

# CHAPTER 1

## INTRODUCTION

### 1.1. Rationale, aims and objectives

Although the area of south Hertfordshire, including the Vale of St Albans, has been the subject of considerable attention in the past (Thomasson, 1961; Gibbard, 1977; Catt, 1978; Rose & Gibbard, 1978; Rose, 1983; Cheshire, 1983a, 1986; Allen *et al.*, 1991), little work has been focused on the area lying immediately to the north. What previous work has been carried out within the study area of this investigation has been concentrated on isolated areas within the region, particularly around Hitchin and Stevenage and overall a coherent Pleistocene history of northern Hertfordshire/southern Bedfordshire is lacking.

This study reviews previous work on the Pleistocene history of both this and the immediate surrounding area as well as introducing new data from field and laboratory work conducted on till, the principal Pleistocene deposit. Subsequent interpretation will assist in the achievement of the following objectives.

- 1) To review previous research both from within the study area and adjacent areas and to assess the validity of the conclusions reached.
- 2) To gather new data on till deposits within the area.
- 3) To establish a local lithostratigraphic sequence.
- 4) Where possible, to correlate major units in this sequence with those in adjacent areas.
- 5) To reconstruct the glacial dynamics and glacial palaeogeography of the study area and to put this into a regional context.

New data relating to the macrofabric, particle size and the lithology of tills within northern Hertfordshire and southern Bedfordshire, alongside that from previous research, is used to determine a local lithostratigraphy. Using the results of the literature review, this stratigraphy is compared to the regional patterns of ice flow suggested by previous work and a reconstruction of the palaeogeography is undertaken.

A map of the area covered in this study is shown in Figure 1.1.

## **1.2. Background**

The British Geological Survey (BGS) memoir for the Hitchin Geological Sheet 221 (Hopson *et al.*, 1996) provided an up-to-date synopsis of Pleistocene events in the area, including that of the Hitchin and Stevenage Channels. Results from geophysical surveys were used together with borehole data to arrive at an interpretation of events during the Anglian glaciation. However, it appears that little work has been carried out on the detailed character of these deposits and no serious attempt at correlation with deposits from adjacent areas has been made. An exception to this is the work of Etienne (2001) who conducted a detailed investigation into deposits found at Holwell.

Other recent work by Hopson (1995) has brought to light the extensive distribution of chalk rafts on the north Hertfordshire/south Cambridgeshire border and Smith & Rose (1997) published details of their new find of the Letchworth Gravel. Deposits lying immediately to the northwest of the Chalk scarp have received little attention. It is felt a study of this particular area should provide an excellent opportunity to obtain an insight into the dynamics of the approaching ice sheet as it encountered the Chalk scarp.

## **1.3. Constraints**

It was clear at the outset that no funding was available for this research. In view of this the field work and laboratory programs were designed around existing equipment.

Very few exposures of glacial deposits exist within the study area. At the commencement of this study, plans were in hand for a large housing development (5,000 new homes and associated infrastructure) on green fields to the west of Stevenage. It was envisaged that such large scale construction would offer many sampling opportunities and provide some information regarding stratigraphy, etc. Unfortunately, as of spring 2008 this work is yet to start.

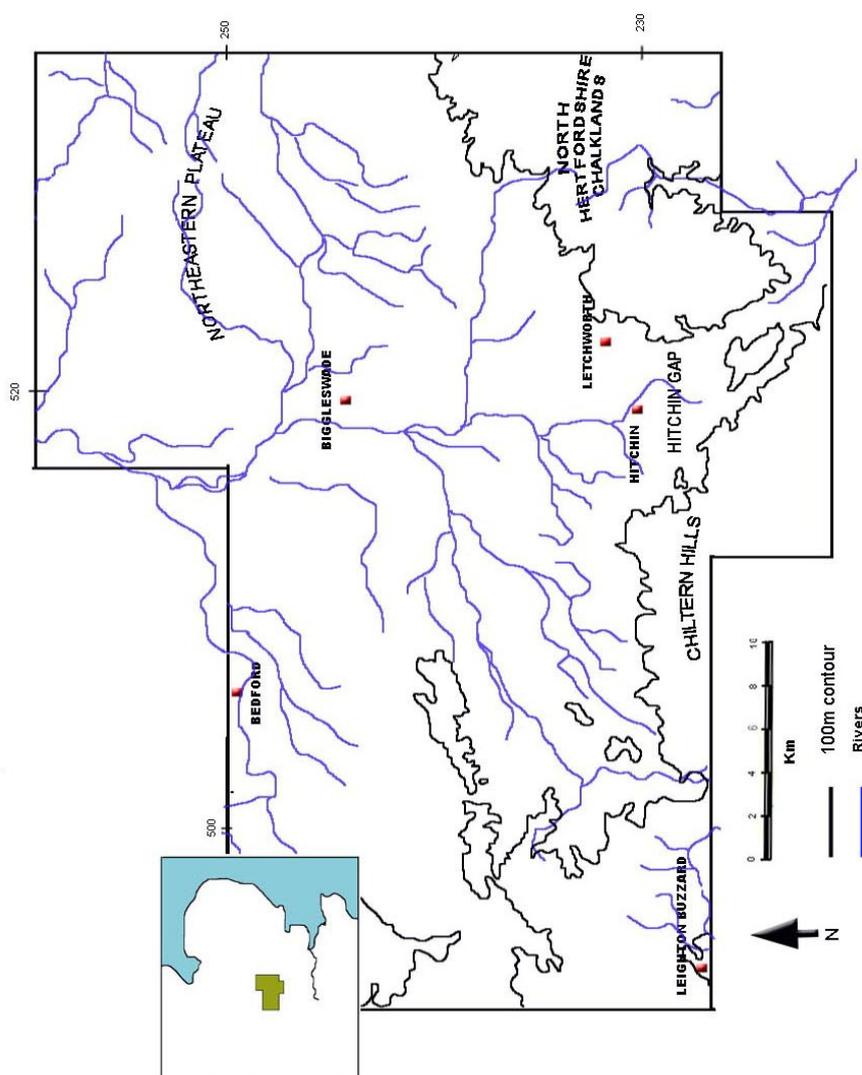


Figure 1.1. Chief towns and topographic features of the study area.