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A note on the Occurrence of Fresh Water Ostracods in the Siwalik Group of Surai Khola Section, Western Nepal

S. C. Khosla[1], B. N. Upreti[2], and G. Corvinus[3]

[1]Department of Geology, M.L. Sukhadia University, Udaipur, India
[2]Department of Geology, Tribhuvan University, Tri-Chandra Campus, Kathmandu, Nepal
[3]Nepal Research Centre, P.O. Box 180, New Baneshwar, Kathmandu, Nepal

ABSTRACT

The occurrence of fresh water ostracodes-*Candona lactea* Baird, *Cypria ophthalmica* (Jurine), *Cyprinotus* sp., *Ilyocypris gibba* (Ramdohr), *Limnocythere* sp., and *Potamocypris* sp.- is recorded from the Siwalik Group of Surai Khola Section, southeast of Dang in West Nepal.

INTRODUCTION

The Siwalik Group has been extensively studied in India and Pakistan for the last over 150 years, but in Nepal active studies of this group commenced only from middle of the present century. Important contributions to the stratigraphy of the Siwalik Group of Nepal have been made by Hagen (1959), Glennie and Ziegler (1964), West and Munthe (1981, 1983), Conroy et al. (1985), Tokuoka et al. (1986, 1988, 1990), Corvinus (1988a, b; 1993), West et al. (1988), Appel et al. (1991), Gautam and Appel (1994), and Sah et al. (1994). Among the fauna and flora, the vertebrates have been recorded and/or described by West et al. (1978), West and Munthe (1981, 1983), Munthe et al. (1983), West (1984), Conroy *et al.* (1985), Corvinus (1988b, 1993), and Sah (1992); the molluscs by West *et al.* (1975), Tokuoka *et al.* (1986), and Takayasu (1992); the mega plant fossils by Awasthi and Prasad (1991); and the pollens by Mathur (1972), and Sarkar (1991). However, the ostracode microfauna has not received any attention from micropaleontologists since its first reporting from the Siwaliks of central and western Nepal by the Chinese Petroleum Investigation Team (1973).

With the intention of working the ostracode microfauna from the Siwalik Group of Nepal, the present authors collected systematic samples from Surai Khola Section, south of Dang in West Nepal. (Fig 1). A preliminary examination of these samples has revealed the presence of interesting ostracodes in the upper part of the succession. The object of this note is to place on record the occurrence of these ostracodes

OSTRACODE OCCURRENCES IN THE WESTERN HIMALAYA

In so far as the occurrence of ostracodes in the Siwalik Group from the other parts of the Himalaya is concerned, they were first recorded by Bhatia and Khosla (1967) from the Pinjaur Formation near Choti Parch, northwest of Chandigarh, India. These authors reported following nine species: *Candona candida* (Muller), *C. lactea* Baird, *Cypridopsis*? sp. cf. *C. striolata* (Brady), *Darwinula stevensoni* (Brady and Robertson), *Hemicypris pyxidata* (Moniez), *Ilyocypris bradyi* Sars, *Ilyodromus* sp., *Limnocythere* sp., and *Zonocypris costata* (Vavra). Since then modest work has been done on the Siwalik ostracodes of India by the faculty members and research students of the Panjab University, Chandigarh. This includes two publications of Mathur (1972, 1978) who described and illustrated 10 species - *Candona lactea* Baird, *C. marengoensis* Klie, *Candonopsis kingsleii* (Brady and Robertson), *Cypris subglobosa* Sowerby, *Ilyocypris bradyi* Sars, *I.*

gibba (Ramdohr), *Limnocythere bhatai* Mathur, *Potamocypris* sp., *Strandesia* sp., and *Zonocypris costata* (Vavra) - from the Tatrot Formation near Pinjaur, Haryana, and 3 species - *Cypricercus* sp. indet., *Eucypris pandei* Mathur, and *Stenocypris*? sp. indet. - from the Chinji Formation near Triloknath and Dehra Gopipur, Himachal Pradesh

SIWALIKS OF SURAI KHOLA

STRATIGRAPHY

The stratigraphy of the Siwalik Group of the Surai Khola has been described among others by Corvinus (1993). She has subdivided the succession, ranging

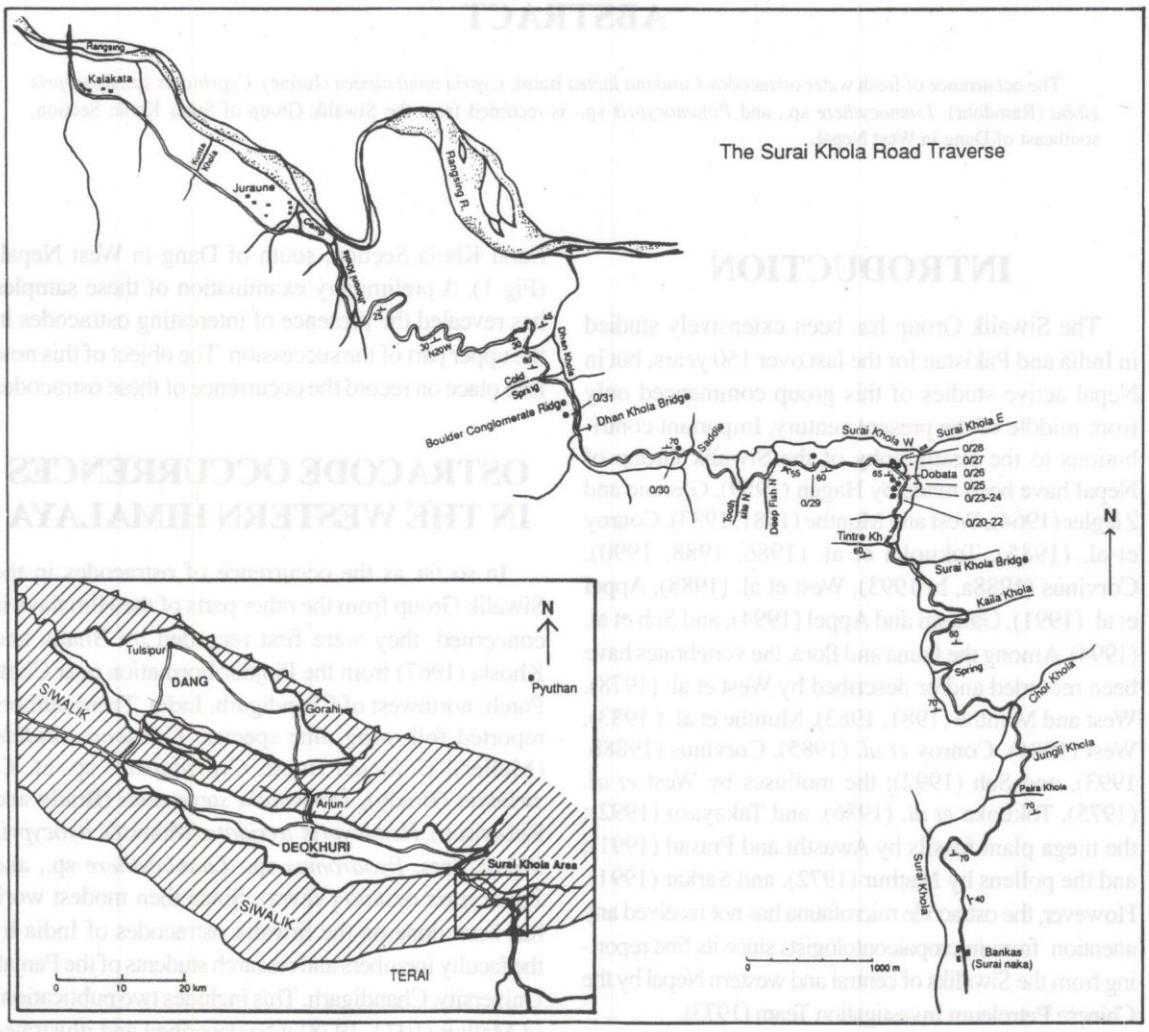

Fig. 1 Map showing location of samples containing ostracodes

from Middle Miocene to Early Pleistocene, into the following five formations in ascending order: (i) Bankas Formation, (ii) Chor Khola Formation, (iii) Surai Khola Formation, (iv) Dobatta Formation, and (v) Dhan Khola Formation. There are number of clay or mudstone bands containing rare to common gastropods and/or bivalves in all the above units. Our ostracode specimens recorded herein come from the upper part of the Surai Khola and the succeeding Dobatta and Dhan Khola Formations of Corvinus exposed along the East-West Highway between an unnamed gulley north of Tintre Khola to a little beyond Dhan Khola bridge. The succession exposed in Surai Khola Section is given in Fig. 2.

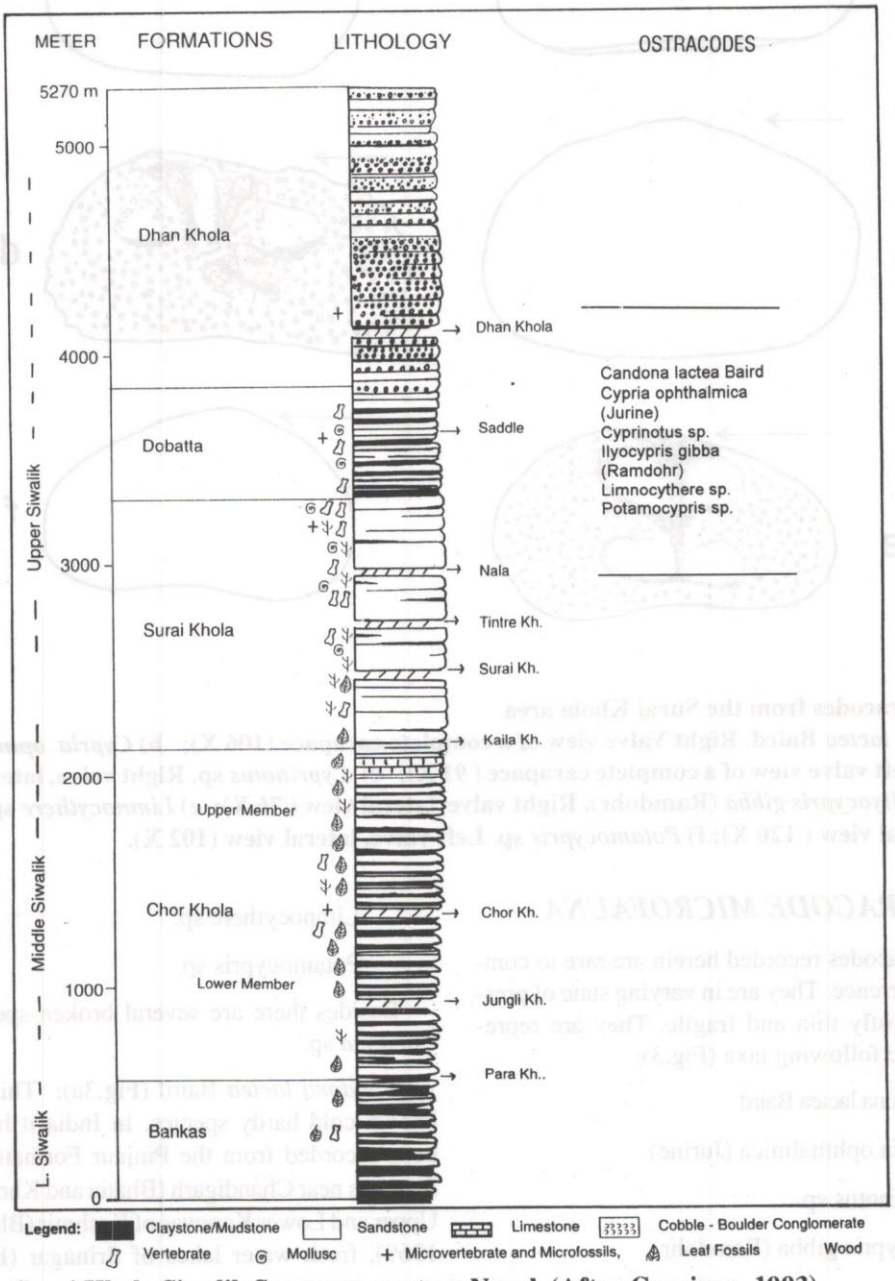

Fig. 2 The Surai Khola Siwalik Sequence, western Nepal (After Corvinus, 1993)

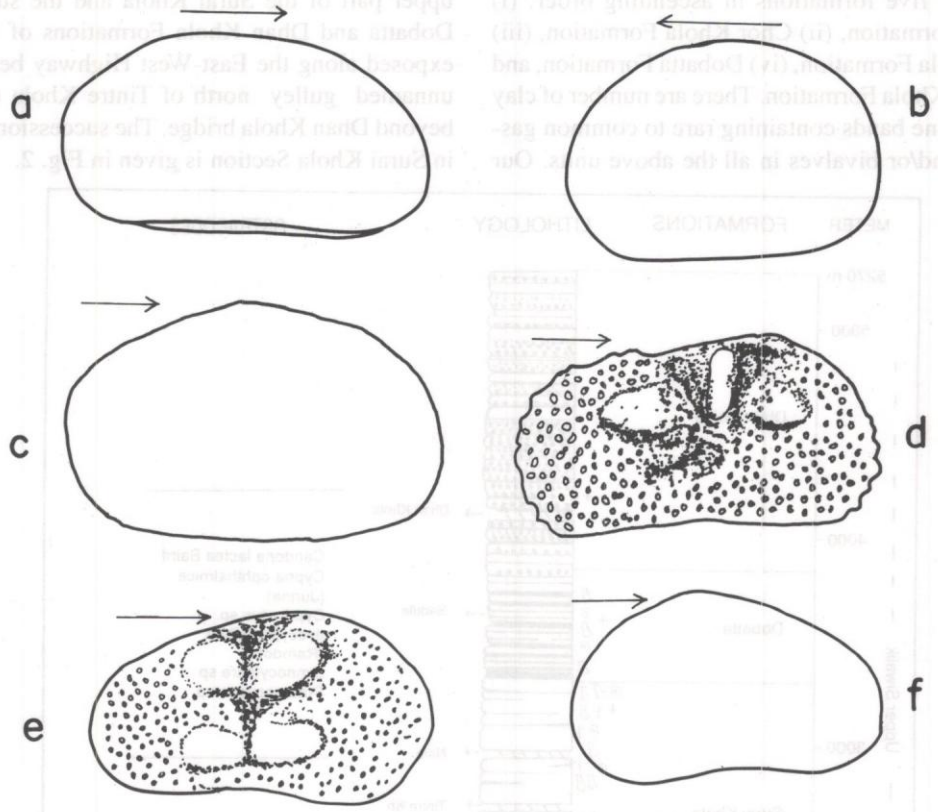

Fig. 3 Ostracodes from the Surai Khola area
a) *Candona lactea* Baird. Right Valve view of a complete carapace (106 X); b) *Cypria ophthalmica* (Jurine). Left valve view of a complete carapace (91 X); c) *Cyprinotus* sp. Right valve, lateral view, (77 X); d) *Ilyocypris gibba* (Ramdohr). Right valve, lateral view (76 X); e) *Limnocythere* sp. Right valve, lateral view (120 X); f) *Potamocypris* sp. Left valve, lateral view (102 X).

OSTRACODE MICROFAUNA

The ostracodes recorded herein are rare to common in occurrence. They are in varying state of preservation, mostly thin and fragile. They are represented by the following taxa (Fig.3):

Candona lactea Baird

Cypria ophthalmica (Jurine)

Cyprinotus sp.

Ilyocypris gibba (Ramdohr)

Limnocythere sp.

Potamocypris sp.

Besides there are several broken specimens of *Candona* sp.

Candona lactea Baird (Fig.3a): This is a well known cold hardy species. In India it has already been recorded from the Pinjaur Formation, Upper Siwaliks near Chandigarh (Bhatia and Khosla, 1967), Upper and Lower Karewas of Kashmir (Bhatia, 1968, 1969), fresh water lakes of Srinagar (Bhatia and

Singh, 1971), and Sub-Recent marlstone of southern Haryana (Bhatia and Khosla, 1977).

Cypria ophthalmica (Jurine) (Fig.3b): This species has been recorded in India from the Upper Karewas of Kashmir (Bhatia, 1968), and fresh water lakes of Srinagar (Bhatia and Singh, 1971).

Ilyocypris gibba (Ramdohr) (Fig.3d): It has previously been recorded in India from the Lower Karewas near Nichahom (Bhatia, 1969), Upper Karewas of Pampur, Mirgund and Gulmarg in Kashmir Valley (Singh, 1970), and the Tatrot Formation of the Upper Siwalik near Dhamala (Mathur, 1972). Elsewhere it ranges from Cromerian to Recent (Robinson, 1978).

Further study of the ostracode fauna from the entire Siwalik succession of Surai Khola Section is in hand and when completed would be of great significance in its biostratigraphic zonation, Paleoecologic interpretation and correlation with the Siwaliks of the other regions.

Post-script: Subsequent to the presentation of the paper in the Workshop authors recorded additional ostracode species -*Ilyocypris bradyi Sars* and *Zonocypris costata (Vavra)* - from grey mudstone of Dhan Khola Formation (sample no. 0/31). These are common in occurrence and well preserved.

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