

Figure S1 Lithological log of the Lower Jurassic Ziliujing Fm with depositional environment interpretations and sample positions at the Shaping section, Ya'an of Sichuan. Bed number and thickness are partly referred to Wen and Zhao (2010).

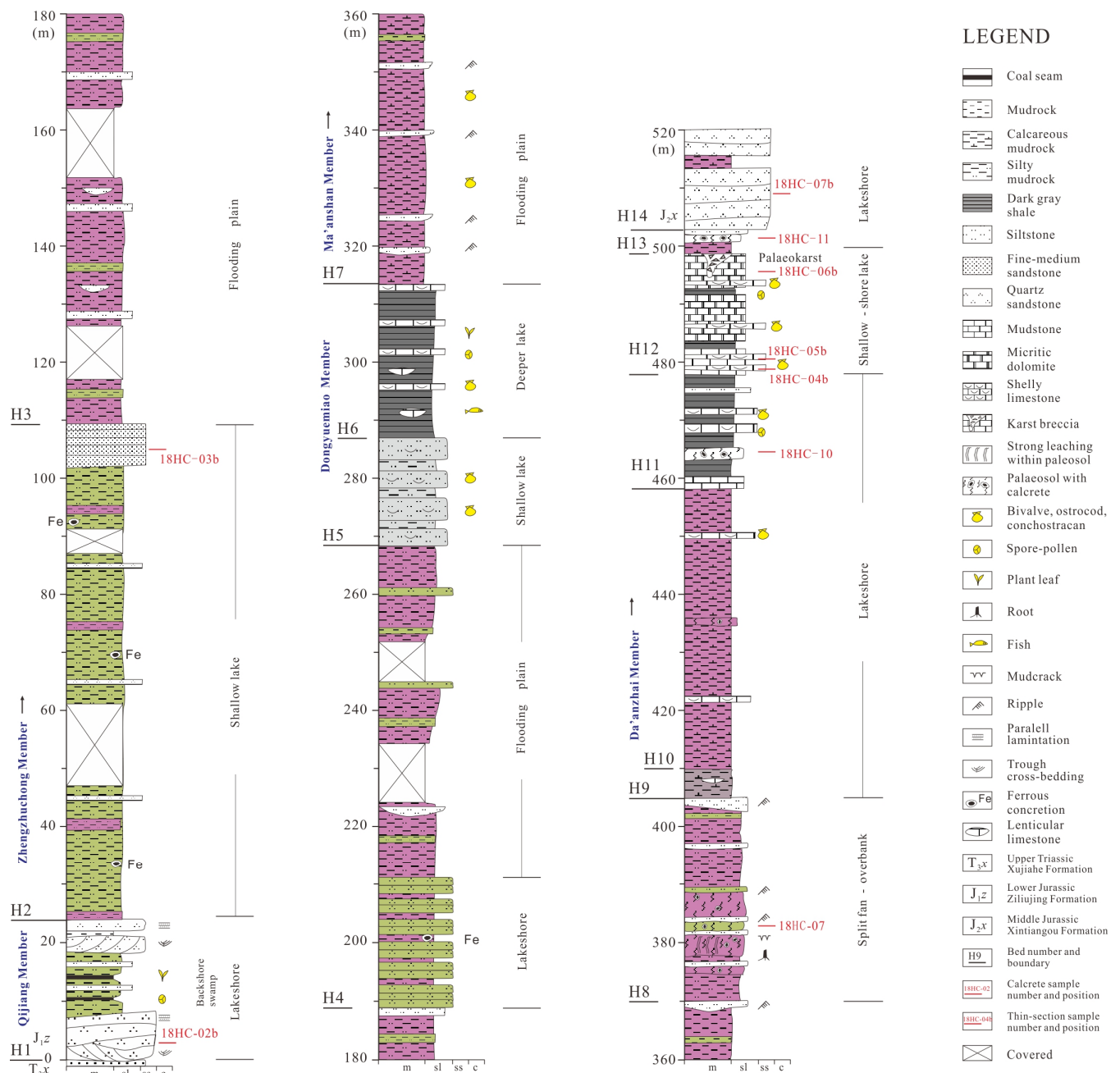


Figure S2 Lithological log of the Lower Jurassic Ziliujing Fm at the Tanba-Maliuping section, Hechuan of Chongqing with depositional environment interpretations and sample positions. Bed number and thickness are partly referred to Wang et al (2010).

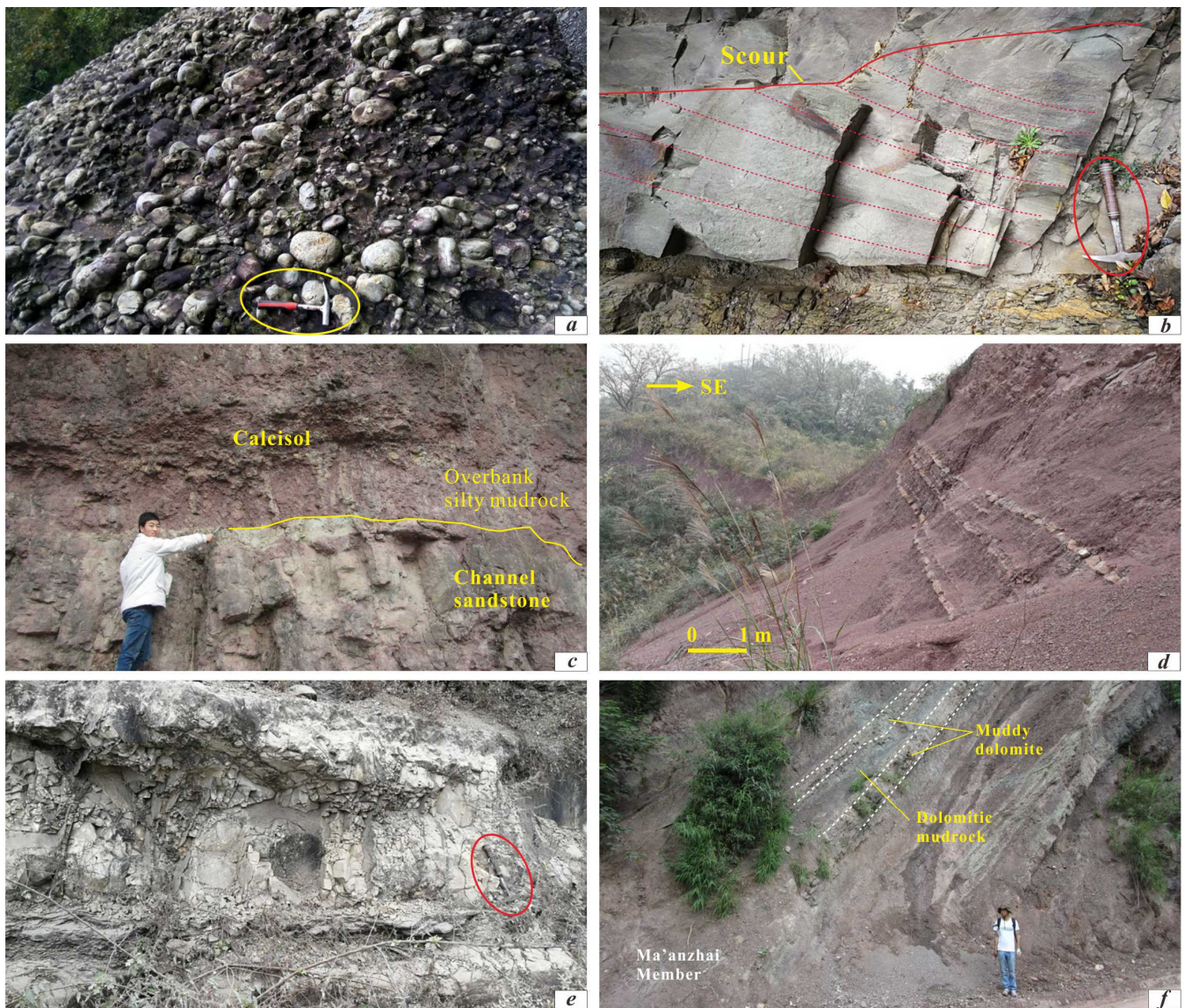


Figure S3 Field photographs of the Lower Jurassic Ziliujing Fm lithofacies in GSB. *a*, Well roundness and sorting gravels in the alluvial fan conglomerate. Basal and lower Baitianba Fm. Puji, Wangcang. Hammer 30 cm long. *b*, Large trough cross-bedding with scours in the point bar and channel sandstones. Upper Baitianba Fm; Puji, Wangcang. *c*, Calcisol developed within strong leaching overbank mudrocks on channelized sandstones. Middle of Bed B2, the Zhenzhuchong Mem; Shaping section, Ya'an. *d*, Purple red mudrocks intercalated with thin siltstones in flood plain facies. Bed H7 of the Ma'an Shan Mem; Tanba section, Hechuan. *e*, Whitish medium-thick micritic dolomites in lacustrine facies. Bed H12 of the Da'an zhai Mem; Maliuping section, Hechuan. Hammer 34 cm long. *f*, Greenish gray lacustrine muddy dolomites and dolomitic mudrocks associated with brownish / reddish purple mudrocks. Bed B21 of the Da'an zhai Mem; Shaping section, Ya'an.

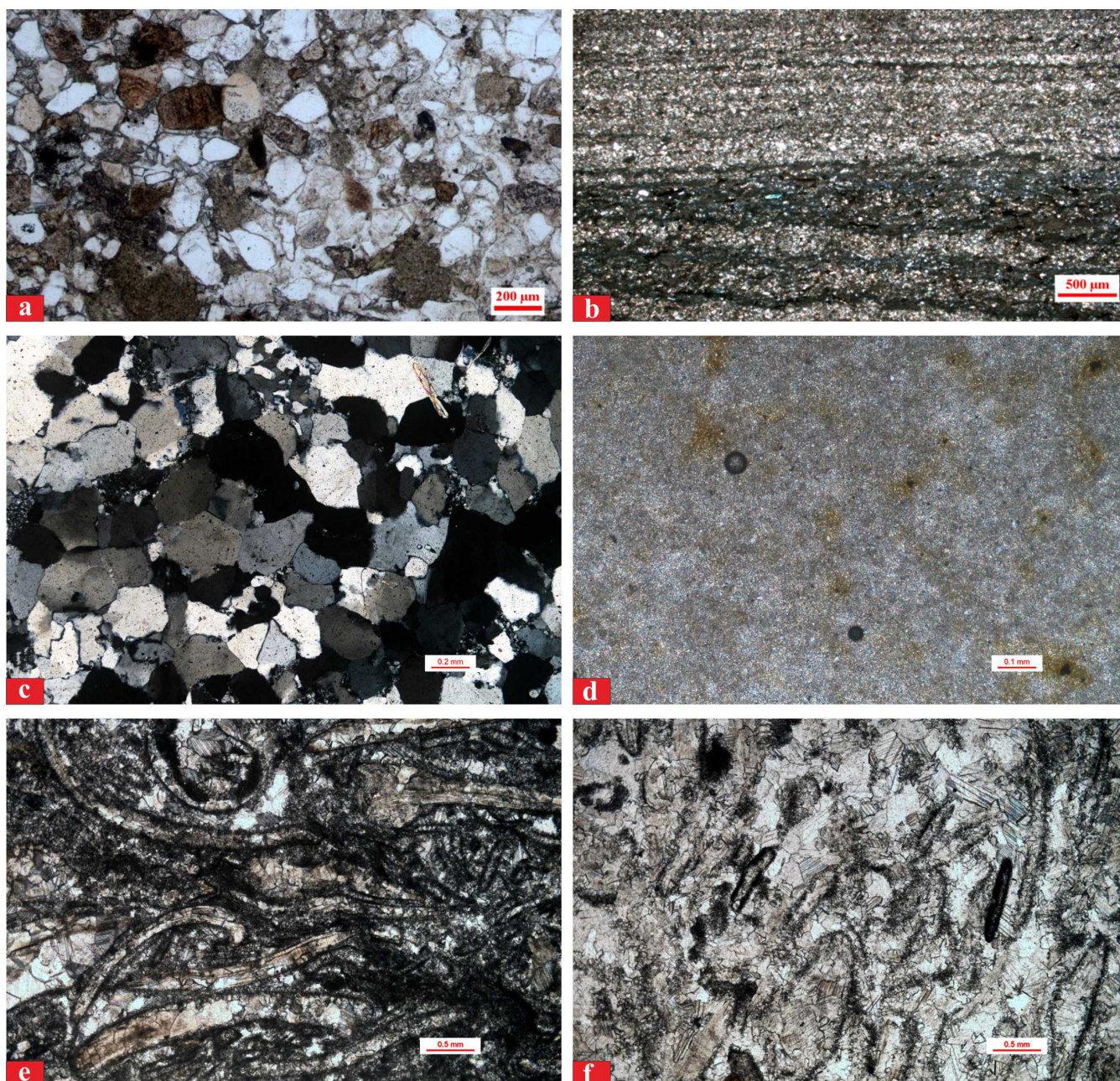


Figure S4 Microscopic photos showing lithological microfacies of the Lower Jurassic Ziliujing Fm. *a*, Fine lithic (quartz) sandstone. Lithic-dominant fragments are mudrock. Sample J₁z-02-01b, Zhenzhuchong Mem; Shaping section, Ya'an. Plain-polarised light. *b*, Laminated muddy dolomite and dolomitic mudrocks. Sample J₁z-21S2B, Da'anzhai Mem; Shaping section, Ya'an. Plain-polarised light. *c*, Fine quartz arenite. Sample 18HC-02b3, Bed H2, Qijiang Mem, Tanba section, Hechuan. Cross-polarised light. *d*, Micritic dolomite. Sample 18HC-06b, Bed H12, Da'anzhai Mem. Maliuping section, Hechuan. Plain-polarised light. *e*, Coquina. Shell wall of bivalves were micritized. Mud and recrystalline calcites filled inter-shells and intra-shells. Sample 18HC-04b, Base of Bed H12, Da'anzhai Mem. Maliuping section, Hechuan. Cross-polarised light. *f*, Relict of coquina. Shell wall of bivalves were partly micritized. Strongly recrystalline calcites replaced the fills and shells. Sample 18HC-05b, Bed H12, Da'anzhai Mem. Maliuping section, Hechuan. Cross-polarised light.

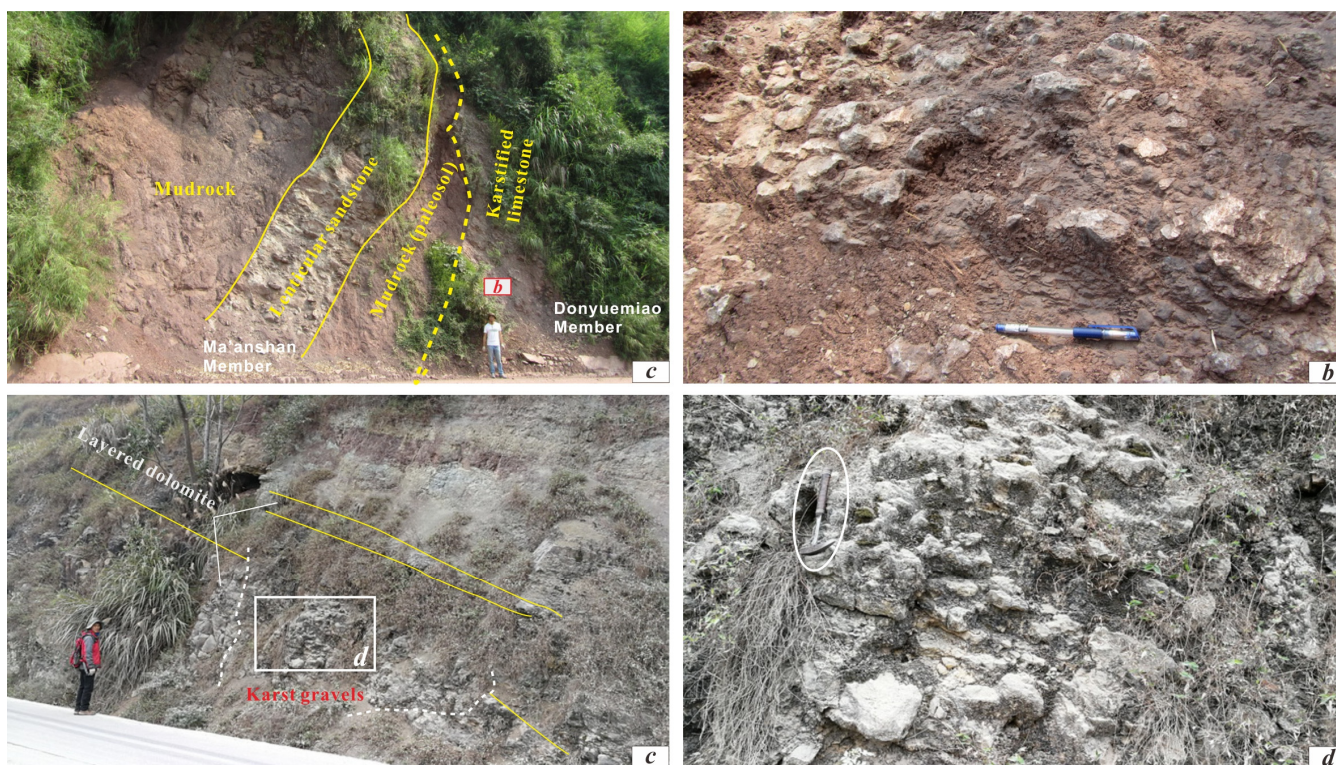


Figure S5 Field photographs of the Lower Jurassic Ziliujing Fm lithofacies in GSB. *a*, Lithofacies and stratigraphic sequence. Beds B8 to B10 of the lower Ma'anshan Mem and Dongyuemiao Mem at Shaping village, Ya'an. *b*, Karstified gravels within the limestone. The horizon and location is same as *a*. Pen 15 cm long. *c*, Layered dolomites with Karstified cave gravels. Bed H12 of the Da'anzhai Mem at Maliuping village, Hechuan. *d*, Karstified cave gravels. The horizon and location is same as *c*. Hammer 34 cm long.

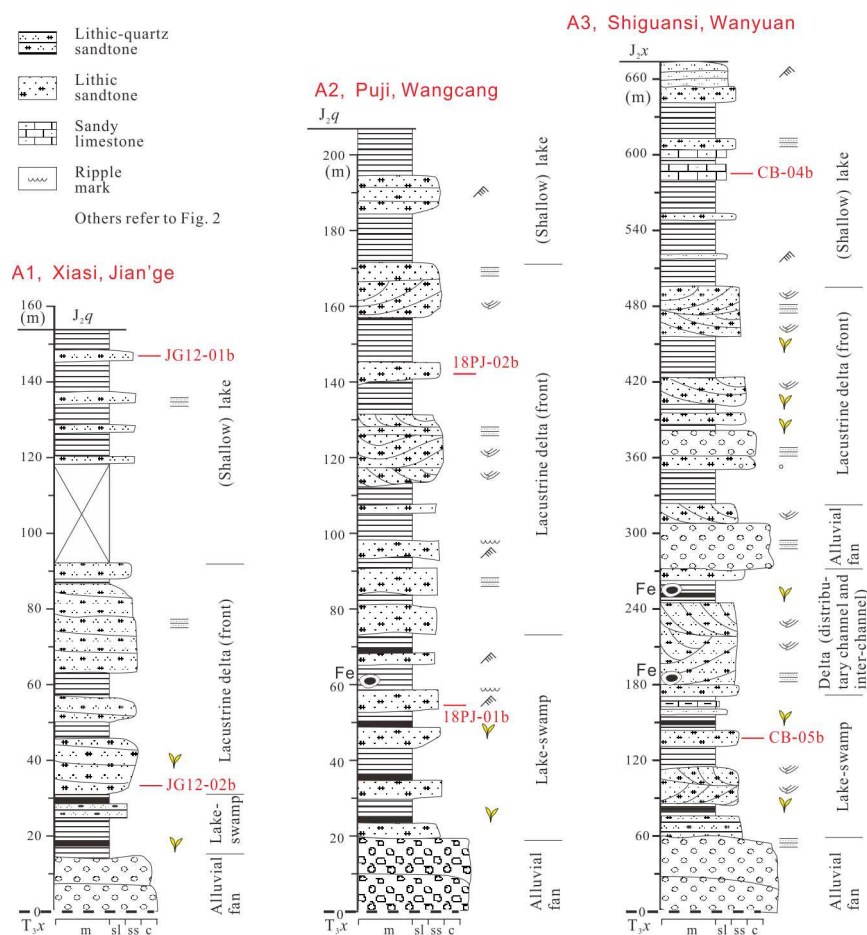


Figure S6 Stratigraphic correlation of the Lower Jurassic Baitianba Fm in northern GSB. Locations and sources refer to Figure 1. Plant fossils and stratal thickness in the Shiguansi section, Wanyuan are cited from SBG (1980b).

References cited:

- SBG (Sichuan Bureau of Geology): Reports of 1:200,000 Regional Geology Investigations (Profiles Yilong, Tongjiang, Nanchong, Guang'an, and Chongqing), 100-101, 1980b (in Chinese).
- Wang, Y. D., Fu, B. H., Xie, X. P., Huang, Q. S., Li, K., Liu, Z. S., Yu, J. X., Pan, Y. H., Tian, N., and Jiang, Z. K.: The Terrestrial Triassic and Jurassic Systems in the Sichuan Basin, China, in: Contributions to the 8th International Congress on the Jurassic System, edited by: Sha, J. G., Shi, X. Y., Zhou, Z. H., Wang, Y. D., Uni. Sci. Techn., China Press, Hefei, Anhui, 1-136, 2010 (in Chinese).
- Wen, W. and Zhao, B.: Stratigraphic character and sedimentary facies of the Ziliujing Formation in the Pujiang-Ya'An area, Sichuan province, J. Stratigr., 34(2), 219-224, 2010 (in Chinese with English abstract).