Germplasm improvement

Genetic resources

Distribution of rice land races in China

Cao Yongsheng and Zhang Xianzhen,
Institute of Crop Germplasm Resources,
Chinese Academy of Agricultural Sciences,
Beijing 100081, China

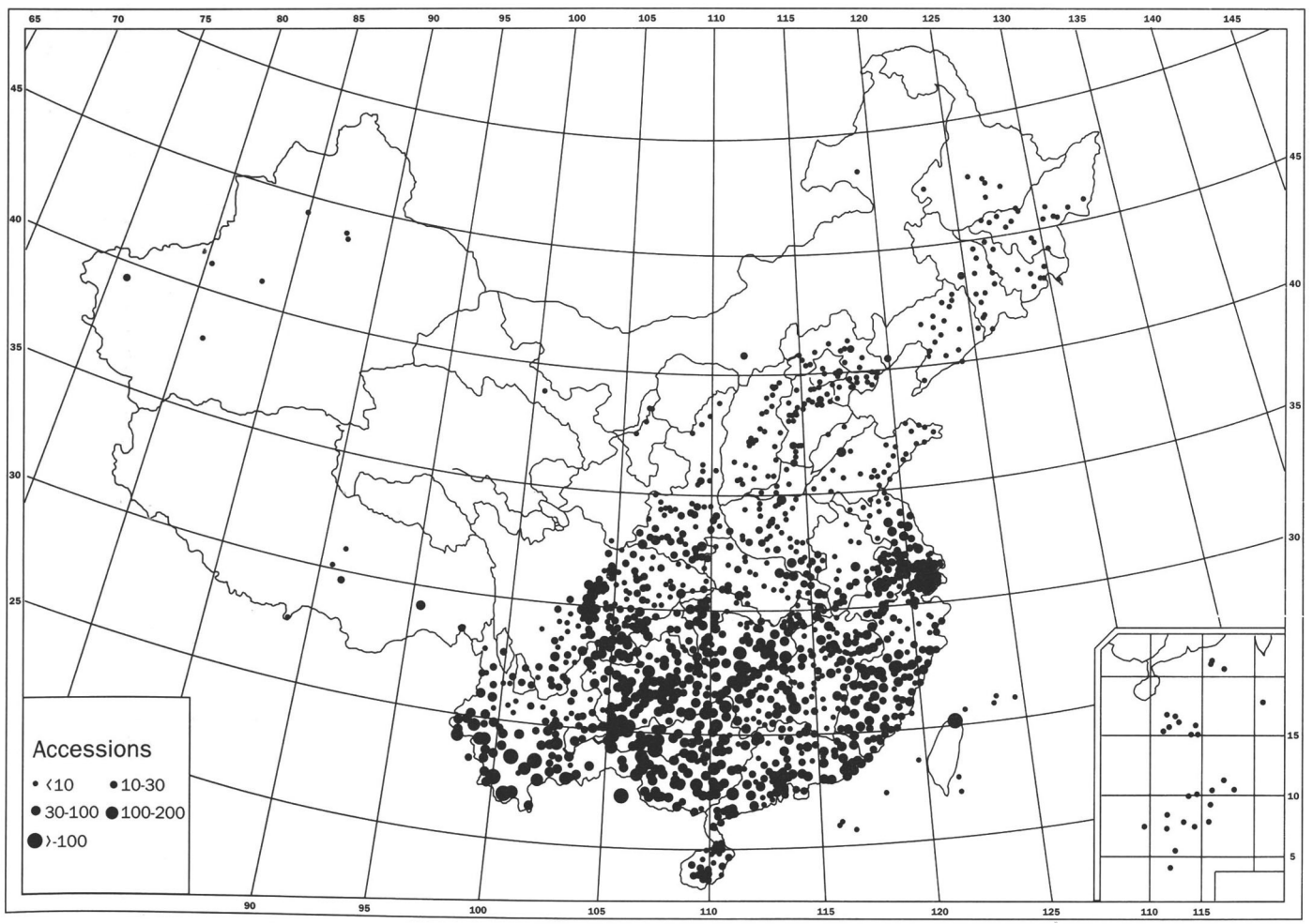
Cultivated rice *(Oryza sativa* L.) is widely distributed in China (see figure and table). These germplasm resources are highly diverse and extremely localized because of the country's vast territory, the complicated terrain, the continental and oceanic monsoon climates, and various other ecological factors. These factors make the distribution of rice land races in China regional and noncontinuous.

The summer monsoon brings warm temperatures and abundant precipitation to southeastern China, making for a long rice-growing season and a concentration of ricefields. The landscape is very hilly, which causes significant differences in the climate. The rice germplasm resources in the region are rich.

The majority (93%) of the rice land races in China are distributed in the area south of the Qing Mountains and Huaihe River, where the annual precipitation is more than 800 mm and the annual mean temperature is above 15°C. The Changjiang Delta, the Zhujiang Delta, the central Anhui Plain, and the Chendu Plain are the main regions of rice land race distribution; the plains in Yunnan and Guizhou provinces and the coastal plains in Zhejiang, Fujian, and Hainan provinces are also important areas.

The rice-growing season is short in the area to the north of the Huaihe River in eastern China because of the high latitude and low mean temperature. Rice land races are less common (only 6% of the total accessions) than in southern China because most of the area's annual precipitation (400-800 mm) occurs in the summer and is significantly less than that in southern China. Additionally, rivers and lakes in the area are few.

In the southern part of the Huanghuai Plain, the abundant rainfall at the end of spring and the beginning of summer



Distribution of rice land races in China[a].

[a]Albers conic equal area projection was used to draw the figure; based on data from the Chinese Crop Germplasm Resources Information System.

Rice land races from several provinces in China.

Province	No.
Anhui	725
Beijing	9
Fujian	1894
Gansu	7
Guangdong	4863
Guangxi	8967
Guizhou	4279
Hainan	668
Hebei	325
Heilongjiang	113
Henan	365
Hubei	1417
Hunan	5001
Jiangsu	2320
Jiangxi	2869
Jilin	68
Liaoning	78
Neimenggu	10
Ningxia	18
Shaanxi	642
Shandong	128
Shanghai	304
Shanxi	169
Sichuan	3255
Taiwan	1190
TianJin	27
Xinjiang	16
Xizang	38
Yunnan	5532
Zhejiang	1585
Total	46,882

negatively affects rice growth. The rice-growing area and the number of land races there are much less than those in areas to the south of the Chanjiang River. In the Huanghuai Plain, the land races are concentrated in the lower valley of the Huaihe River and the coastal regions where water resources are abundant.

The area near the Bohai Sea in Hebei Province, the lower valley of the Liaohe River in northeastern China, and the Songhuajiang River Valley are the main areas for rice land races in regions at high latitudes.

The climate in northwestern China is continental and dry with a short wet season. Rice land races are mainly—but sparsely—distributed over river valleys. They constitute only about 1% of all the land races in China. ■

Some suggestions for in situ conservation of wild rices

S. N. Singh and M. Gadgil, Centre for Ecological Sciences (CES) , Indian Institute of Science, Bangalore 560012, India

India has seven species of wild rices. Four of these, *Oryza nivara, O. rufipogon, O. sativa* f. *spontaea,* and *Posteresia coarctata,* occur in the coastal and hilly districts of Uttara Kannada (13º 55' N to 15° 32' N latitude and 74° 5' E to 75° 5' E longitude) and Shimoga in Karnataka.

We examined 125 populations of wild rices to determine their habitat requirements and how ongoing ecological changes are affecting them. From 22 Oct 1992 to 6 Oct 1993, we collected seed and plant specimens from 43 locations and deposited them in a herbarium at the CES (see table).

Karnataka had not previously been explored for wild rices, so the intraspecific variation that remains can still be captured. Moreover, large patches of wild rices still exist that can be easily conserved in situ. These wild rices are locally known as *Nyarai, Nyarai batta, Kadu batta, Kadu hullu, Uddinakardi battu, Uddirige Urbu, Chungu Nyari,* and *Navane.*

A few plants of *P. coarctata* that were seen on 22 Oct 1992 at Kumta-Vannalli

Collection date, locality, and other information for some wild rice samples. Karnataka, India.

Collection date	Locality	Taluk[a]	Latitude	Longitude	Altitude (m)	Habitat type[b]	Relative abundance[c]	Species[d]
22-10-92	Kumta-Vannalli	K	14°25.25	74°24'	3.5	E	E	P
28-10-92	Dhareshwar	K	14°25.5'	74°24'	3	S	F	s/n
06-10-93	Dhareshwar	K	14°25.5'	74°24'	3	S	R	s/n
23-10-92	Handigon	K	14°23.5'	74°24.5'	4	F	A	s/n
23-10-92	Handigon	K	4°23.5'	74°24.5'	4	F	A	s/n
06-10-93	Handigon	K	14°23.5'	74°24.5'	4	F	E	s/n
28-10-92	Handigon	K	14°23.5'	74°24.5'	4	F	F	s/n
23-10-92	Handigon	K	14°23.5'	74°24.5'	4	F	A	s/n
30-10-92	Manki	K	14°26.75'	74°26'	5	C	R	s/n
23-10-92	Manki	K	14°26.75'	74°26'	5	F	A	s/n
06-10-93	Manki	K	14°26.75'	74°26'	5	F	O	s/n
05-11-92	Gudwi	So	14°27'	75°01'	550	P	A	n/r
06-11-92	Gudnapur	So	14°33'	74°59'	570	T	A	n/r
05-11-92	Yelasi	So	14°22'	75°03'	580	T	A	n/r
04-11-92	Kondli	Si	14°21'	74°54.5'	590	T	A	n/r
22-10-92	Sashitlu-Kumta	K	14°25.5'	74°24'	3.25	F	F	S
03-11-92	Mattigar	Si	14°18'	74°52.5'	580	F	A	S
03-11-92	Menasi	Si	14°17'	74°49'	580	F	A	S
03-11-92	Menasi	Si	14°17'	74°49'	580	F	A	S
03-11-92	Mattigar	Si	14°18'	74°52.5'	580	F	A	S
05-11-92	Tyavgod	So	14°25'	75°03'	585	T	A	r
04-11-92	Balekoppa	Si	14°21'	74°54'	590	T	F	r
04-11-92	Avragoppa	Si	14°22'	74°52'	585	T	A	r
04-11-92	Aigod	Si	14°24'	74°56'	570	T	A	r
06-11-92	Kantraji	So	14°22'	74°59'	555	T	A	r
05-11-92	Konan mane	So	14°22'	75°01'	560	T	A	r
04-11-92	Andawalli	So	14°22'	74°57'	570	T	A	r
04-11-92	Andawalli	So	14°22'	74°57'	570	T	A	r
03-11-92	Akkunji	Si	14°18'	74°53.5'	570	T	A	r
05-11-92	Kallambi	So	14°26'	75°02'	570	T	A	r
04-11-92	Andawalli	So	14°22'	74°57'	570	T	A	r
05-11-92	Sirlige	Si	14°21'	74°56.25'	575	T	A	r
05-11-92	Sirlige	Si	14°21'	74°56.25'	575	T	A	r
05-11-92	Hale Sorab	So	14°23'	75°05'	580	T	A	r
03-11-92	Kawachur	Si	14°16'	74°54'	580	T	A	r
05-11-92	Hale Sorab	So	14°23'	75°05'	580	T	A	r
03-11-92	Nagarbawi	Si	14°19'	74°51.8'	590	T	A	r
03-11-92	Hosur	Si	14°20'	74°53'	595	T	R	r
03-11-92	Hosur	Si	14°20'	74°53'	595	T	A	r
03-11-92	Hasvante	Si	14°14'	74°54'	595	T	A	r
05-11-92	Gundasettikoppa	So	14°22'	75°04'	595	T	A	r
03-11-92	Talguppa	Sa	14°13'	74°54.25'	615	T	A	r

[a] Taluk is an administrative unit below the district level; K = Kumta, Si = Siddapur, So = Sorab, Sa = Sagar. [b] E = estuarine rice cultivation, F = farmer's field, P = pond, S = seasonal stream, T = tank. [c] A = abundant, F = frequent, O = occasional, R = rare, E = locally extinct. [d] n = *Oryza nivara,* r = *O. rufipogon,* s = *O. sativa* f. *spontanea.* p = *Porteresia coarctata.*