Appendix 1, Sporopollen assemblages of Late Cenozoic lacustrine strata in the central Tibetan Plateau

Sample and position	Coordinates	Sporopollen Assemblage (percentage or grain number)
D2181 from dark limestone intercalated in lower Oligocene red-beds in mountains north of Ando.	N32°21′59.5″ E91°26′40.7″	Spores of pteridophyta 3.4%, pollen of gymnosperm 42.2% and pollen of angiosperm 54.3%. Spore of pteridophyta include *Lycopodiumsporites* 0.8%, *Verrucosisporites* 0.8%, *Osmundacidites* 0.8% and unidentified spore 0.9%. Pollen of gymnosperm include *Ephedripites* 31.0%, *Pinuspollenites* 2.5%, *Taxodiaceaepollenites* 2.5%, *Inaperturopollenites* 4.3% and *Sequoiapollenites* 1.7%. Pollen of angiosperm include *Quercoidites* 17.2%, *Betulaceoipollenites* 6.8%, *Alnipollenites* 6.0%, *Momipites* 0.8%, *Celtispollenites* 6.8%, *Ulmipollenites* 1.7%, *Juglanspollenites* 0.8%, *Magnolipollis* 0.8%, *Liquidambarpollenites* 0.8%, *Trilobapollis* 0.8%, *Operculumpollenites* 0.8%, *Symplocoipollenites* 0.8%, *Liliacidites* 0.8%, *Tricolpites* 4.3%, *Retitricolpites* 0.8% and *Triporopollenites* 2.5%.
D6291 from greenish gray sandy mudstone of upper Yaxicuo Group beneath Wudaoliang Group in the Tuotuohe Basin	N34°15′56.8″ E92°29′01.7″	Spores of pteridophyta 8.1%, pollen of gymnosperm 13.8% and pollen of angiosperm 77.9%. Spores of pteridophyta include *Polypodiaceaesporites* 5.0%, *Leiotriletes* 1.8%, *Deltoidospora* 0.6%, *Extrapuctatosporites* 0.6%. Pollens of gymnosperm include *Pinuspollenites* 5.6%, *Piceaepollenites* 1.2%, *Abiespollenites* 0.6%, *Abietineaepollenites* 0.6%, *Cedripites* 0.6%, *Podocarpidites* 1.2%, *Keteleeriaepollenites* 0.6% and *Ephedripites* 3.1%. Pollen of angiosperm include *Chenopodipollis* 6.2%, *Sparganiaceaepollenites* 3.7%, *Artemisiaepollenites* 1.8%, *Graminidites* 0.6%, *Labitricolpites* 1.8%, *Ranunculacidites* 1.8%, *Potamogetonacidites* 1.2%, *Liliacidites* 1.2%, *Salixipollenites* 0.6%, *Quercoidites* 15.0%, *Cupuliferoipollenites* 2.5%, *Betulaceoipollenites* 5.6%, *Betulaepollenites* 1.2%, *Alnipollenites* 1.2%, *Carpinipites* 1.2%, *Ostryoipollenites* 1.2%, *Caryapollenites* 0.6%, *Engelhardtioidites* 1.8%, *Nitrariadites* 3.1%, *Qinghaipollis* 0.6%, *Trilobapollis* 2.5%, *Operculumpollis* 0.6%, *Celtispollenites* 1.8%, *Liquidambarpollenites* 0.6%, *Euphorbiacites* 1.2%, *Rhoipites* 0.6%, *Meliaceoidites* 1.2%, *Cyrillaceaepollenites* 1.2%, *Magnolipollenites* 0.6%, *Stephanocolpites* 0.6%, *Tricolpites* 3.7%, *Retitricolpites* 2.5% and *Tricolporopollenites* 6.2%
D2411 from gray sandy marl at bottom of Lower Miocene Wudaoliang Group in northern Beiluhe Basin	N34°57′31.3″ E92°45′36.9″	Spores of pteridophyta 4.6%, pollen of gymnosperm 85.0% and pollens of angiosperm 10.3%. Spores of pteridophyta include *Monoleiotriletes* 1.8%, *Undulatisporites* 0.9%, *Polypodiaceaesporites* 0.9%, and *Toroisporis* 0.9%. Pollen of gymnosperm include *Piceaepollenites* 31.7%, *Pinuspollenites* 10.2%, *Abiespollenites* 4.6%, *Keteleeriaepollenites* 7.4%, *Cedripites* 1.8%, *Tsugaepollenites* 0.9%, *Dacrydiumites* 0.9%, *Podocarpidites* 1.8% and Pinaceae 25.2%. Pollens of angiosperm include *Quercoidites* 3.7%, *Chenopodipollis* 1.8%, *Juglanspollenites* 0.9%, *Potamogetonacidites* 0.9%, *Tricolpites* 1.8% and *Tricolporopollenites* 0.9%
D5101 from gray marl on	N34°13′33.6″	Spores of pteridophyta 3.7%, pollen of gymnosperm 37.6% and pollen of

top of Lower Miocene Wudaoliang Group in the Tuotuohe Basin	E92°26′42.3″	angiosperm 58.6%. Spore of pteridophyta include *Pterisisporites* 2.2%, *Gleichenidites* 0.7%, *Multinodisporites* 0.7%. Pollens of gymnosperm include *Pinuspollenite* 9.0%, *Abietineaepollenites* 3.0%, *Piceaepollenites* 12.0%, *Abiespollenites* 0.7%, *Laricoidites* 2.2%, *Cedripites* 0.7%, Pinaceae 5.2%, *Ephedripites* 4.5%. Pollen of angiosperm include *Chenopodipollis* 12.0%, *Caryophyllidites* 0.7%, *Artemisiaepollenites* 1.5%, *Labitricolpites* 0.7%, *Symplocoipollenites* 0.7% *Nitrariadites* 7.5%, *Scabiosapollis* 1.5%, *Meliaceoidites* 0.7% *Betulaceoipollenites* 2.2% *Carpinipites* 0.7% *Quercoidites* 9.7%, *Trilobapollis* 2.2% *Nyssapollenites* 3.0%, *Rhoipites* 2.2%, *Euphorbiacites* 0.7% *Aceripollis* 0.7%, *Ulmipollenites* 1.5% *Elaeagnacites* 0.7%, *Yalongipollis* 3.7%, *Tricolpites* 1.5%, *Tricolporopollenites* 3.0% *Triporopollenites* 0.7% *Retitricolpites* 0.8%.
D6293 from yellowish gray sandy marl in lower section of Lower Miocene Wudaoliang Group in the Tuotuohe Basin	N34°15′56.8″ E92°29′01.7″	Spores of pteridophyta: 1 *Polypodiisporites* and 4 *Polypodiaceaesporites*. Pollen of gymnosperm: 11 *Piceaepollenites*, 14 *Pinuspollenites*, 2 *Abiespollenites*, 2 *Keteleeriaepollenites*, 4 *Podocarpidites*, 1 *Dacrydiumites*, 2 *Abietineaepollenites* and 3 Pinaceae. Pollens of angiosperm: 1 *Quercoidites*, 1 *Lonicerapollis*, 1 *Artemisiaepollenites*, 2 *Labitricolpites*, 3 *Echitricolporites* and 2 *Tricolpites*
D6304 from gray sandy marl overlying Lower Miocene limestone of Wudaoliang Group in the Tongtianhe Basin	N33°44′52.9″ E92°10′18.9″	Spores of pteridophyta: 1 *Polypodiisporites* and 4 *Leiotriletes*. Pollen of gymnosperm: 6 *Ephedripites* and 1 *Pinuspollenites*. Pollen of angiosperm: 6 *Nitrariadites*, 4 *Qinghaipollis*, 15 *Chenopodipollis*, 1 *Graminidites*, 5 *Tricolpites*, 4 *Quercoidites*, 2 *Labitricolpites*, 2 *Tricolporopollenites*, 1 *Compositoipollenites*, 1 *Artemisiaepollenites*, *Liliacidites*, 1 *Juglanspollenites*, 1 *Meliaceoidites*, 1 *Ulmipollenites*, 1 *Cupuliferoipollenites*, 1 *Triporopollenites*, 1 *Tubulifloridites grandis* Nagy, 1 *Persicarioipollis lusaticus* Krutzsch, 1 *Pterisisporites* and 1 Polyporopollenites
D2192 from marl in lower section of Lower Miocene lacustrine strata southern Naqu Basin	N31°08′32.9″ E91°43′59.9″	Spores of pteridophyta 9.6%, pollen of gymnosperm 70.1%, pollen of angiosperm 17.9% and *Dictyotidium* 1.4%. Spores of pteridophyta include *Polypodiaceoisporites* 6.7%, *Polypodiisporites* 1.4%, *Extrapunctatosporites* 1.4% and *Polypodiaceaesporites* 1.4%. Pollen of gymnosperm include *Piceaepollenites* 17.9%, *Pinuspollenites* 18.6%, *Tsugaepollenites* 2.2%, *Abiespollenites* 2.9%, *Abietineaepollenites* 3.7%, *Cedripites* 6.7%, *Keteleeriaepollenites* 5.9%, *Podocarpidites* 1.4% and Pinaceae 10.0%. Pollen of angiosperm include *Quercoidites* 2.9%, *Chenopodipollis* 2.2%, *Lonicerapollis* 0.7%, *Oleoidearumpollenites* 1.4%, *Ranunculacidites* 0.7%, *Alnipollenites* 0.7%, *Juglanspollenites* 1.4%, *Ulmipollenites* 0.7%, *Myrtaceidites* 0.7%, *Clavatricolpites* 1.4%, *Tricolpites* 3.2%, *Retitricolpites* 0.7% and *Triporopollenites* 1.4%
D7063 from mudstone of upper section of Lower Miocene lacustrine strata in southern Naqu Basin	N31°08′32.9″ E91°43′59.9″	Spores of pteridophyta 6.9%, pollen of gymnosperm 28.6% and pollen of angiosperm 64.3%. Spores of pteridophyta include *Pterisisporites* 0.8%, *Polypodiceoisporites* 1.7%, *Leiotriletes* 2.6% and *Deltoidospora* 1.7%. Pollen of gymnosperm include *Pinuspollenites* 13.0%, *Piceaepollenites*

		2.6%, *Cedripites* 0.8%, *Keteleeriaepollenites* 2.6%, *Tsugaepollenites* 1.7%, *Ginkgocycadophytus* 1.7% and Pinaceae 6.0%. Pollen of angiosperm include *Quercoidites* 11.3%, *Celtispollenites* 9.5%, *Cupuliferoipollenites* 1.7%, *Salixipollenites* 0.8%, *Chenopodipollis* 11.3%, *Caryophyllidites* 2.6%, *Artemisiaepollenites* 0.8%, *Liliacidites* 2.6%, *Compositoipollenites* 1.7%, *Scabiosapollis* 1.7%, *Fupingpollenites* 0.8%, *Rhoipites* 0.8%, *Tricolpites* 7.8%, *Retitricolpites* 1.7%, *Triporopollenites* 0.8%, *Tricolporopollenites* 4.3%, *Stephanocolpites* 1.7% and Leguminosae 1.7%
D7096 from gray mudstone overlying Middle Miocene dacite in east Wuyu Basin	N29°38′02.3″ E89°35′45.1″	Spores of pteridophyta 3.2%, pollen of gymnosperm 53.5% and pollens of angiosperm 43.1%. Spores of pteridophyta include *Polypodiisporites* 1.9%, *Leiotriletes* 0.6% and *Deltoidospora* 0.6%. Pollen of gymnosperm include pollen of gymnosperm include *Piceaepollenites* 15.0%, *Pinuspollenites* 9.8%, *Cedripites* 1.9%, *Abiespollenites* 9.1%, *Keteleeriaepollenites* 5.2%, *Abietineaepollenites* 3.2%, *Laricoidites* 1.3%, Pinaceae 1.3% and others 6.4%. Pollen of angiosperm include *Quercoidites* 15.0%, *Ranunculacidites* 5.2%, *Echitricolporites* 2.6%, *Graminidites* 0.6%, *Labitricolpites* 4.5%, *Euphorbiacites* 0.6%, *Rhoipites* 0.6%, *Betulaepollenites* 0.6%, *Ulmipollenites* 0.6%, Leguminosae 1.3%, Rosaceae 0.6%, *Tricolpites* 7.1%, *Retitricolpites* 0.6%, *Tricolporopollenites* 1.9% and a few *Juglanspollenites*
D2251 from Upper Pleistocene silt and clay on northeast terrace of the Basico Lake in northeast of Tangula Pass	N32°55′21.5″ E92°01′18.2″	Pollen of trees 47%, shrubs and herbs 38% and spores of pteridophyta 12%. Trees include *Abies* 5%, *Pinus* 28%, *Betula* 6%, *Juglans* 0.8%, *Tilia* 0.8%, Leguminosae 0.8%, *Cedrus* 0.8%, *Picea* 0.8%, *Alnus* 0.8%, *Castanea* 0.8%, *Ulmus* 0.8%, Rosaceae 0.8% and Rhamnaceae 0.8%. Shrubs and herbs include *Artemisia* 24-48%, *Ephedra* 3%, Chenopodiaceae 3% and Gramineae 2%. Some *Caryophyllaceae*, Compositae, *Sparganiacea*, Cyperaceae and Ericaceae, *Polygonum* were also found within the sample. Pteridophyta include *Polypodiaceae* 5%, *Polypodium* 4%, *Pteris* 0.8% and some *Lycopodium*, *Selaginella*, *Osmunda*
D6242 from Upper Pleistocene sandy clay on T_2 terrace in northwest of the Namco Lake	N30°46′10.8″ E90°16′02.3″	Pollen of trees 43-68%, dominated by *Pinus* 25-33%, *Betula* 6-15%, *Abies* 2-7% and *Tilia* 0.8-1.0%; pollens of shrubs and herbs 30-54%, including *Artemisia* 26-43%, *Ephedra* 1-3%, Compositae 1.0-2.0%, Chenopodiaceae ~1.0%, Gramineae ~1.0% and some *Caryophyllaceae*, *Sparganiaceae*; spores of fern 3-7% including *Polypodiaceae*, *Polypodium*, *Pteris*, *Selaginella* and *Lycopodium*
D3096 from Upper Pleistocene sandy clay on southeast terrace of the Coer Lake west of Naqu	N31°26′45.8″ E91°33′30.4″	Pollen of trees 47%, shrubs and herbs 33% and spores of fern 20%. Trees include *Abies* 4%, *Pinus* 26%, *Betula* 7%, *Juglas* 1.0%, *Tilia* 0.8%, Leguminosae 0.8%, *Alnus* 1.6% and some *Cedrus*, *Picea*, Rosaceae, Rhamnaceae, *Castanea*, *Ulmus*. Shrubs and herbs include *Artemisia* 17-21%, *Ephedra* 0.8%, Chenopodiaceae 2.4-5.1%, Gramineae 4% and some *Caryophyllaceae*, Compositae, Cyperaceae, Ericaceae and *Sparganiacea*. Fern include *Polypodiaceae* 5-10%, *Polypodium* 8-10%,

		Pteris 0.8% and some *Lycopodium*, *Selaginella*, *Osmunda*

Procedure: Spores and pollen are selected from samples by standard procedures in the Paleoflora Laboratory of the Institute of Geology, Chinese Academy of Geological Science. Rock samples of 100-150g are washed, dried and crashed to 0.5mm, and Upper Quaternary deposits of sand and sandy clay of 100-150g are sampled directly from the field and no crashing is needed. The samples are then put into a glass container of ~800-1000ml volume, adding liquid with KOH 10% or NaOH 10% to the sample, and cooking the mixture for 10-15 minutes to separate the organic material from the crashed rock, sand and clay. The cooked material is washed 3-4 times by distilled water after cooling, and kept in the container for 3-5 hours after each washing. If the samples contain calcite, liquid with HCl 10% will be added to the container before cooking the mixture for 5-15 minutes and washing 3-4 times in distilled water. Water is removed from the mixture, and a special, heavy liquid with a density of 2.2-2.4 g/cm^3 is added at a proportion of 2-3 ml heavy liquid to each 1 ml of sample. The upper layer of the mixture containing spores and pollen, with a density of 1.18-1.96 g/cm^3, are separated and collected after centrifugal filtering of the fully mixed liquid and sample, and the remainder of the material is preserved in another container. Distilled water is added and fully mixed with the collected upper layer material, which is then put into the centrifuge for 5-10 minutes of additional filtering to further separate and concentrate the organic material dominated by spores and pollen. The concentrated organic material is collected and washed in distilled water 2-3 times and again filtered in a centrifuge. Finally, the spores and pollen will be fully separated and can be selected, and identified after loading on to a slide. The identification of the spores and pollen was done by Professor Wang Daning, chief of the Paleoflora Laboratory.

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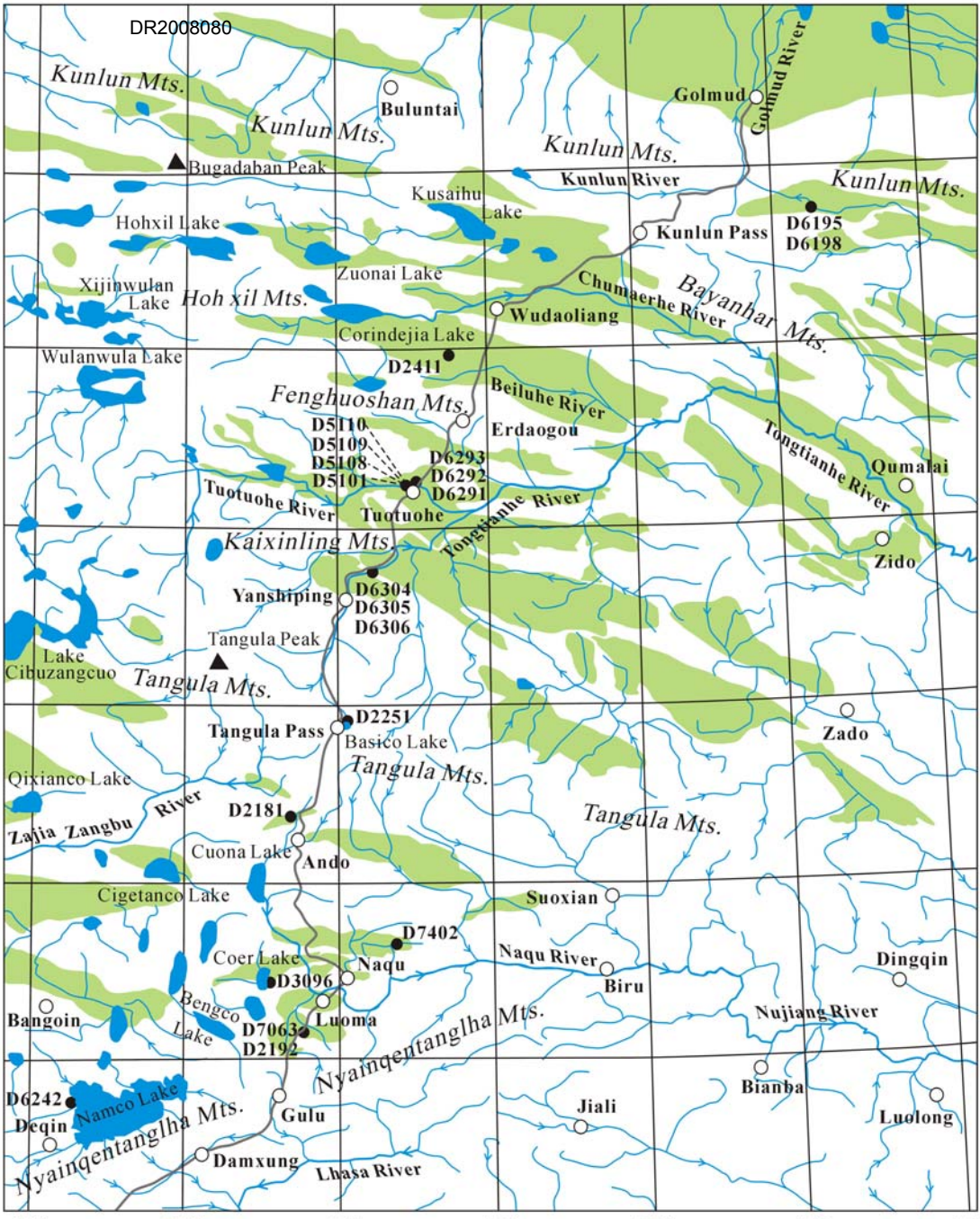
90°
91°
92°
93°
94°
95°
96°
36°
35°
34°
33°
32°
31°
Kunlun Mts.
Buluntai
Golmud
Golmud River
Bugadaban Peak
Kunlun River
Kusaihu Lake
Hohxil Lake
Kunlun Pass
D6195
D6198
Zuonai Lake
Xijinwulan Lake
Hoh xil Mts.
Chumaerhe River
Bayanhar Mts.
Wudaoliang
Corindejia Lake
Wulanwula Lake
D2411
Beiluhe River
Fenghuoshan Mts.
Erdaogou
D5110
D5109
D5108
D5101
D6293
D6292
D6291
Tuotuohe River
Tuotuohe
Tongtianhe River
Qumalai
Kaixinling Mts.
Zido
Yanshiping
D6304
D6305
D6306
Tangula Peak
Lake Cibuzangcuo
Tangula Mts.
Tangula Pass
D2251
Basico Lake
Zado
Qixianco Lake
Zajia Zangbu River
D2181
Cuona Lake
Ando
Cigetanco Lake
Suoxian
D7402
Coer Lake
Naqu
Naqu River
Biru
Dingqin
D3096
Bengco Lake
Luoma
Bangoin
D7063
D2192
Nyainqentanglha Mts.
Nujiang River
Bianba
D6242
Namco Lake
Deqin
Gulu
Jiali
Luolong
Damxung
Lhasa River

Appendix 3, Location, altitude and attitude of Lower Miocene lacustrine strata in the central Tibetan Plateau

Outcrop	Latitude	Longitude	Altitude	Strata	Attitude
WL1	**35°38′18.2″**	**94°03′57.8″**	**4780m**	**Dolomite and dolomitic limestone**	**190°∠20°**
WL2	**35°36′03.8″**	**93°48′39.5″**	**4765m**	**Marl and limestone**	
WL3	**35°31′36.2″**	**93°41′08.7″**	**4547m**	**Dolomitic limestone and marl**	**174°∠15°**
WL4	**35°26′00.5″**	**93°36′17.5″**	**4470m**	**Limestone and marl**	**25°∠14°**
WL5	**35°18′51.7″**	**93°18′32.5″**	**4527m**	**Dolomite and dolomitic limestone**	**230°∠20°**
WL6	**35°18′48.2″**	**92°56′52.0″**	**4775m**	**Dolomite and dolomitic limestone**	**18°∠11°**
WL7	**35°12′52.5″**	**93°07′56.6″**	**4711m**	**Dolomite and dolomitic limestone**	**200°∠20°**
WL8	**35°11′50.2″**	**93°10′05.8″**	**4620m**	**Dolomitic limestone and marl**	**345°∠13°**
WL9	**35°11′22.6″**	**93°00′46.3″**	**4771m**	**Dolomite and dolomitic limestone**	**37°∠8°**
BH1	**35°05′17.6″**	**93°02′42.9″**	**4724m**	**Dolomite and limestone**	**162°∠12°**
BH2	**35°04′55.4″**	**93°01′55.5″**	**4670m**	**Limestone, marl and sandstone**	**160°∠18°**
BH3	**35°02′50.6″**	**93°01′05.5″**	**4632m**	**Marl and sandstone**	**5°∠25°**
BH4	**35°01′08.4″**	**93°02′11.8″**	**4611m**	**Dolomitic limestone and marl**	**356°∠14°**
BH5	**34°59′39.8″**	**92°58′15.4″**	**4679m**	**Dolomitic limestone and marl**	**220°∠20°**
BH6	**34°59′35.0″**	**92°58′51.5″**	**4599m**	**Limestone and marl**	**210°∠16°**
BH7	**34°58′37.6″**	**92°51′22.5″**	**4662m**	**Limestone and marl**	**12°∠14°**
BH8	**34°58′02.0″**	**92°55′10.5″**	**4747m**	**Dolomite and limestone**	**150°∠8°**
BH9	**34°57′43.9″**	**92°57′44.1″**	**4573m**	**Marl and sandstone**	**200°∠9°**
BH10	**34°57′38.5″**	**92°48′22.6″**	**4760m**	**Dolomite and limestone**	**354°∠13°**
BH11	**34°55′22.4″**	**92°50′20.5″**	**4553m**	**Dolomite and marl**	**120°∠18°**
BH12	**34°51′47.5″**	**92°55′40.7″**	**4604m**	**Marl and sandstone**	**180°∠30°**
BH13	**34°50′22.3″**	**92°56′14.9″**	**4640m**	**Limestone and marl**	**30°∠26°**
TT1	**34°28′21.5″**	**92°48′13.8″**	**4710m**	**Limestone and marl**	**220°∠15°**
TT2	**34°27′19.2″**	**92°43′39.9″**	**4587m**	**Limestone and marl**	**220°∠20°**
TT3	**34°26′12.6″**	**92°43′33.0″**	**4580m**	**Limestone**	**30°∠14°**
TT4	**34°25′13.3″**	**92°42′46.4″**	**4597m**	**Limestone and marl**	**153°∠12°**
TT5	**34°24′43.5″**	**92°51′19.8″**	**4621m**	**Marl and sandstone**	**195°∠15°**
TT6	**34°19′36.2″**	**92°33′08.6″**	**4678m**	**Limestone and marl**	**155°∠26°**
TT7	**34°15′56.8″**	**92°29′01.7″**	**4550m**	**Marl and mudstone**	**10°∠18°**
TT8	**34°08′20.7″**	**92°26′06.5″**	**4610m**	**Marl and sandstone**	**20°∠14°**
TH1	**34°02′17.5″**	**92°20′29.1″**	**4730m**	**Limestone and marl**	**335°∠25°**
TH2	**33°54′45.2″**	**92°21′34.8″**	**4610m**	**Limestone and marl**	**25°∠20°**
TH3	**33°44′52.9″**	**92°10′18.9″**	**4650m**	**Marl, mudstone and sandstone**	**240°∠11°**
TH4	**33°41′33.0″**	**92°03′40.0″**	**4680m**	**Marl and sandstone**	**353°∠8°**
AD1	**32°18′03.5″**	**91°44′03.9″**	**4733m**	**Sandstone, mudstone and marl**	**13°∠18°**
AD2	**32°14′46.8″**	**92°11′23.0″**	**4756m**	**Sandstone, mudstone and marl**	**172°∠5°**
AD3	**32°10′58.4″**	**92°05′15.6″**	**4719m**	**Marl, mudstone and sandstone**	
NQ1	**31°40′55.4″**	**91°54′11.3″**	**4619m**	**Marl and sandstone**	**358°∠23°**
NQ2	**31°40′33.7″**	**91°50′18.4″**	**4627m**	**Marl, calc siltstone and sandstone**	**160°∠18°**

NQ3	**31°39′45.7″**	**92°22′00.6″**	**4519m**	**Mudstone, marl and siltstone**	**140°∠8°**
NQ4	**31°38′48.2″**	**92°19′06.1″**	**4490m**	**Sandstone and conglomerate**	**40°∠6°**
NQ5	**31°34′31.4″**	**91°52′17.2″**	**4616m**	**Conglomerate, sandstone and marl**	**10°∠22°**
NQ6	**31°32′41.8″**	**91°58′06.2″**	**4571m**	**Marl, mudstone and sandstone**	**170°∠18°**
NQ7	**31°29′17.0″**	**92°07′08.7″**	**4613m**	**Sandstone and marl**	**220°∠12°, 180°∠4°**
NQ8	**31°17′21.5″**	**91°48′19.4″**	**4691m**	**Conglomerate and sandstone**	
NQ9	**31°08′32.9″**	**91°43′59.9″**	**4737m**	**Marl, siltstone and sandstone**	**20°∠10°, 180°∠12°**
NQ10	**31°07′41.4″**	**91°41′17.6″**	**4780m**	**Marl, siltstone and sandstone**	**175°∠8°**
NQ11	**31°05′39.6″**	**91°41′40.1″**	**4752m**	**Marl, mudstone and siltstone**	**12°∠15°**

Explanation: WL1-WL9, Wudaoliang Basin; BH1-BH13, Beiluhe Basin; TT1-TT8, Tuotuohe Basin; TH1-TH4, Tongtianhe Basin; AD1-AD3, Ando Basin; NQ1-NQ11, Naqu Basin.

Appendix 4, Ostracode assemblages of Lower Miocene lacustrine strata in the central Tibetan Plateau

Sample	Sample location	Ostracode microfossils (number)
D7402	Lower Miocene marl at outcrop NQ3 (N31°39′45.7′′, E92°22′00.6′′) in Naqu Basin	*Candona mirabilis* Schneider (10), *Cypricercus* sp. (12), *Eucypris inflata* Sars (8), *Ilyocypris bradyi* Sars (41), *Ilyocypris manasensis* Mandelstam (6), *Ilyocypris dunschanensis* Mandelstam (13)
D6292	Lower Miocene marl in lowest section of Wudaoliang Group at outcrop TT7 (N34°15′56.8′′, E92°29′01.7′′) in Tuotuohe Basin	*Eucypris stenoformis* Sun (1), *Eucypris concinna concinna* Schneider (2), *Ilyocypris biplicata* (Koch) (1), *Leucocythere mirabilis* Kaufmann (28), *Leucocythere tropis* Huang (25)
D6293	Lower Miocene marl in middle section of Wudaoliang Group at outcrop TT7 (N34°15′56.8′′, E92°29′01.7′′) in Tuotuohe Basin	*Eucypris concinna qaidamensis* Chen (9), *Ilyocypris dunschanensis* Mandelstam (8), *Ilyocypris bradyi* Sars (2), *Ilyocypris cornae* Mandelstam (4), *Leucocythere tropis* Huang (17)
D5108	Lower Miocene marl in upper section of Wudaoliang Group, 5.2m deep in a trench at N34°13′33.6′′, E92°26′42.4′′ in Tuotuohe Basin	*Candona houae* Huang (1) *Eucypris concinna concinna* Schneider (2), *Ilyocypris manasensis* Mandelstam (1), *Leucocythere tropis* Huang (74)
D5109	Lower Miocene marl in upper section of Wudaoliang Group, 4.7m deep in a trench at N34°13′33.6′′, E92°26′42.4′′ in Tuotuohe Basin	*Ilyocypris bradyi* Sars (1), *Leucocythere tropis* Huang (2), *Microlimnocythere sinensis* Huang (2)
D5110	Lower Miocene marl in upper section of Wudaoliang Group, 4.0m deep in a trench at N34°13′33.6′′, E92°26′42.4′′ in Tuotuohe Basin	*Eucypris honggouziensis* F. Yang et Sun (2), *Eucypris* sp. (3), *Ilyocypris cornea* Mandelstam (1), *Leucocythere* sp. (1)
D6195	Lower Miocene marl in East Wenquan Basin at N35°44′46.1′′, E95°16′53.5′′	*Candona bicompresa* Huang et F.Yang (2), *Eucypris honggouziensis* F. Yang et Sun (7), *Youshashania (Youshashania) cylindrical* F. Yang et Gu (2)
D6198	Lower Miocene marl in East Wenquan Basin at N35°44′47.7′′, E95°16′45.5′′	*Eucypris honggouziensis* F. Yang et Sun (10)
D6305	Lower Miocene marl at outcrop TH3 (N33°44′52.9′′, E92°10′18.9′′) in Tongtianhe Basin	*Eucypris ordinata* Sun (4)
D6306	Lower Miocene marl at outcrop TH3 (N33°44′52.9′′, E92°10′18.9′′) in Tongtianhe Basin	*Eucypris huatugouensis* Sun (1)

Ostracodes were collected from 50 micrograms from each sample and identified by standard procedures in Ostracode Microfossil Laboratory of the Institute of Geomechanics, Chinese Academy of Geological Sciences. by Professor Tianguoqiang, chief of the laboratory.

Environmental indicators: *Leucocythere* sp. and *Microlimnocythere* sp. indicate a typical lake environment; *Ilyocypris* sp. indicates an environment with gentle water flow; *Eucypris* sp. lives in a variety of lake, swamp and pond environments; and *Candona* sp. lives in a quite water environment without waves and water current in lakes, swamps and ponds.