The Hula Peatland: Past, Present and Future

FOREWORD

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Many colleagues from outside the region have been surprised to learn that there is a peatland in Israel at all, let alone a peatland sufficiently well researched to justify a journal special issue. Indeed there is, but the Hula challenges many preconceptions of peatlands as viewed from northern Europe and North America. Instead of *Sphagnum* there is tall *Papyrus*; instead of sedge-fringed pools there are bayous with catfish and turtles. Conducting fieldwork in the Hula also contrasts with peatland research elsewhere in the world: instead of bleak wilderness, the Hula restoration project is a popular tourist destination and research is more likely to be interrupted by inquisitive tourists in golf carts than by biting insects.

Peat started accumulating in the Hula Valley around 20,000 years ago forming a large wetland complex consisting of shallow Lake Hula, extensive *Papyrus*-dominated peatland and marginal mineral wetland with *Phragmites australis*. The Hula was one of the most extensive wetlands in the Middle East: an important stop for migrating birds and the home of many species which were found nowhere else in the region and several which were endemic. However, as with most peatlands in the eastern Mediterranean and Middle East, the Hula was threatened by human needs for drinking water, agricultural land and the desire to eliminate disease. Plans for drainage were proposed from the mid-19th century, but the task required considerable work and it wasn't until the 1950s that the wetlands were drained in what was seen as a great national achievement for the new state of Israel.

Today, the wetlands are a shadow of their pre-drainage past, but are still unique and fascinating ecosystems. A small fragment of the original Lake Hula was enclosed prior to drainage forming the Hula Nature Reserve which, although now much modified from its original form, still contains large areas of open water and more recent *Papyrus* wetlands.

Drainage of the Hula led to many problems encountered elsewhere when peatlands in arid regions are drained: fire, subsidence and difficulties for agriculture. These problems and the desire to improve the quality of water entering Lake Kinneret (the Sea of Galilee, Israel's largest freshwater resource) led to a limited restoration programme in the 1990s. Part of the original peatland was re-flooded, with reed-beds establishing around the new Lake Agmon.

Our intention in compiling this special issue is to bring together recent research on the Hula for both local and international audiences. The Hula has been the subject of a previous journal special issue; in 1998 a special issue of *Wetlands Ecology and Management* (Volume 6, No. 2–3) was devoted to the early years of the restoration project. However, we were conscious that much has changed over the last 15 years and there are broader issues in the Hula Valley which weren't addressed.

In producing this special issue we stretch the 'mires, peatlands and peat' remit of *Mires and Peat*, recognising that the pre-drainage Hula was a wetland complex including open water and mineral wetland as well as peatland, and that much of the current peat-derived soil is too degraded to be strictly termed peat. This collection of papers encompasses much of the diversity of research on the Hula. Henkin *et al*. (2011) and Kaplan (2012) address how the vegetation of the Hula has evolved since restoration to show the high degree of variability which has been observed. Simhayov *et al*. (2012) examine the causes of one such vegetation change—a catastrophic dieback of *Typha domingensis*—by experimentally testing two proposed geochemical models. Rytwo & Rabinowitz (2012) address one of the persistent problems of agriculture on drained peatlands, the behaviour of pesticides. Payne (2012) and Litaor *et al*. (2011) place such contemporary studies in their longer-term context by considering the impact of humans on the pre-drainage wetlands and the evolution and modification of the Hula soils.

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