Broadland Flood Alleviation Project: rare & scarce plants

Water soldier *Stratiotes aloides*

Description & distribution: A characteristic plant, which rises partly out of water to flower & can grow in extensive stands. The plant has many spiny, saw edged leaves up to 50 cm in length, ascending in a large crown like rosette. Nationally scarce, it is associated with still & sluggish mesotrophic water bodies. In the Broadland area the plant is locally abundant within the dyke systems of all the main river valleys, with strongholds in the Yare & Bure catchments. Although the exact relationship is not understood, the plant is strongly associated with breeding populations of the Norfolk Hawker dragonfly, *Aeshna isosceles*, a protected species.

Potential impacts: Flood defence works have the potential to reduce populations of the plant. Disturbance of the soke and marsh dykes may destroy the plant itself, limit its potential for regeneration, or detrimentally change water chemistry.

Mitigation: Baseline surveys are used to establish the presence & distribution of Water soldier in the works area prior to scheme initiation. Where impacts are unavoidable, the aim is to ensure that populations are subsequently restored to at least their former levels. For example when re-instating dyke systems during flood defence improvement works, silts containing plant rhizomes & turions are transferred from in-filled dykes to the newly instated dykes, to act as an inoculum. Individual plants may also be translocated. If concerns have been raised about water quality within the re-instated dykes, water chemistry monitoring may be undertaken during transfer from the fluvial system to the dykes.