms in one environment. If

communities are considered in the sense of a gradually changing continuum, then Lake Lag may be further subdivided into three communities of bottom, surface, and shore. ~~The bottom is the~~ limnetic zone<sup>W</sup> defined as open water to the depth of effective light penetration. It is characterized by many individuals but few species. At Lake Lag, the dredge tended to yield a less diverse assortment of organisms than the shore, or shallow

water region. The shore may possibly be regarded as an example of an ecotone, a transitional region between two communities which contains organisms common to each as well as organisms peculiar to itself. ~~Like the shrimp,~~ <sup>For example,</sup> in the period from January 14 to January 29 were characteristic both of the shore and the dredge. Similarly, ostracods during the same period were found both on the shore and surface. The shore also possessed certain unique organisms shared by neither bottom or surface, such as the ram's horn snail and the corixid beetle. However, this zonation is not at all decisive. Rather, it

appears that some species have a narrow, and others a wide range of tolerance. Thus copepods range from bottom to shore to surface. A comparison of organisms from the bottom and the surface, for instance, reveals a difference not so much in the species but rather in the times that they appear. We find ~~the shrimp~~ <sup>that</sup> on the bottom about two weeks before a few are noticeable on the surface. The shrimp disappear earlier as well. Similarly, damselflies and hydrophilids first appear on the bottom and later show up on the shore. Possibly this indicates that the original shore organisms modified their environment to make it more similar to that of the bottom.

- likely, since the lake bottom was wet before the more advanced area was.

Succession and Climax at Lake Lag

Succession may be either primary, begun on a sterile area such as a rock where conditions for existence are unfavorable, or secondary, located on sites previously occupied by well-developed communities. Lake Lag is an example of secondary succession since we know that many organisms, such as the fairy shrimp and the red copepods survive in the mud in a dormant stage during the dry season. Secondary succession always occurs more rapidly. The completion of a sere, or the entire gradient of communities for a specific area, can be accomplished in a matter of weeks. Thus Lake Lag progresses through various stages of succession in an academic quarter while the development of a bare rock surface into a climactic area may take thousands of years.

Succession may be either autotrophic, dominated by self-nourishing organisms, or heterotrophic, dominated by organisms dependent on producers for food. Lake Lag seems to be an example of the latter, as most of its organisms feed on plants and debris. The cladocera, ostracods, and copepods, which are the three most numerous groups, are heterotrophic zooplankton. However, it is also possible that numerous autotrophic phytoplankton exist too small to be seen with the naked eye. *- must, to feed the organisms.*

In succession the same area is inhabited by a series of temporary communities. The progression of sere, or development, stages results from the modification of the physical environment by the dominant community. In general, the established organisms make the environment less hospitable to themselves and more hospitable to new organisms. From our

study, it is difficult to determine the exact nature of changes worked on the environment by the inhabitants of Lake Lag. The fauna seem to be characterized more by a mixture of temporary and permanent elements than by a succession of organisms. The brine shrimp eventually disappear from all zones. On the other hand, ostracods and, to some degree, copepods, seem to become fairly stabilized on all levels. Many organisms shift from one zone to another, disappearing from one place, but reappearing in another. These changes