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A first report of wood-boring trace fossil *Asthenopodichnium* and *Teredolites* from the Barmer Hill Formation of the Barmer Basin, Western Rajasthan, India.

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A megascopic, trace fossil occurs in the Paleocene Barmer Hill Formation of the Barmer Basin, Western Rajasthan, India is presented here as first reporting of wood-boring *Asthenopodichnium* and *Teredolites*. The wood-boring trace fossil found in the lowest and upper fining upward siliciclastic sequence from two sections of the Barmer Hill Formation. The sixty meter thick first section is situated within the Barmer city. The detailed study of the section reveal that the trace fossil bearing fine grained sandstone horizon is 10 cms to about 0.2 meter thick. The close examination of trace fossil of Barmer section assignment to *Asthenopodichnium*. Fifty meter thick second section occurs at Lunu Hill, in Lunu village. Which is located about seven km from first section on Barmer - Bisala road. Here, same ill-preserved *Asthenopodichnium* trace fossil horizon occurs in lowest fining upward siliciclastic sequence. Wood boring trace fossil *Teredolite* is also occurs in whitish to grayish medium grained sandstone from upper fining upward siliciclastic sequence from the Lunu Hill section.

The present *Asthenopodichnium* trace fossils at Barmer section is tightly packed, scoop to almond-shaped and pouch-like trace of yellowish to yellowish brown in colour, preserved probably as iron hydroxide rind casts of wood fragments and logs. Normally, longer axes of the scoops are aligned parallel or sub-parallel to the long axis of the preserved wood. The individual scoops are ranging in size from about 1 -3cms. The present *Teredolite* occur as Clusters of elongate to short, clavate-shaped or club shaped to flask-shaped tubes in wood grounds. They are circular to sub circular in cross-section and are vertical to oblique to bedding. The sedimentological and paleontological investigation of both sections suggest fluvial paleoenvironment for the lower part and it seems that brackish tidal processes influence the fluvial systems in the *Teredolite* bearing upper part of the Barmer Hill Formation.

To our best knowledge, present trace fossils have not been reported until now and are a first reporting on a prolific macroscopic trace fossil, *Asthenopodichnium* and *Teredolite* from the Barmer Basin. The present paper embodies wood-related trace fossils; ichnogenus *Asthenopodichnium* and *Teredolite* along with the palaeoenvironmental setting, and highlights the relationship between *Asthenopodichnium* and the widely recognized *Teredolites* ichnofacies.