

*ONOCLEA STRUTHIOPTERIS* (L.) Hoffm. (Ostrich Fern), and *ONOCLEA SENSIBILIS* L. (Sensitive Fern). The well known Ostrich and Sensitive Ferns are almost invariably found together, and it seems impossible to differentiate between their habitats. Their typical station is a moist clay or sandy loam in a locality that is overflowed by spring freshets. Shade is not an important factor if other conditions are favorable. The most luxuriant growth of these ferns that the writer has found was in Huron County. Here they were shaded by only a few straggling willows. The ferns were associated with Virginia creeper, Impatiens, wood nettle and turtle head. A spring creek nearby would overflow the station in flood time. In "Ferns and their haunts" W. N. Clute gives *O. Struthiopteris* as, "at its best in the wet, sandy soil of a half-shaded island or river shore."

*WOODWARDIA VIRGINICA* (L.) Sm. (Chain Fern), and *OSMUNDA CINNAMOMEA* L. (Cinnamon Fern). May be considered the peat bog ferns. *Woodwardia* is found growing in sphagnum moss and extending out nearly to the edge of the lake that often occupies the centre of the bog. It is associated with pitcher plants and orchids, such as *Calopogon*, and only slightly shaded by *Ledum*, *Kalmia* and *Cassandra*, with an occasional small black spruce. In fact, shade is almost a negative factor.

In a typical location examined the *Osmunda* formed an outer zone in immediate contact with the preceding fern. Its location, however, was drier and better shaded than that of *Woodwardia*. The shade producing plants were hemlock, larger black spruce and tamarack. *Ledum*, *Cassandra* and *Kalmia* were also present, but these were not thriving as well as in the inner zone. Occasional specimens of this fern are found also in the moist, mucky soil of cedar swamps, but locations that furnish peaty materials seem to be its natural habitat.

*CYSTOPTERIS BULBIFERA* (L.) Bernh. (Bulblet Bladder Fern), and *CYSTOPTERIS FRAGILIS* (L.) Bernh. (Fragile Bladder Fern) have well differentiated habitats. *C. bulbifera* is sharply marked out by the fact that spring water is an essential component of its environment. As long as this factor is present, others are not so important. As a consequence, it is found on dripping rock ledges or springy clay in cedar swamps bordering spring creeks, and in other habitats which present springy conditions of soil. Drainage is here a very important factor, as stagnant water does not present the proper conditions. *Aspidium Thelypteris* and *Onoclea* are not nearly so sensitive in this respect. One typical station examined presented the fern associated with Indian turnip and enchanter's nightshade near the base of a ridge with a decidedly springy soil. Another station