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Supplementary Materials for

Agriculture facilitated permanent human occupation of the Tibetan Plateau after 3600 B.P.

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Materials and Methods

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We investigated more than 150 Neolithic and Bronze Age sites in the NETP during 2008-2013, and collected numerous archaeological remains including pottery sherds, stone artefacts, animal bones, etc. We chose 53 sites (fig. S4) to do flotation within the following strategy: first, we estimated the ages of the investigated sites via identification of diagnostic pottery sherds of different prehistoric cultures; second, based on the results of national archaeological survey, we calculated the proportions of altitudinal distributions of different prehistoric cultural sites in the NETP (fig. S1), and then selected roughly the same proportion of different prehistoric cultural sites to collect flotation samples; finally, well-preserved sites were chosen, which usually had exposed ash pits or cultural layers covered by natural deposits (such as loess) to reduce the possibility of subsequent disturbance.

A total number of 59 flotation samples were collected from these 53 sites, including one sample from each of 48 sites, two samples from each of four sites (Xiasunjiazhai, Gongshijia, Jinchankou and Shuangerdongping), and three samples from Luowalinchang site (table S1).

The carbonized remains were collected using an 80-mesh sieve, whose aperture size is 0.2 mm, then air-dried and sorted. Charred plant seeds were identified in the Paleoethnobotany Laboratory, Institute of Archaeology, Chinese Academy of Social Sciences. Animal bones were also collected during flotation, and identified in the Key Laboratory of Western China's Environmental Systems (Ministry of Education) in Lanzhou University.

Since the accuracy of radiocarbon dates of charcoals from prehistoric sites in the NETP and western Tibetan Plateau might be potentially affected by the "old wood" problem of radiocarbon dating (*30*), all the radiocarbon dating materials in this study are charred grains (Fig. 2C, table S1), which are the most reliable materials for radiocarbon dating. 43 carbonized grain samples were dated by accelerator mass spectrometry (AMS) at Peking University in Beijing, while other 20 carbonized grain samples were dated by the AMS method at Beta Analytic, Miami, USA. The IntCal09 curve (*31*) and the Libby half-life of 5,568 years were used in the calculation of all dates, with the calibration performed using Calib (v.6.0.1) (*32*). All ages reported in this paper are relative to AD 1950 (referred to as "cal yr B.P.").

To examine the reproducibility of radiocarbon dates between the two different laboratories, three pairs of charred crop grains from the same ash pits at Gayixiangjing site (Beta-297655 and BA110899), Luowalinchang site (Beta-303691 and BA110895), and Talitaliha site (Beta-324459 and BA120176) were dated by Peking University and Beta Analytic, respectively. All the calibrated dates (both 1 Sigma and 2 Sigma) of these three pairs of samples are approximately consistent and partly overlapping, indicating that there is minimal difference in the AMS dates from the two laboratories and therefore the dating results reported in this study are reliable.

Supplementary Text

S1. Altitudinal distribution of prehistoric sites in the NETP

Based on the published radiocarbon dates of prehistoric sites in the NETP and the Western Loess Plateau (*33-35*), the periods of the Late Yangshao, Majiayao and Qijia cultures range from 5,500-3,600 cal yr B.P., while the periods of the Kayue, Xindian and Nuomuhong cultures range from 3,600-2,600 cal yr B.P. Combining these published dates with those from this study, the more accurate ages of the Late Yangshao, Majiayao and Qijia cultures on the NETP range from 5,200-3,600 cal yr B.P., while the ages of the Kayue, Xindian and Nuomuhong cultures range from 3,600-2,300 cal yr B.P. Sites older than 5,200 cal yr B.P. in NETP are treated as Paleolithic sites here, since usually only a small number of stone artefacts, animal bones and several hearths are found in those sites, without any pottery or crop remains, as would be expected from short-term hunting camp sites.

Before 5,200 cal yr B.P., hunter-gatherers continued to range widely across the NETP, from beneath 2,000 m.a.s.l. on the edge of NETP up to 4,300 m.a.s.l. on the high plateau (*3, 4*). During the Neolithic period, 69.3% of the sites from 5,200-3,600 cal yr B.P. (Late Yangshao, Majiayao and Qijia cultures) are distributed below 2,500 m.a.s.l., while other 28.4% and 2.3% sites are distributed among 3,000-2,500 m.a.s.l. and 3,800-3,000 m.a.s.l., respectively, according to the results of the national archaeological survey of the NETP (*6*). 20.3%, 54.3% and 25.4% of the sites from 3,600-2,300 cal yr B.P. (Xindian, Kayue and Nuomuhong cultures) are distributed within 2,500-1,800 m.a.s.l., 3,000-2,500 m.a.s.l. and 4,700-3,000 m.a.s.l., respectively.

Although many Majiayao and Qijia sites are distributed above 2,500 m.a.s.l., these sites are mostly short-term hunting camps, rather than permanent settlements. We investigated 23 Majiayao and Qijia sites above 2,500 m.a.s.l. on the NETP. However, at most of these sites only a small number of pottery sherds and stone artefacts were found on the surface. We only found exposed ash pits or cultural deposits at the Yangqu Majiayao site (2,800 m.a.s.l.), the Tiejiaying Majiayao site (2,621 m.a.s.l.), the Tiejiaying Qijia site (2,621 m.a.s.l.), the Ajiacun Qijia site (2,527 m.a.s.l.) and the Shaliuheqiaodong Qijia site (3,293 m.a.s.l.), and consequently collected samples for flotation. However, we did not find any domestic plant or animal remains at Yangqu or Tiejiaying site. However, we did identify three charred foxtail millet grains and eight charred broomcorn millet grains from 10 liters of soils at Ajiacun site, and two charred broomcorn millet grains from 5 liters of soil at the Shaliuheqiaodong site, suggesting a rather limited role of millet above 2,500 m.a.s.l. on the NETP during the Majiayao and Qijia periods. We infer that humans permanently settled in the lowland river valleys of the NETP below 2,500 m.a.s.l. during 5,200-3,600 cal yr B.P., and might seasonally migrate to high plateau grasslands for hunting and gathering during warm seasons.

S2. Distribution of dated prehistoric sites on the NETP

The 53 dated prehistoric sites on the NETP in this study are located in the Upper Yellow River valley and its tributary valleys (the Huangshui River and Datong River valleys), Qinghai lake basin and the eastern Qaidam basin (fig. S4).

S3. Stable carbon isotope records of human bones from Neolithic and Bronze Age sites on the NETP and the Chinese Western Loess Plateau

We measured stable carbon isotopes of human collagen from nine Neolithic and Bronze Age sites (fig. S5, *36*) in order to further assess human dietary changing on the

NETP and the Chinese Western Loess Plateau. Data from Zongri (*37*), Lajia (*38*) and Shangsunjiazhai (*39*) have been published, while those from Hupo, Sanheyi, Xiahaishi, Qijiaping, Lajigai and Mogou are obtained in this study (fig. S5). Detailed $\delta^{13}C$ values from these archaeological sites can be found in the PhD thesis of Minmin Ma (*36*). Around 3,600 cal yr B.P., the $\delta^{13}C$ values change from a predominantly C4 signal to a mixed C3 and C4 signal (fig. S5). This dietary shift coincides with the introduction of Fertile Crescent cereals (mainly wheat and barley, both C3 taxa) at many sites in the study region at approximately 3,600 cal yr B.P. According to the archaeobotanical evidence (*40*), the C4 signal is interpreted as reflecting mainly millet consumption, while the C3 signal is mainly from the new staples, barley and wheat. We conclude that barley and wheat became staple foodstuffs on the Northeastern Tibetan Plateau after circa 3,600 cal yr B.P. (*36*).

S4. Proportions of different crop remains at the investigated sites on the NETP

Millet cultivation spread to the margins of the NETP around 5,200 cal yr B.P. Between 5,200-3,600 cal yr B.P., foxtail millet and broomcorn millet account for 56.56% and 41.57% of the total crop remains, respectively, while barley and wheat account for only 1.37% and 0.50%, respectively. Although barley and wheat had spread to the NETP by about 4,000 cal yr B.P., it would appear that they were not important crops during 4,000-3,600 cal yr B.P., since they account for only 3.75% and 1.48% of the total crop remains, respectively. The proportion of barley rises after 3,600 cal yr B.P., reaching 40.63% during 3,600-2,300 cal yr B.P., while foxtail millet, broomcorn millet and wheat account for only 26.19%, 30.30% and 2.88%, respectively (fig. S6).

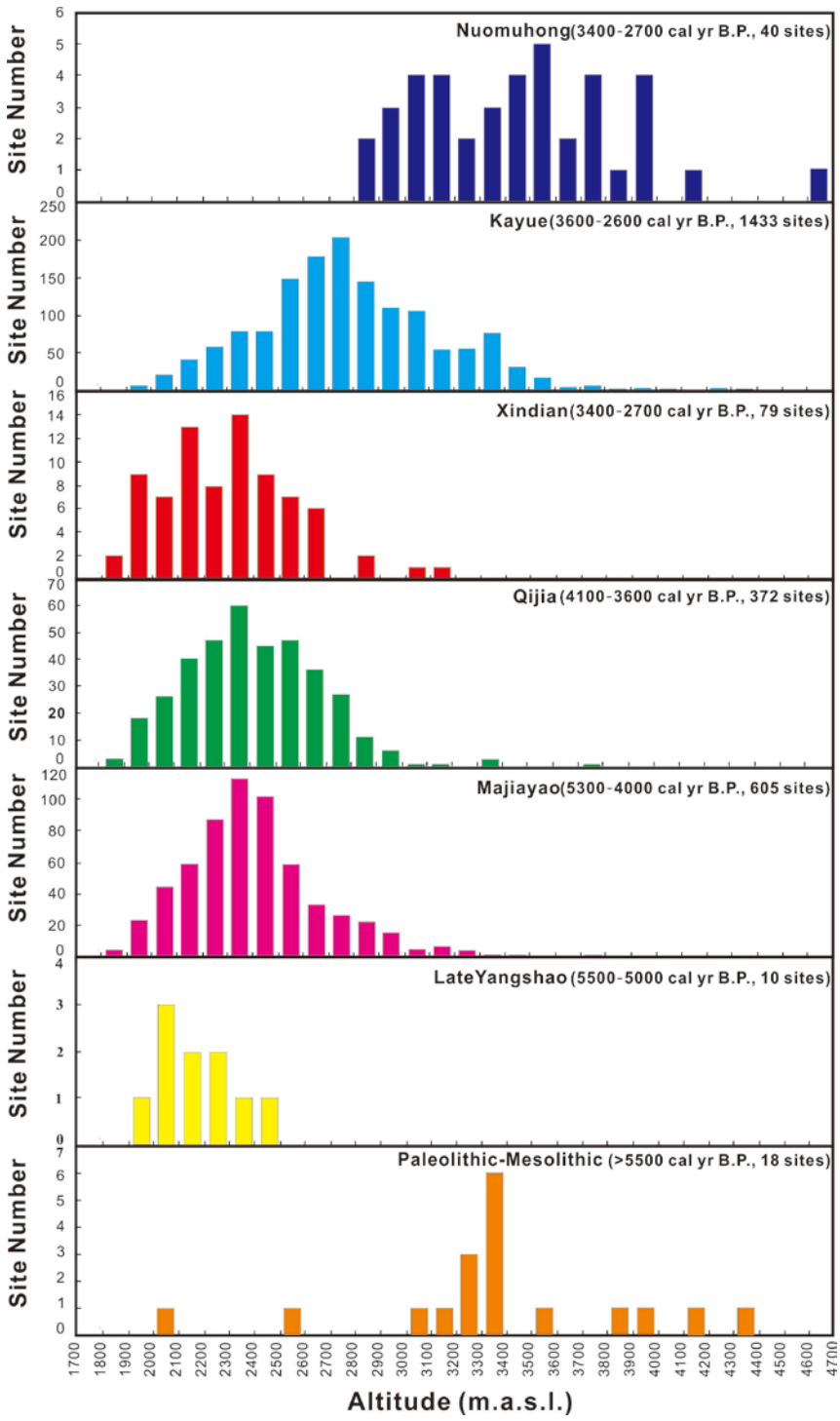

Fig. S1.

The altitudinal distribution of different prehistoric cultures on the NETP, based on the national archaeological survey data and other present publications (*2-10*).

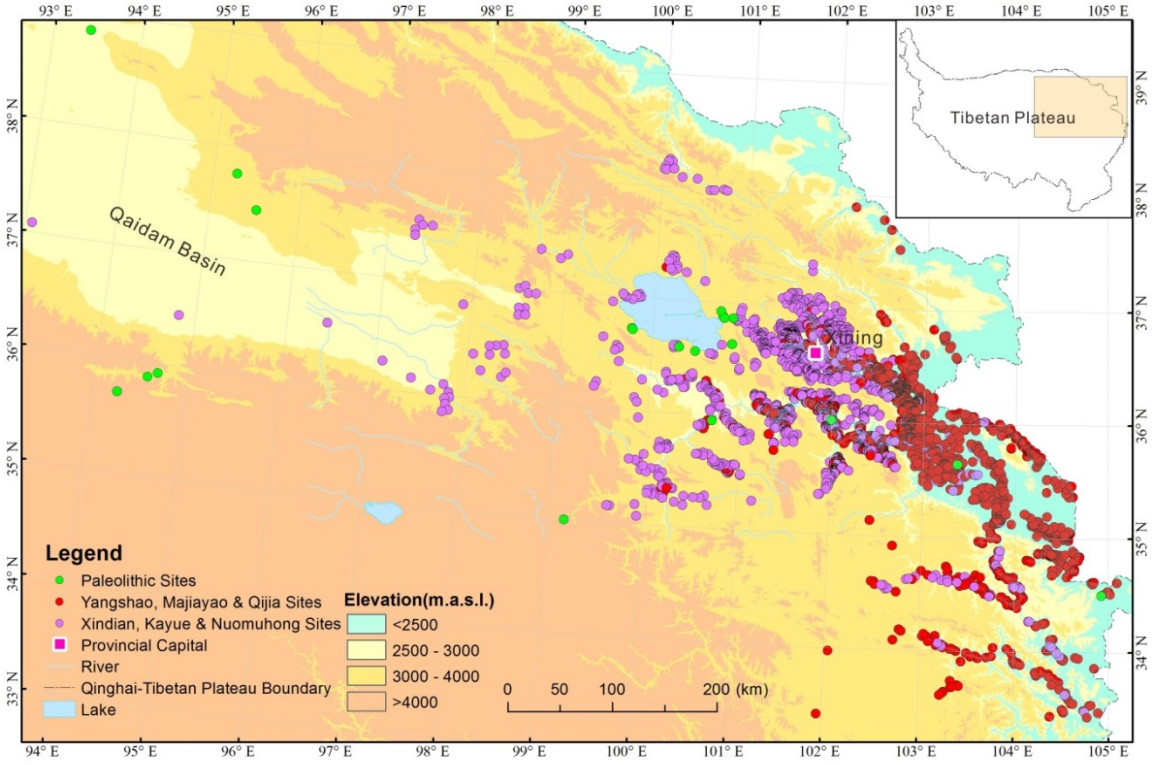

Fig. S2.
Distribution of prehistoric sites on the NETP (*2-10*).

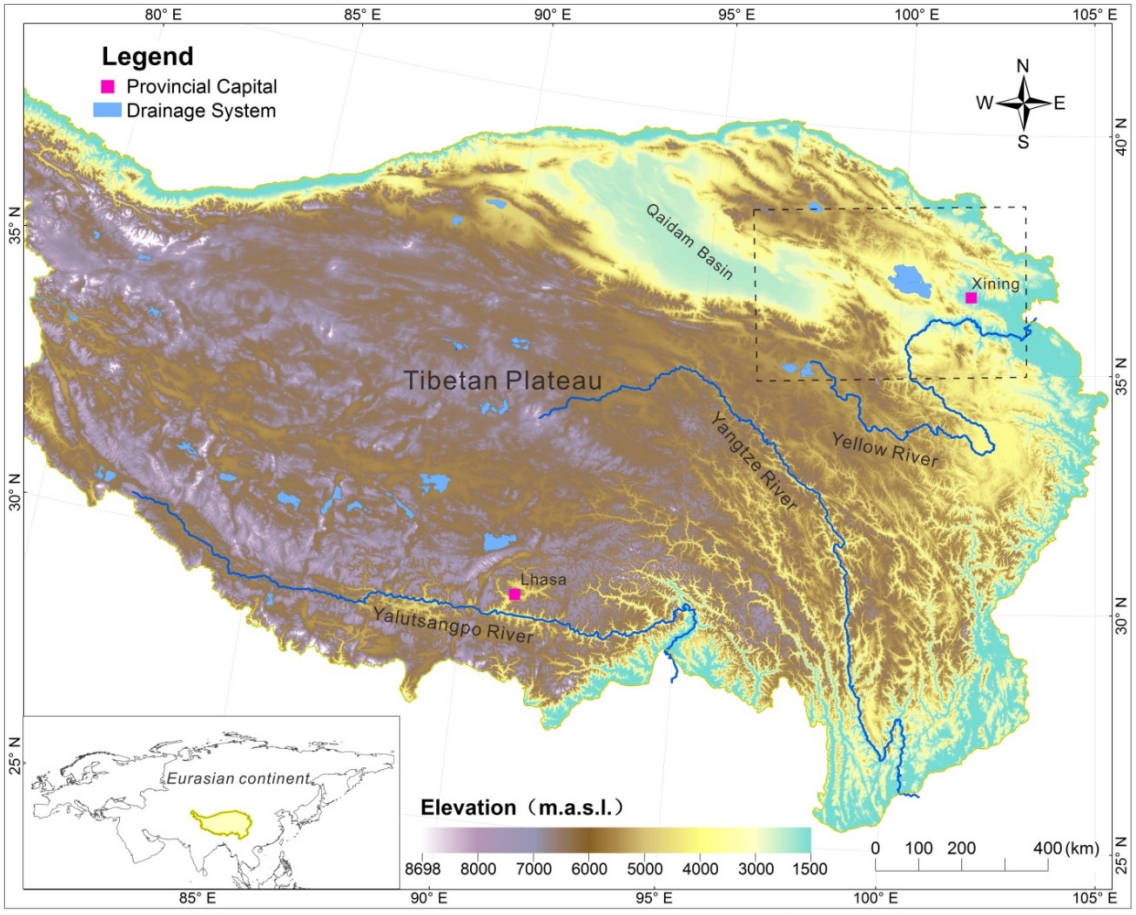

Fig. S3.

Topography of the Tibetan Plateau. The study region for sites sampled in this study is indicated by the dashed line box.

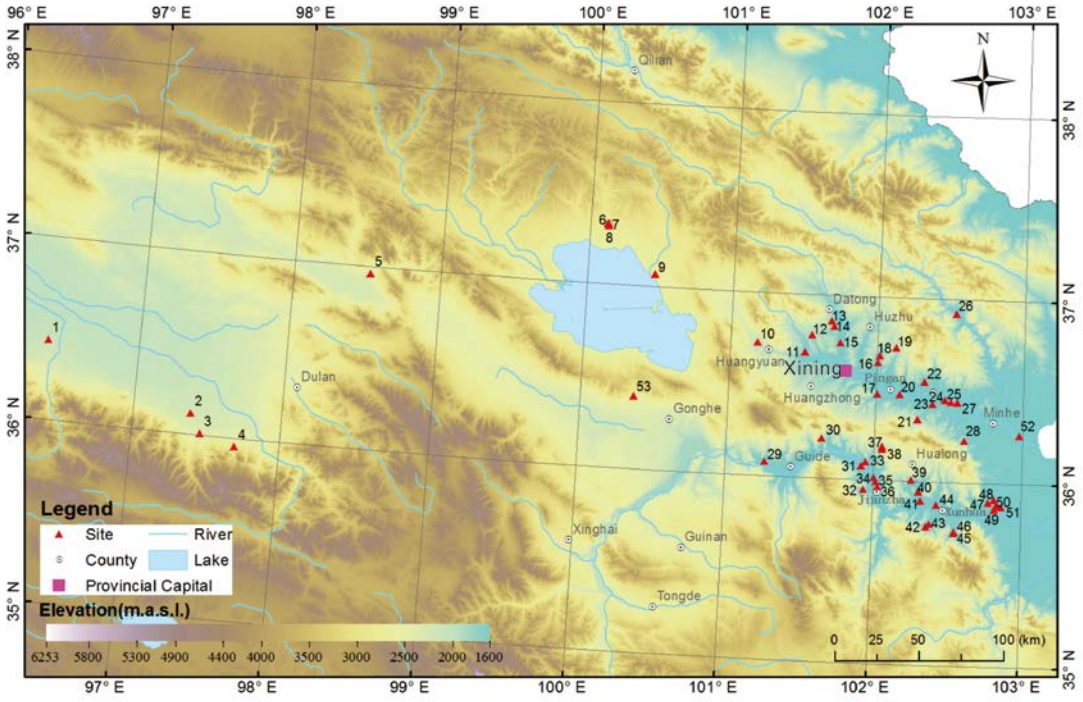

Fig. S4.

Location of the 53 sampled prehistoric sites in NETP. 1. Talitaliha, 2. Tawendaliha, 3. Xiariyamakebu, 4. Keer, 5. Hongshanzuinanpo, 6. Aiqingya, 7. Lagalamaerma, 8. Shaliuheqiaodong, 9. Caodalianhuxi, 10. Longshan, 11. Benbakou, 12. Kalashishuwan, 13. Ajiacun, 14. Yangjiazhaipo, 15. Xiasunjiazhai, 16. Heibiya, 17. Dongcun, 18. Weijiabao, 19. Xiawatai, 20. Qingshiya, 21. Huidui, 22. Mijiawan, 23. Zhaojiazhuang, 24. Nanshansi, 25. Shuangerdongping, 26. Jinchankou, 27. Liuwanshagou, 28. Yingpandi, 29. Gayixiangjing, 30.Gagai, 31.Shangduoba, 32.Luowalinchang, 33.Zhongtan, 34.Andaqiha, 35.Dongfengxinan, 36. Tuanjie, 37. Lalongwa, 38. Shawuang, 39. Bayan, 40. Gongshijia, 41. Yaluhu, 42. Lamuzui, 43. Jiaoridang, 44. Yangou, 45. Hongtjiaozi, 46. Zhangga, 47. Hurere, 48. Hongyazhangjia, 49. Erfang, 50. Xinjia, 51. Wenjia, 52. Wayaotai and 53. Qiezha.

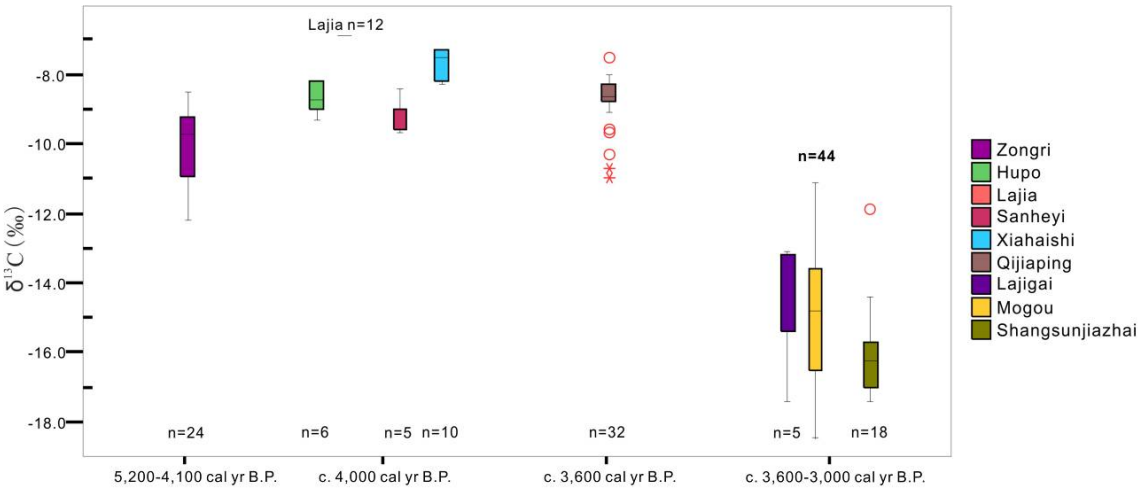

Fig. S5.

Stable carbon isotope ratios ($\delta^{13}C$) of human bones from nine Neolithic and Bronze Age sites on the NETP and the adjacent Chinese Western Loess Plateau (*36*). Colors of the boxes indicate source sites.

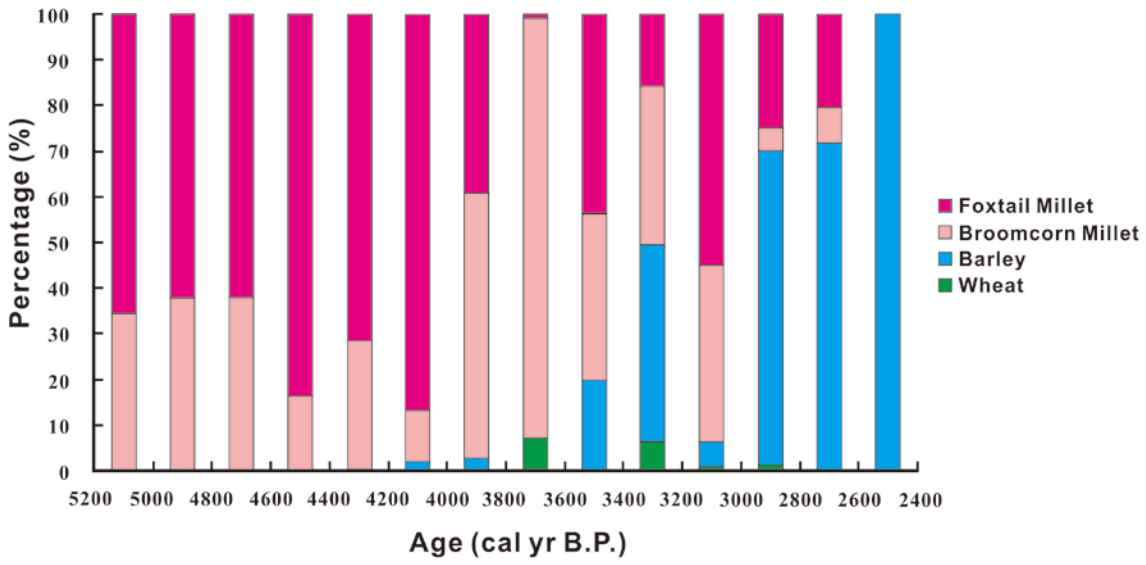

Fig. S6.

Percentages of different crop remains from the investigated sites on the NETP during the Neolithic period and Bronze Age. Note the increase in barley after 3,600 cal yr B.P.

Table S1.

Calibrated radiocarbon dates and domesticated plant and animal remains from sites investigated on the NETP.

Site	Lab no.	Dating material	Radiocarbon age (yr B.P.)	Calibrated age (cal yr B.P.) 1 Sigma	2 Sigma	Alt. (m.a.s.l.)	County	Culture	Crop remains	Animal remains	Lab.
Hurere	BA120182	BM	4530±60	5182±127	5208±234	1930	Minhe	Yangshao	FM: 1202 BM: 681	--	PKU
Luowalinchang	BA120197	BM	4470±25	5159±117	5141±164	2326	Hualong	Majiayao	FM: 191 BM: 38	--	PKU
Gayixiangjing*	Beta-297655	FM	4410±40	4961±82	5068±206	2255	Guide	Majiayao	FM: 124 BM: 25	--	Beta
Hongtjiaozi	BA110889	FM	4395±30	4956±78	4956±90	2254	Xunhua	Majiayao	FM: 383 BM: 97	--	PKU
Gayixiangjing*	BA110899	FM	4370±25	4917±44	4947±87	2255	Guide	Majiayao	FM: 124 BM: 25	--	PKU
Andaqiha[#]	Beta-292119	BM	4340±40	4907±54	4937±98	2059	Hualong	Majiayao	FM: 7 BM: 111	--	Beta
Zhangga	Beta-292122	FM	4340±40	4907±54	4937±98	2210	Xunhua	Majiayao	FM: 351 BM: 356	--	Beta
Heibiya	BA110907	BM	4245±30	4839±17	4759±103	2355	Huzhu	Majiayao	FM: 17 BM: 51	--	PKU
Hongyazhangjia	BA110886	FM	4185±35	4739±92	4712±127	1941	Minhe	Majiayao	FM: 90 BM: 56	--	PKU
Benbakou*	BA110909	FM	4185±25	4740±87	4731±105	2408	Huangzhong	Majiayao	FM: 48 BM: 71	--	PKU
Benbakou*, [#]	BA110908	FM	4135±25	4696±113	4695±126	2408	Huangzhong	Majiayao	FM: 48 BM: 71	--	PKU
Luowalinchang	Beta-24458	FM	4110±30	4667±132	4669±145	2326	Jianzha	Majiayao	FM: 150 BM: 46	--	Beta
Shangduoba[#]	BA120187	BM	4035±30	4502±64	4600±178	2105	Hualong	Majiayao	FM: 21 BM: 48	--	PKU
Pinganxincun[#]	BA120201	FM	3980±25	4466±46	4467±54	2280	Pingan	Majiayao	FM: 355 BM: 24	--	PKU

Site	Lab no.	Dating material	Radiocarbon age (yr B.P.)	Calibrated age (cal yr B.P.) 1 Sigma	2 Sigma	Alt. (m.a.s.l.)	County	Culture	Crop remains	Animal remains	Lab.
Yaluhu	BA120189	FM	3940±25	4367±68	4402±109	2002	Hualong	Majiayao	FM: 278 BM: 83	--	PKU
Mijiawan	Beta-314721	FM	3900±30	4354±59	4332±86	2233	Huangzhong	Majiayao	BM: 4	--	Beta
Liuwanshagou	BA110906	FM	3840±25	4225±67	4279±127	1901	Ledu	Majiayao	FM: 44 BM: 40	--	PKU
Qingshiya	BA120202	FM	3755±25	4119±35	4111±118	2146	Pingan	Qijia	FM: 5	--	PKU
Yangjiazhaipo	BA110912	FM	3715±25	4065±75	4064±83	2468	Datong	Qijia	FM: 6 BM: 4	--	PKU
Xinjia[#]	BA110887	FM	3690±30	4032±51	4035±109	1835	Minhe	Qijia	FM: 222 BM: 14	--	PKU
Xiasunjiazhai	BA120204	BM	3680±25	4029±53	4008±82	2334	Xining	Qijia	BM: 5	--	PKU
Nanshansi	BA110905	FM	3680±25	4029±53	4008±82	1953	Ledu	Majiayao	FM: 200 BM: 33	--	PKU
Xiasunjiazhai	BA120205	Barley	3665±25	4003±75	3997±88	2334	Xining	Qijia	BM: 1 Barley: 8	--	PKU
Ajiacun	Beta-314717	FM	3640±30	3979±79	3975±107	2527	Datong	Qijia	FM: 3 BM: 8	--	Beta
Zhongtan	Beta-303694	FM	3640±30	3979±79	3975±107	2132	Hualong	Qijia	FM: 145 BM: 64	--	Beta
Gongshijia	Beta-303689	Barley	3620±30	3934±41	3955±112	2074	Hualong	Qijia	FM: 222 BM:12 Barley: 4	Sheep Cattle Pig	Beta
Jinchankou	BA110913	Barley	3595±20	3912±46	3906±65	2309	Huzhu	Qijia	FM: 110 BM: 996 Barley: 44	Sheep	PKU
Zhaojiazhuang	BA110904	FM	3595±25	3911±48	3906±67	2093	Ledu	Majiayao	FM: 490 BM: 80	--	PKU
Jinchankou	Beta-303690	Wheat	3440±30	3727±87	3730±99	2309	Datong	Qijia	FM: 7 BM: 477 Barley:56 Wheat: 41	Sheep	PKU
Wayaotai[#]	BA120199	BM	3410±30	3658±40	3694±121	1760	Minhe	Xindian	BM:8 Barley: 1	--	PKU

Site	Lab no.	Dating material	Radiocarbon age (yr B.P.)	Calibrated age (cal yr B.P.) 1 Sigma	2 Sigma	Alt. (m.a.s.l.)	County	Culture	Crop remains	Animal remains	Lab.
Shaliuheqiaodong[#]	Beta-303693	Caper	3380±30	3632±51	3605±94	3293	Gangcha	Qijia	BM: 2	Sheep Fish Cattle	Beta
Jiaoridang	BA110890	Barley	3190±30	3413±30	3413±50	2258	Xunhua	Kayue	FM: 75 BM: 56 Barley: 33	--	PKU
Aiqingya	Beta-344750	Wheat	3160±30	3409±33	3406±49	3221	Gangcha	Kayue	Wheat:1	Sheep Fish	Beta
Gongshijia	BA110893	Barley	3165±35	3402±40	3398±63	2074	Hualong	Kayue	FM: 14 BM: 18 Barley: 7	Sheep Cattle Pig	PKU
Tawendaliha	Beta-324460	Barley	3110±30	3324±52	3324±68	2861	Dulan	Nuomuhong	BM: 158 Barley: 166	Sheep Cattle	Beta
Xiariyamakebu	BA120179	Wheat	3100±30	3318±51	3316±69	3050	Dulan	Nuomuhong	FM: 2 Barley: 42	Sheep Cattle	PKU
Hongshanzuinanpo	BA120203	Barley	3075±30	3306±43	3291±74	3086	Wulan	Nuomuhong	BM: 1 Barley: 96	--	PKU
Qiezha	Beta-353860	Barley	3070±30	3302±41	3289±74	3229	Gonghe	Kayue	Barley: 8	--	Beta
Huidui	BA120198	Barley	3060±35	3294±47	3266±100	2384	Ledu	Xindian	Barley: 5 Wheat: 2	--	PKU
Lagalamaerma	Beta-324457	Barley	3060±30	3296±43	3285±75	3341	Gangcha	Kayue	Barley: 5	Sheep	Beta
Luowalinchang*	BA110895	Barley	3055±40	3280±60	3265±104	2326	Jianzha	Kayue	FM: 222 BM: 49 Barley:12 Wheat: 2	--	PKU
Luowalinchang*	Beta-303691	Barley	3050±30	3278±57	3262±95	2326	Jianzha	Kayue	FM: 222 BM: 49 Barley:12 Wheat: 2	--	Beta
Shuangerdongping	BA110902	Wheat	3030±25	3267±55	3251±88	2017	Ledu	Xindian	FM: 31 BM: 202 Barley:42 Wheat: 9	--	PKU

Site	Lab no.	Dating material	Radiocarbon age (yr B.P.)	Calibrated age (cal yr B.P.) 1 Sigma	2 Sigma	Alt. (m.a.s.l.)	County	Culture	Crop remains	Animal remains	Lab.
Dongfengxinan[#]	Beta-292121	Barley	3010±40	3203±119	3207±129	2028	Hualong	Kayue	Barley: 7	--	Beta
Kalashishuwan	BA120194	Barley	3020±25	3243±76	3210±126	2575	Huangzhong	Kayue	BM: 149 Barley:317 Wheat: 79	--	PKU
Weijiabao	BA120184	Barley	2905±30	3053±82	3075±122	2423	Huzhu	Kayue	BM: 9 Barley: 22	--	PKU
Tuanjie	BA110892	Barley	2930±35	3081±76	3088±121	2036	Hualong	Kayue	FM: 8 BM: 15 Barley: 3	--	PKU
Erfang	Beta-303688	Barley	2910±30	3065±74	3078±121	1772	Guanting	Xindian	FM: 110 BM: 40 Barley:2 Wheat: 2	--	Beta
Wenjia	BA110888	Barley	2890±30	3018±49	3041±115	1813	Minhe	Xindian	FM: 248 BM: 193 Barley:10 Wheat: 1	Sheep	PKU
Bayan	BA120192	Barley	2860±20	2966±37	2977±88	2815	Hualong	Kayue	Barley:30 Wheat: 5	--	PKU
Talitaliha*,[#]	BA120176	Barley	2840±30	2938±52	2964±99	2802	Dulan	Nuomuhong	Barley: 34	Sheep Cattle	PKU
Caodalianhuxi	Beta-344749	Barley	2830±30	2921±43	2957±103	3049	Gangcha	Kayue	BM:1 Barley:1	Sheep Horse Cattle	Beta
Longshan[#]	BA110910	Wheat	2790±20	2890±34	2882±73	2585	Huangyuan	Kayue	BM: 9 Barley:212	--	PKU
Talitaliha*	Beta - 324459	Barley	2770±30	2860±62	2867±79	2802	Dulan	Nuomuhong	Barley: 34	Sheep Cattle	Beta
Shuangerdongping[#]	BA110903	Barley	2770±25	2860±61	2867±78	2017	Ledu	Xindian	FM: 195 BM: 27 Barley:202	--	PKU

Site	Lab no.	Dating material	Radiocarbon age (yr B.P.)	Calibrated age (cal yr B.P.) 1 Sigma	2 Sigma	Alt. (m.a.s.l.)	County	Culture	Crop remains	Animal remains	Lab.
Yingpandi	BA120200	Barley	2760±25	2855±61	2854±72	2343	Minhe	Xindian	Wheat: 2 Barley: 33	--	PKU
Xiawatai	BA120183	Barley	2750±30	2829±38	2848±71	2660	Ledu	Kayue	BM: 1 Barley:23	--	PKU
Lalongwa	BA110894	Barley	2685±30	2798±43	2799±48	2811	Hualong	Kayue	Wheat: 1 Barley: 42	--	PKU
Gagai	BA110900	Barley	2550±30	2645±100	2624±126	2610	Guide	Kayue	Barley: 14	--	PKU
Keer	BA120178	Barley	2550±30	2645±100	2624±126	3190	Dulan	Nuomuhong	Barley: 23	--	PKU
Lamuzui	Beta-292120	Barley	2520±40	2615±114	2606±140	2314	Xunhua	Kayue	BM: 1 Barley: 60	--	Beta
Yangou	BA110891	Barley	2460±30	2535±165	2534±171	1878	Xunhua	Kayue	FM: 42 BM: 15	--	PKU
Shawuang	BA120193	Barley	2325±30	2344±12	2335±35	2697	Hualong	Kayue	Barley: 6 Barley: 12	--	PKU

FM—Foxtail Millet; BM—Broomcorn Millet; *—Two AMS dates were obtained from the same flotation samples; #—AMS dates from ref. *30*.

Table S2.

Radiocarbon dates of the Paleolithic sites on the Tibetan Plateau.

Site	Lab num.	Dating material	Radiocarbon date (yr B.P.)	Calibrated age (cal yr B.P.) 1 Sigma	Calibrated age (cal yr B.P.) 2 Sigma	Alt. (m.a.s.l.)	County	Ref.
Jiangxigou 1	Beta 208338	charcoal	12470±60	14560±317	14600±431	3356	Gonghe	*42*
Jiangxigou 1	Beta 149997	charcoal	12420±50	14419±238	14548±419	3356	Gonghe	*42*
Jiangxigou 1	AA12318	charcoal	12420±170	14515±347	14546±581	3356	Gonghe	*43*
Jiangxigou 1	AA12319	charcoal	12370±90	14361±264	14500±471	3356	Gonghe	*43*
Jiangxigou 1	Beta 282120	charcoal	12190±50	14038±85	14028±189	3356	Gonghe	*43*
HZYC 1	Beta 227185	charcoal	11720±70	13562±103	13576±182	3236	Gonghe	*43*
Heimahe 1	Beta 194544	charcoal	11220±50	13152±74	13102±172	3210	Gonghe	*41*
Heimahe 1	Beta 169901	charcoal	11160±50	13044±86	13036±187	3210	Gonghe	*41*
Heimahe 1	Beta 169902	charcoal	11140±50	13031±83	12992±187	3210	Gonghe	*41*
Heimahe 1	Beta 149998	charcoal	11070±40	12993±91	12932±175	3210	Gonghe	*41*
Heimahe 1	Beta 194543	charcoal	11040±70	12956±122	12906±201	3210	Gonghe	*41*
HZYC 1	Beta 262394	charcoal	11020±60	12917±144	12897±196	3236	Gonghe	*41*
HZYC 1	Beta 257186	charcoal	11010±60	12903±150	12891±196	3236	Gonghe	*41*
Heimahe 1	Beta 169903	charcoal	10850±60	12710±82	12748±150	3210	Gonghe	*41*
Heimahe 1	Beta 194542	charcoal	10670±60	12602±44	12580±142	3210	Gonghe	*41*
10HTHS 1	Beta 262389	charcoal	10470±60	12384±163	12353±219	3198	Haiyan	*43*
10HTHS 1	Beta 262388	charcoal	10360±60	112237±142	12252±259	3198	Haiyan	*43*
BWC 3	Beta212117	charcoal	10280±50	11990±148	12101±277	3238	Haiyan	*43*
10HTHS 1	Beta 262390	charcoal	10230±60	11947±123	12009±361	3198	Haiyan	*43*
BWC 3	Beta282116	charcoal	10170±50	11869±104	11837±215	3237	Haiyan	*43*
BWC 3	Beta 282113	charcoal	10100±50	11683±268	11686±283	3235	Haiyan	*43*
BWC 3	Beta282118	charcoal	10050±50	11555±151	11568±248	3236	Haiyan	*43*
BWC 3	Beta 262392	charcoal	10000±60	11463±147	11506±244	3235	Haiyan	*43*
Garhai 1	Beta331976	charcoal	9750±40	11198±24	11175±66	3200	Haiyan	*43*
BWC 3	Beta 282112	charcoal	9510±50	10880±186	10842±242	3235	Haiyan	*43*
BWC 3	Beta 262391	charcoal	8430±50	9473±44	9420±112	3235	Haiyan	*43*
BWC 3	Beta 282114	charcoal	8430±40	9463±31	9427±102	3235	Haiyan	*43*
Jiangxigou 2	Beta 194541	charcoal	8170±50	9129±107	9139±129	3356	Gonghe	*42*
YWY 1	Beta 262387	charcoal	7780±60	8531±73	8560±143	3397	Gonghe	*43*
YWY 1	Beta 237534	charcoal	7770±40	8538±57	8536±91	3397	Gonghe	*43*
YWY 1	Beta 262386	charcoal	7760±60	8525±68	8527±114	3397	Gonghe	*43*

Site	Lab num.	Dating material	Radiocarbon date (yr B.P.)	Calibrated age (cal yr B.P.)		Alt. (m.a.s.l.)	County	Ref.
				1 Sigma	2 Sigma			
YWY 1	Beta 257187	charcoal	7680±50	8476±60	8483±93	3397	Gonghe	*43*
Heimahe 3	Beta 208334	charcoal	7630±50	8444±63	8455±85	3210	Gonghe	*42*
Shalongka	LUG10-128	charcoal	7535±58	8317±92	8310±112	2021	Hualong	*9*
Jiangxigou 2	Beta 208336	charcoal	7330±50	8116±68	8158±144	3356	Gonghe	*42*
Shalongka	Beta-297657	charcoal	7220±40	8061±90	8061±99	2021	Hualong	*9*
Jiangxigou 2	Beta 282122	charcoal	7210±40	8005±42	8056±102	3356	Gonghe	*43*
YWY 1	Beta 262385	charcoal	6990±60	7842±85	7815±122	3397	Gonghe	*43*
BWC 3	Beta282115	charcoal	6870±40	7704±41	7704±85	3235	Haiyan	*43*
Jiangxigou 1	Beta 282121	charcoal	5960±40	6795±57	6784±107	3356	Gonghe	*43*
Layihai	PV-0199	charcoal	5920±85	6768±112	6728±224	2580	Guinan	*33*
Xidatan 2	Beta 194553	charcoal	5670±40	6448±40	6440±119	4300	Geermu	*3*
BWC 4	Beta 282119	charcoal	4890±40	5620±26	5650±66	3335	Haiyan	*43*
Jiangxigou 2	Beta 209350	charcoal	4850±40	5566±77	5567±90	3356	Gonghe	*42*
BWC 4	Beta 262393	charcoal	4780±40	5530±55	5464±132	3335	Haiyan	*43*
Yangquxi	Beta-331311	Bones	4590±30	5366±74	5261±186	2674	Xinghai	*This paper*

Table S3.

OSL dates of the Paleolithic sites on the Tibetan Plateau.

Site	Sample code	De (Gy)	Dose rate (Gy/ka)	Age (ka B.P.)	Alt. (m.a.s.l.)	County	Ref.
Quesang	XZ1	18.1±1.7	0.88±0.094	20.6±2.9	4200	Lhasa	*2*
Quesang	XZ2	17.4±1.3	0.824±0.055	21.1±2.1	4200	Lhasa	*2*
Quesang	XZ3	17.0±1.2	0.784±0.054	21.7±2.2	4200	Lhasa	*2*
Jiangxigou 1	JXG1-A	41.82±0.76	2.90±0.19	14.4±1.0	3356	Gonghe	*44*
Jiangxigou 1	JXG1-B	36.95±0.93	2.58±0.18	14.3±1.0	3356	Gonghe	*44*
Jiangxigou 1	JXG1-C1	34.98±0.98	2.71±0.18	12.0±0.9	3356	Gonghe	*44*
Jiangxigou 1	JXG1-D	32.42±2.12	2.42±0.17	13.4±1.3	3356	Gonghe	*44*

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