

# A “Purbeck-Wealden type” ostracod fauna from the Xiagou Formation:

## Biostratigraphy and palaeoenvironmental implications

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### Introduction

Non-marine Lower Cretaceous “Purbeck-Wealden type” ostracod faunas have been widely documented in Europe, East Asia, South and North America, and Africa. However, the faunal compositions of these are quite different depending on the global geographic region and the regional basins. Here we re-study the non-marine ostracods from the Xiagou Formation of the Jiuquan Basin (northwestern China), based on our newly collected material.

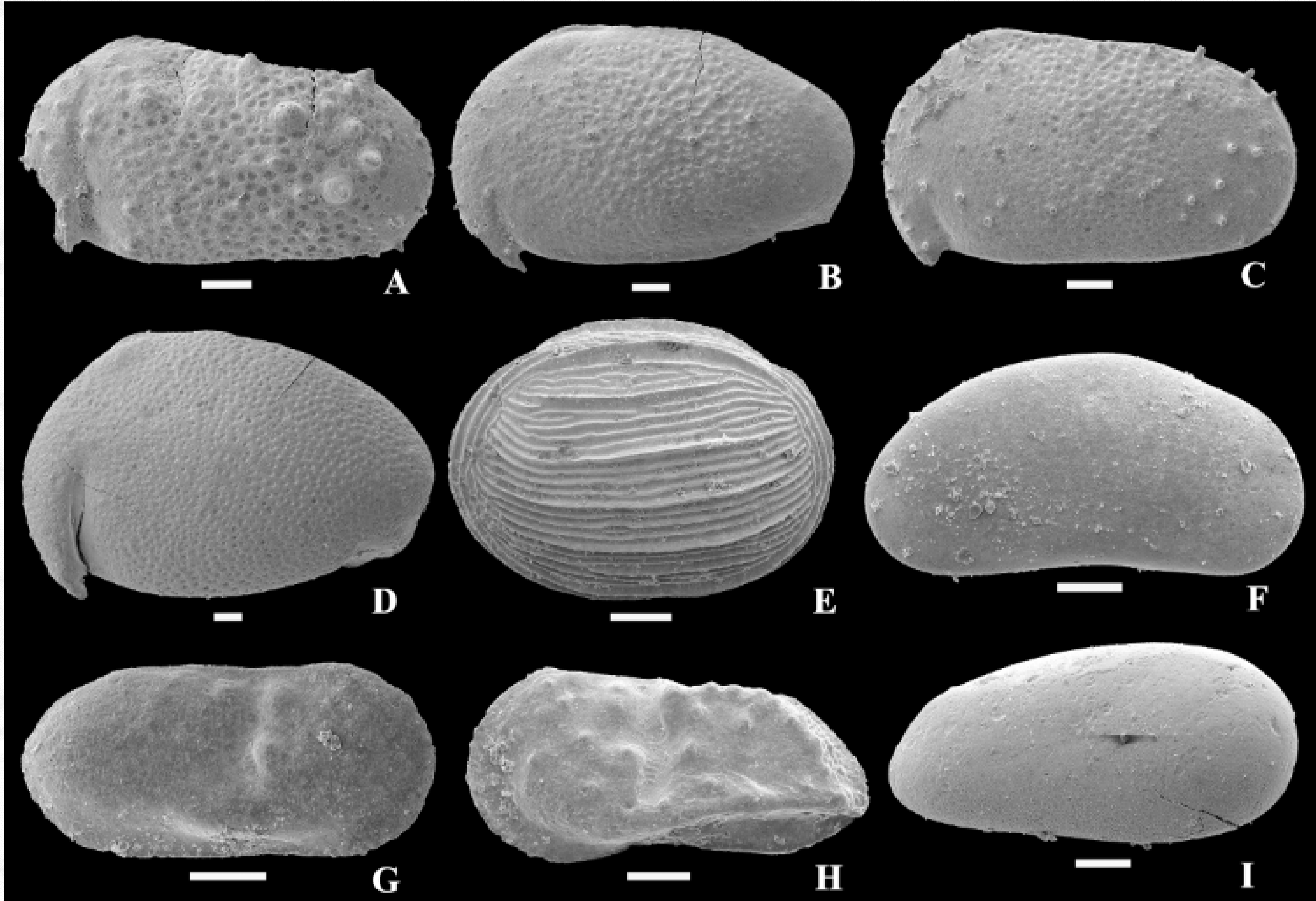


Fig. 2 Selected ostracod species from the Xiagou Formation at the west Xiagou section of the Jiuquan Basin, A: *Bisulcoypridea astuta* (Ye and Li, 1988), B: *Cypridea* sp., C: *Cypridea koskulensis* (Mandelstam, 1958), D: *Cypridea xiagouensis* (Hu and Xu, 2005), E: *Ziziphocypris costata* (Galeeva, 1955), F: *Candona* sp., G: *Limnocythere? subpeculiaris* (Hu and Xu, 2005); H: *Limnocythere? xiagouensis* (Hu and Xu, 2005), I: *Alicenula* sp.

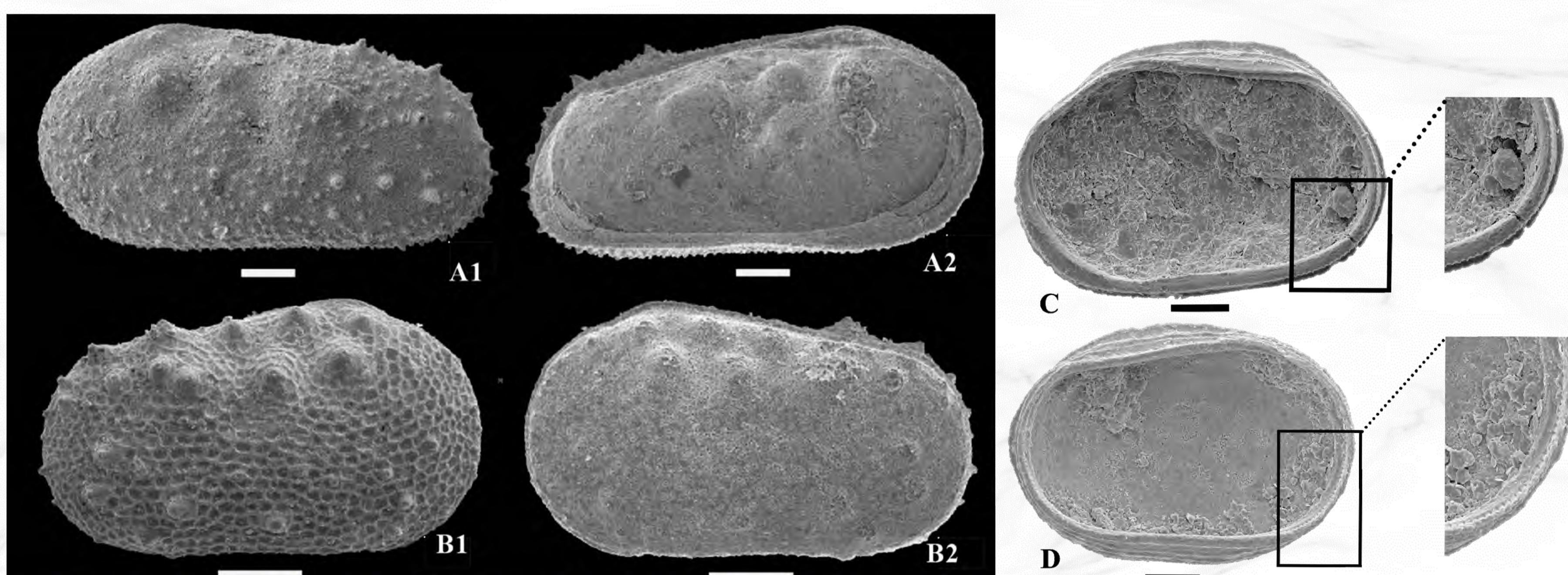


Fig. 3 A-B: *Rhinocypris jurassica*, A, adult left valve, B, juvenile right valve; C-D: *Ziziphocypris costata*, C, adult right valve with denticles along the free margins, D, adult left valve with tiny pits.

### Geological setting and material

The Jiuquan Basin, located in Gansu Province, northwest China, is one of the earliest studied Early Cretaceous basins for oil exploitation (Fig. 1A). The studied west Xiagou section is close to Xiagou village (97°48'21.64", 39°56'41.60") (Fig. 1B). In this study, we totally collected 14 rock samples; of these, 10 samples contain ostracod fossils.

### Results

The non-marine “Purbeck-Wealden type” ostracod fauna from the Xiagou Formation consists of 11 species belonging to 7 genera: *Bisulcoypridea astuta*, *Cypridea xiagouensis*, *C. kansuensis*, *C. subunicostata*, *C. koskulensis*, *Candona* sp., *Ziziphocypris costata*, *Rhinocypris jurassica*, *Limnocythere? xiagouensis*, *L.? subpeculiaris*, *Mongolianella* sp., *Alicenula* sp. (Fig. 2). Specimens of *Rhinocypris jadianensis* in Hu and Xu (2005), we interpret as representing juvenile individuals of *R. jurassica* (Fig. 3). Within the species *Ziziphocypris costata*, we document denticles (tiny teeth) along free margins of right valve for the first time (Fig. 3).

Our ostracod biostratigraphic data and correlations indicate that this ostracod fauna can be assigned to the Barremian-Aptian *Cypridea* (*Cypridea*)-*Cypridea* (*Ulewllia*)-*Limnocypridea* ostracod assemblage. This result, combined with the updated Early Cretaceous chronostratigraphic framework from the Jiuquan Basin, indicates that the Xiagou Formation is Aptian. Based on ostracod taxonomic and taphonomic as well as sedimentological analysis, the depositional environment of the Xiagou Formation is interpreted as lacustrine to fluvial (fluvial-deltaic).

### Reference

Hu, Y.X., Xu, D.L., 2005. Early Cretaceous ostracods from the Xiagou Formation in Xiagou, Gansu Province. *Acta Micropalaeontologica Sinica*, 22(2): 173-184 (in Chinese with English abstract).

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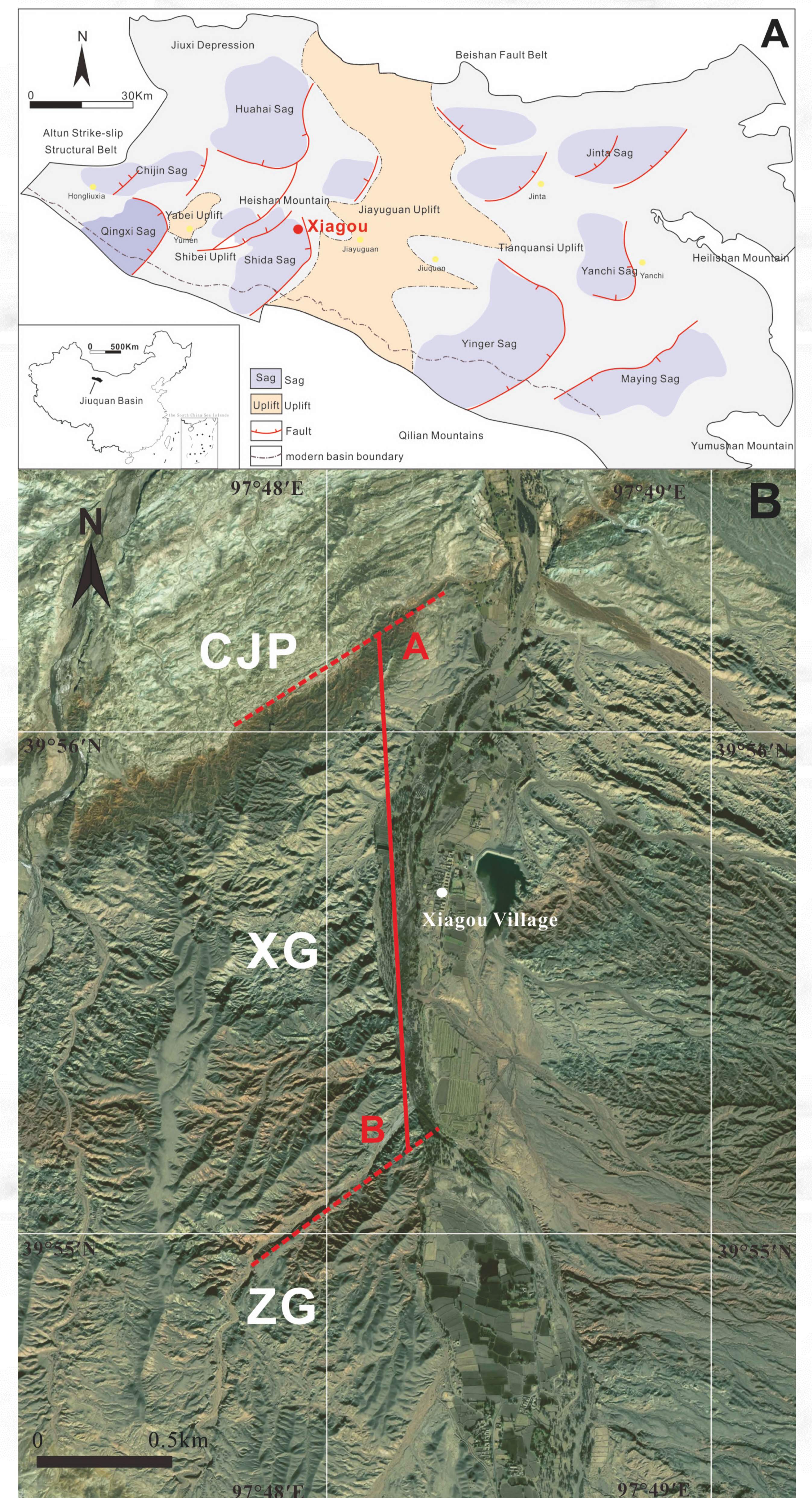


Fig. 1 The location map showing the Jiuquan Basin and the west Xiagou Section (red line: A to B), CJP=Chijinpu Fm., XG=Xiagou Fm., ZG=Zhonggou Fm.