**Transition to land habit**

Archegoniates grow in water and land, two well defined habits. The plants are growing in water called aquatics and the others are terrestrial. The aquatic plants are algae and the land dwellers are seed plants. Between these two extremes of habitats there is a **transitional zone**. It is represented by the **swamps** and the areas where water and land meet. It may be called **amphibious zone**. Inhabiting the ambhibious zone is archegoniates are **nonvascular** plants. These are simple thallus like algae through which terrestrial plants evolved. Most of the archegoniates are land dwellers inhabit damp, shaded and humid localities. However a few are living in or float on water. The **aquatic habit** acquired by these plants **secondarily**. When the water dries up they grow equally well on the drying mud. Some, of course, can withstand long periods of **drought**. During the dry period they become almost brittle texture. With the onset of rainy season the apparently dried, brittle thalli turn green and become active to carry out the normal life functions. Even these **apparently xerophytic** species grow actively only during the wet weather.

Archegoniates, simple cryptogams in which zygote divides by mitosis and forms embryo. Embryo – the sporophytic phase depends upon gametophyte for nutrition and support. These are amphibions of the plant kingdom.

Evidences supports the view that these early land plants descended from alga-like ancestors which were probably green. Adaptation to land environment or sub-aerial life involved the development of certain features that were not possessed by their aquatic ancestors. These are-

1. **Development of organs for attachment and absorption of water-** archegoniates develop special hair like structures called rhizoids that function as absorbing and attaching organs.
2. **Protection against desiccation-** The thick, compact multicellular, thallus-like plant body covered with an epidermis is protected to a certain extent against the drying effects of air. Further even the free surface of the epidermal cells, in some species is coated with waxy substance like cutin which is water proof and thus reduces the rate of water loss. Moreover, total surface area of a compact body is reduced in proportion to its volume.
3. **Absorption of carbon dioxide from the atmosphere for photosynthesis-** In many species there are numerous pore on the upper surface of the thallus. These are called the air pores. They facilitate gaseous exchange between the atmosphere air and the interior of the thallus.
4. **Protection of reproductive cells from drying and mechanical injury** – The sex organs in the archegoniates are multicellular and jacketed. The jacket of sterile cells around the sperms and eggs is an adaptation to a life on land. It protects the sex cells against the drying effects if air.
5. The fertilized egg retained within archegonium. Here it obtaines food and water from the parent plant and is protected from drying as it develops into an embryo. This adaptation is essential for the survival of the land plants. It ensures nursing of the young embryo and its protection against mechanical injury.
6. The thick walled, wind disseminated spores and the primitive vascular system in the form of a conducting strand are the other adaptation to land habit.