SUPPLEMENTARY MATERIALS

Mountains, Lakes, and Ancient Drainage Networks Sculpt the Phylogeographic Architecture of the Stream Headwater Fish *Acrossocheilus kreyenbergii* in China

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Table S1. Sampling-site information and mitochondrial *Cyt b* haplotype distribution for *A. kreyenbergii*.

Sampling locality	Coordinate	N	Haplotype (N)
Pearl River Basin: Xijiang River			
1. Congjiang Country	25.73°N, 108.98°E	2	K1(1), K2(1)
2. Sanjiang Country	25.78°N, 109.61°E	7	K1(6), K3(1)
3. Longsheng Country	25.81°N, 110.01°E	9	K1(7), K3(1), K4(1)
4. Liuzhou City	25.06°N, 109.29°E	8	K1(3), K5(5)
5. Hechi City	24.51°N, 108.67°E	9	K1(8), K6(1)
6. Yongfu Country	24.98°N, 109.99°E	10	K1(10)
7. Pingle Country	24.64°N, 110.65°E	7	K1(6), K7(1)
8. Yangshuo Country	24.78°N, 110.50°E	17	K1(15), K8(1), K9(1)
9. Guilin City	25.26°N, 110.30°E	13	K1(11), K10(1), K11(1)
10. Xingan Country	25.57°N, 110.48°E	11	K1(6), K8(1), K12(1), K13(1), K14(1), K15(1)
Yangtze River Basin: Zishui River, Dongting Lake catchment			
11. Shaoyang Country	27.22°N, 111.50°E	2	K16(1), K17(1)
Yangtze River Basin: Xiang River, Dongting Lake catchment			
12. Yiyang Country	26.57°N, 111.85°E	3	K1(2), K12(1)
13. Quanzhou Country	25.93°N, 111.09°E	8	K1(6), K18(1), K19(1)
14. Shuangpai Country	25.96°N, 111.67°E	4	K1(4)
15. Dao Country	25.53°N, 111.56°E	4	K1(3), K20(1)
16. Jiangyong Country	25.29°N, 111.33°E	4	K1(3), K13(1)
17. Jianghua Country	25.20°N, 111.61°E	6	K1(5), K21(1)
18. Lanshan Country	25.38°N, 112.21°E	3	K22(2), K23(1)
19. Jiahe Country	25.59°N, 112.39°E	3	K1(1), K22(2)
20. Zixing City	25.95°N, 113.27°E	4	K24(4)
21. Rucheng Country	25.67°N, 113.70°E	4	K24(2), K25(2)
22. Anren Country	26.71°N, 113.24°E	3	K1(1), K26(1), K27(1)
23. You Country	26.99°N, 113.33°E	2	K28(1), K29(1)
24. Chaling Country	26.79°N, 113.54°E	1	K22(1)
25. Yanling Country	26.49°N, 113.77°E	4	K1(1), K22(1), K28(1), K30(1)
Yangtze River Basin: Miluo River, Dongting Lake catchment			
26. Pingjiang Country	28.66°N, 113.65°E	2	K31(2)
Yangtze River Basin: Xiu River, Poyang Lake catchment			
27. Tonggu Country	28.44°N, 114.19°E	4	K32(1), K33(1), K34(1), K35(1)
28. Xiushui Country	29.02°N, 114.54°E	8	K35(1), K36(2), K37(1), K38(1), K39(1), K40(1), K41(1)
29. Jingan Country	28.85°N, 115.39°E	14	K42(13), K43(1)
30. Anyi Country	28.84°N, 115.56°E	2	K42(2)
Yangtze River Basin: Xin River, Poyang Lake catchment			
31. Guixi Country	28.03°N, 117.10°E	3	K44(1), K45(1), K46(1)
32. Yanshan Country	28.32°N, 117.74°E	5	K47(4), K48(1)
33. Shangrao City	28.44°N, 118.18°E	19	K45(1), K47(9), K48(1), K49(1), K50(2), K51(2), K52(1), K53(1), K54(1)
Yangtze River Basin: Rao River, Poyang Lake catchment			
34. Wuyuan Country	29.37°N, 117.91°E	3	K55(1), K56(1), K57(1)
Yangtze River Basin: Qiupu River			
35. Shitai Country	30.21°N, 117.50°E	9	K58(1), K59(5), K60(3)
Huai River Basin			
36. Yingshan Country	31.12°N, 115.83°E	6	K61(6)
37. Luoshan Country*	31.83°N, 114.39°E	1	K62(1)

* The characteristics of this sample were originally documented by Zhou et al. [77].

Table S2. The collection number for *A. kreyenbergii* deposited in the Zoological Museum of Fudan University.

Sampling locality	N[a]	Collection number
1. Congjiang Country	2	AKCJ20205901, AKCJ20205902
2. Sanjiang Country	7	AKSJ201792301–AKSJ201792307
3. Longsheng Country	9	AKLS201792601–AKLS201792609
4. Liuzhou City	8	AKLZ202481201–AKLZ202481208
5. Hechi City	9	AKHC201792101–AKHC201792109
6. Yongfu Country	10	AKYF201771401–AKYF201771410
7. Pingle Country	7	AKPL201771601–AKPL201771607
8. Yangshuo Country	17	AKYS20147801–AKYS20147817
9. Guilin City	13	AKGL201771401–AKGL201771413
10. Xingan Country	11	AKXA20147901–AKXA20147911
11. Shaoyang Country	2	AKSY201471101, AKSY201471102
12. Yiyang Country	3	AKYY201772301–AKYY201772303
13. Quanzhou Country	8	AKQZ201771601–AKQZ201771608
14. Shuangpai Country	4	AKSP201873001–AKSP201873004
15. Dao Country	4	AKDX201872901–AKDX201872904
16. Jiangyong Country	4	AKJY201872901–AKJY201872904
17. Jianghua Country	6	AKJH201471001–AKJH201471006
18. Lanshan Country	3	AKLanS201872801–AKLanS201872803
19. Jiahe Country	3	AKJiaH201872701–AKJiaH201872703
20. Zixing City	4	AKZX201872301–AKZX201872304
21. Rucheng Country	4	AKRC201872101–AKRC201872104
22. Anren Country	3	AKAR201872601–AKAR201872603
23. You Country	2	AKYX201872701, AKYX201872702
24. Chaling Country	1	AKCL201872501
25. Yanling Country	4	AKYL201872501–AKYL201872504
26. Pingjiang Country	2	AKPJ2014121201, AKPJ2014121202
27. Tonggu Country	4	AKTG201241301–AKTG201241304
28. Xiushui Country	8	AKXS201241201–AKXS201241208
29. Jingan Country	14	AKJA201241501–AKJA201241514
30. Anyi Country	2	AKAY201772801, AKAY201772802
31. Guixi Country	3	AKGX201232901–AKGX201232903
32. Yanshan Country	5	AKYanS201771101–AKYanS201771105
33. Shangrao City	19	AKSR201771101–AKSR201771119
34. Wuyuan Country	3	AKWY201232701–AKWY201232703
35. Shitai Country	9	AKST201571501–AKST201571509
36. Yingshan Country	6	AKYingS202481501–AKYingS202481506
37. Luoshan Country[b]	1	

[a] The sample size from each sampling locality.

[b] This sample was originally sourced from Zhou et al. [77].

Table S3. Model comparison for ancestral-area reconstruction of *A. kreyenbergii* using BioGeoBEARS. The best-fitting model is indicated in bold.

Model	*ln L*	Dispersal	Extinction	Founder event speciation	AICc	AICc_wt
DEC	-66.820	0.130	0.029	0.000	137.800	0.007
DEC+J	**-60.890**	**0.064**	**0.000**	**0.016**	**128.200**	**0.840**
DIVALIKE	-72.560	0.190	0.000	0.000	149.300	0.000
DIVALIKE+J	-62.680	0.076	0.000	0.019	131.800	0.140
BAYAREALIKE	-78.920	0.063	1.320	0.000	162.100	0.000
BAYAREALIKE+J	-65.020	0.049	0.000	0.023	136.400	0.014