

Litterfall Deposition in Subtropical Woodlands, Northeastern Mexico

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Introduction.

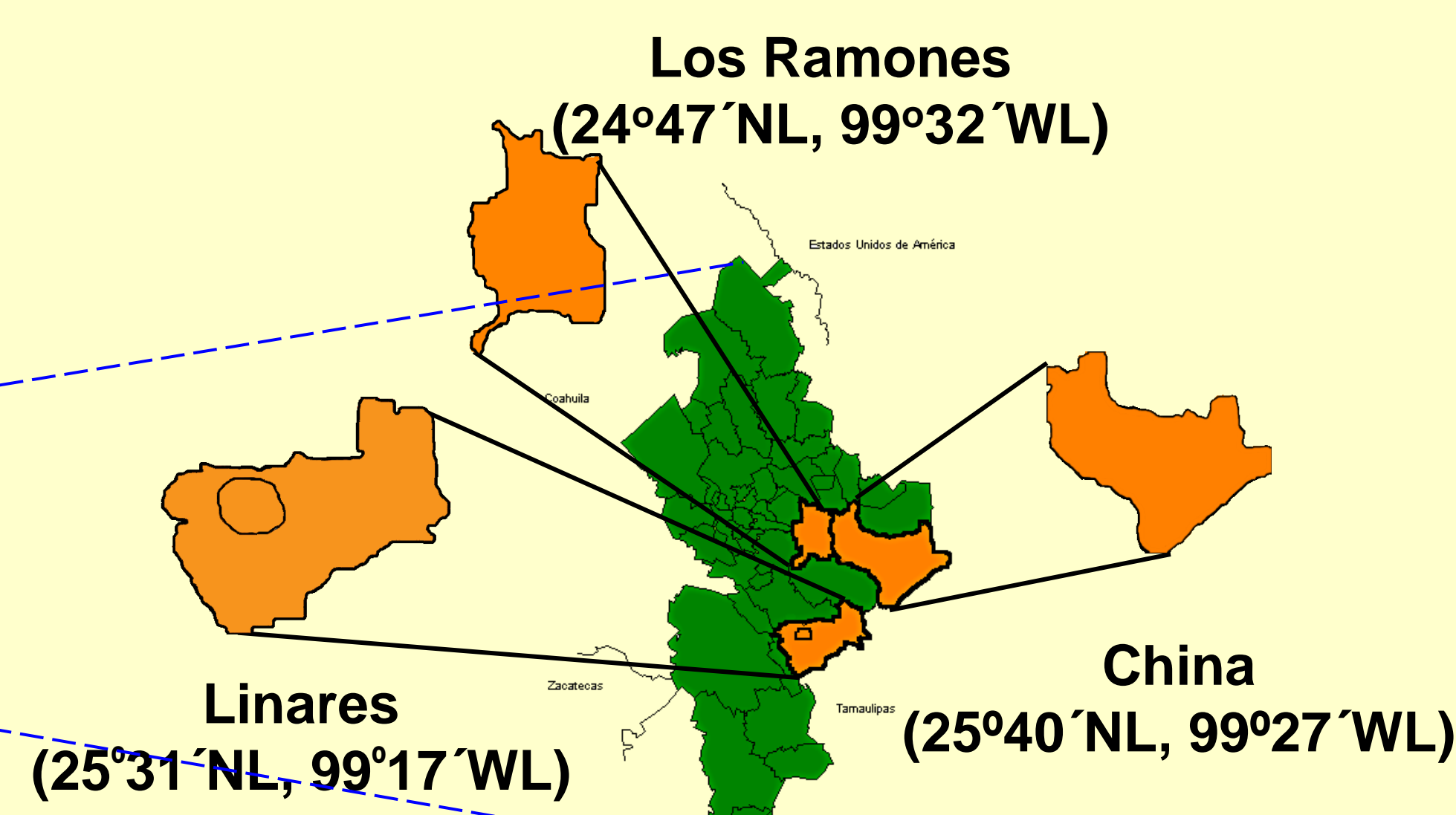
Litterfall and litter decomposition are key fundamental processes in nutrient cycling of forest ecosystems (Lugo *et al.*, 1990; Pausas, 1997). Despite of the great number and well documented floristic studies carried out at the Tamaulipan thornscrub or subtropical thornscrub woodlands, northeastern Mexico, there are not investigations that have addressed the spatial and temporal patterns of litterfall deposition in this type of vegetation which is distinguished by a wide range of taxonomic groups exhibiting differences in growth patterns, leaf life spans, textures, growth dynamics, and phenological development (Reid *et al.*, 1990).

Objective.

To characterize and quantify the seasonal constituents of the litterfall deposition in three research sites representative of the subtropical woodlands, northeastern Mexico.

Materials and Methods.

Research sites



Sampling frequency

In an experimental undisturbed plot (20 m x 20 m) located at each research site, litterfall deposition was collected at monthly intervals (Nov-18-04 thru Oct-21-06) by means of using seven litter traps, placed randomly at each experimental plot. Each trap covered an area of 0.16 m² (0.40 m x 0.40 m).

Litter production

The collected litter was sorted into the following categories: leaves, reproductive structures (flowers, fruits and seeds), twigs or branches (<2 cm in diameter), and others (unidentified, fine plant residues, pieces of insect bodies or feces).

Statistical analyses

One-way ANOVA was used at each sampling.

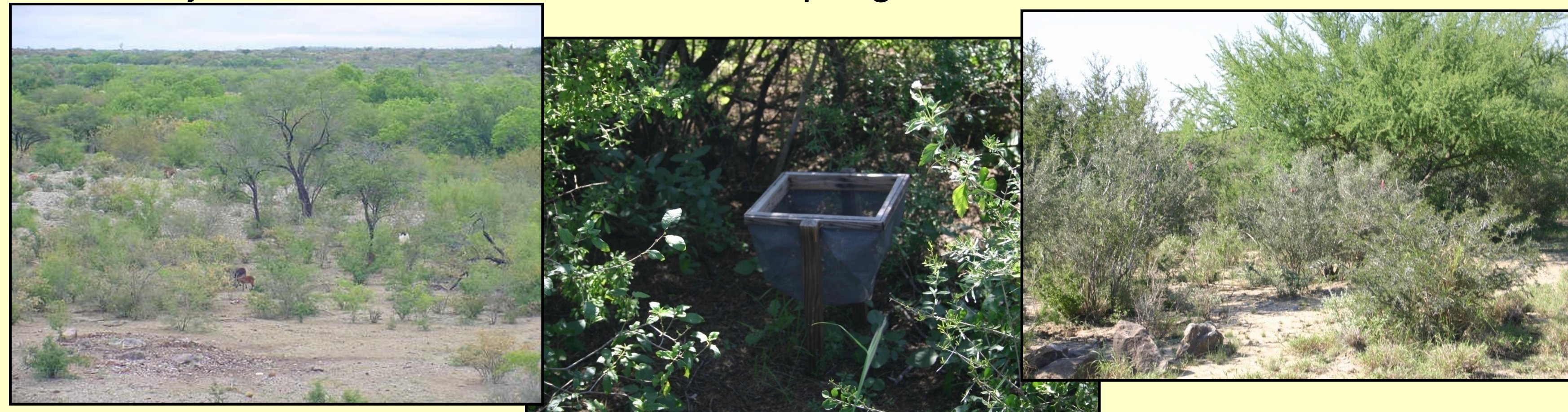


Table 1. F and P values from one-way ANOVA to detect significant differences among sites on litterfall deposition.

Sampling Date	Litter Constituent								Total	
	Leaves		Reproductive Structures		Branches		Others			
	F	P	F	P	F	P	F	P	F	P
Nov-18-04	0.61	0.55	0.63	0.54	0.29	0.75	2.80	0.09	0.90	0.43
Dec-15-04	1.05	0.37	0.82	0.46	0.02	0.98	0.57	0.58	0.26	0.77
Jan-17-05	10.02	0.001	0.65	0.53	1.33	0.29	0.17	0.85	8.43	0.003
Feb-16-05	5.80	0.01	1.66	0.22	4.16	0.03	0.41	0.67	5.20	0.02
Mar-17-05	5.23	0.02	0.59	0.56	1.57	0.24	0.27	0.76	5.29	0.02
Apr-18-05	3.71	0.05	0.02	0.98	0.88	0.43	1.55	0.24	2.33	0.13
May-18-05	2.01	0.16	0.41	0.67	0.42	0.66	0.43	0.66	1.07	0.36
Jun-20-05	2.14	0.15	0.10	0.90	1.24	0.31	2.60	0.10	1.33	0.29
Jul-19-05	2.62	0.10	3.15	0.07	1.44	0.26	1.71	0.21	2.13	0.15
Aug-17-05	1.24	0.31	0.33	0.72	4.34	0.03	6.48	0.01	2.29	0.13
Sep-21-05	3.50	0.05	0.11	0.89	0.21	0.81	3.09	0.07	3.48	0.05
Oct-17-05	4.68	0.02	0.10	0.90	0.43	0.66	5.47	0.01	5.23	0.02
Nov-18-05	0.55	0.59	1.67	0.22	1.56	0.24	3.53	0.05	1.83	0.19
Dec-19-05	0.37	0.70	2.95	0.80	0.89	0.43	1.08	0.36	1.36	0.28
Jan-19-06	0.17	0.84	0.16	0.85	0.43	0.65	1.55	0.24	0.21	0.81
Feb-21-06	1.90	0.18	0.40	0.68	0.31	0.73	5.77	0.01	1.32	0.29
Mar-17-06	0.24	0.79	0.27	0.76	1.92	0.17	0.73	0.50	0.25	0.78
Apr-18-06	2.15	0.15	0.39	0.68	0.14	0.87	4.67	0.02	1.16	0.33
May-18-06	2.31	0.13	0.43	0.65	12.36	<0.001	6.69	0.007	4.68	0.02
Jun-19-06	2.63	0.10	2.94	0.08	0.69	0.51	0.48	0.62	2.64	0.10
Jul-18-06	4.01	0.04	0.68	0.52	1.09	0.36	1.63	0.22	4.03	0.04
Aug-18-06	7.87	0.004	0.57	0.57	2.20	0.14	4.33	0.03	7.45	0.005
Sep-20-06	3.07	0.07	1.05	0.37	0.32	0.73	0.40	0.68	2.74	0.09
Oct-21-06	1.94	0.18	0.13	0.87	0.21	0.81	2.71	0.10	0.91	0.42

Results.

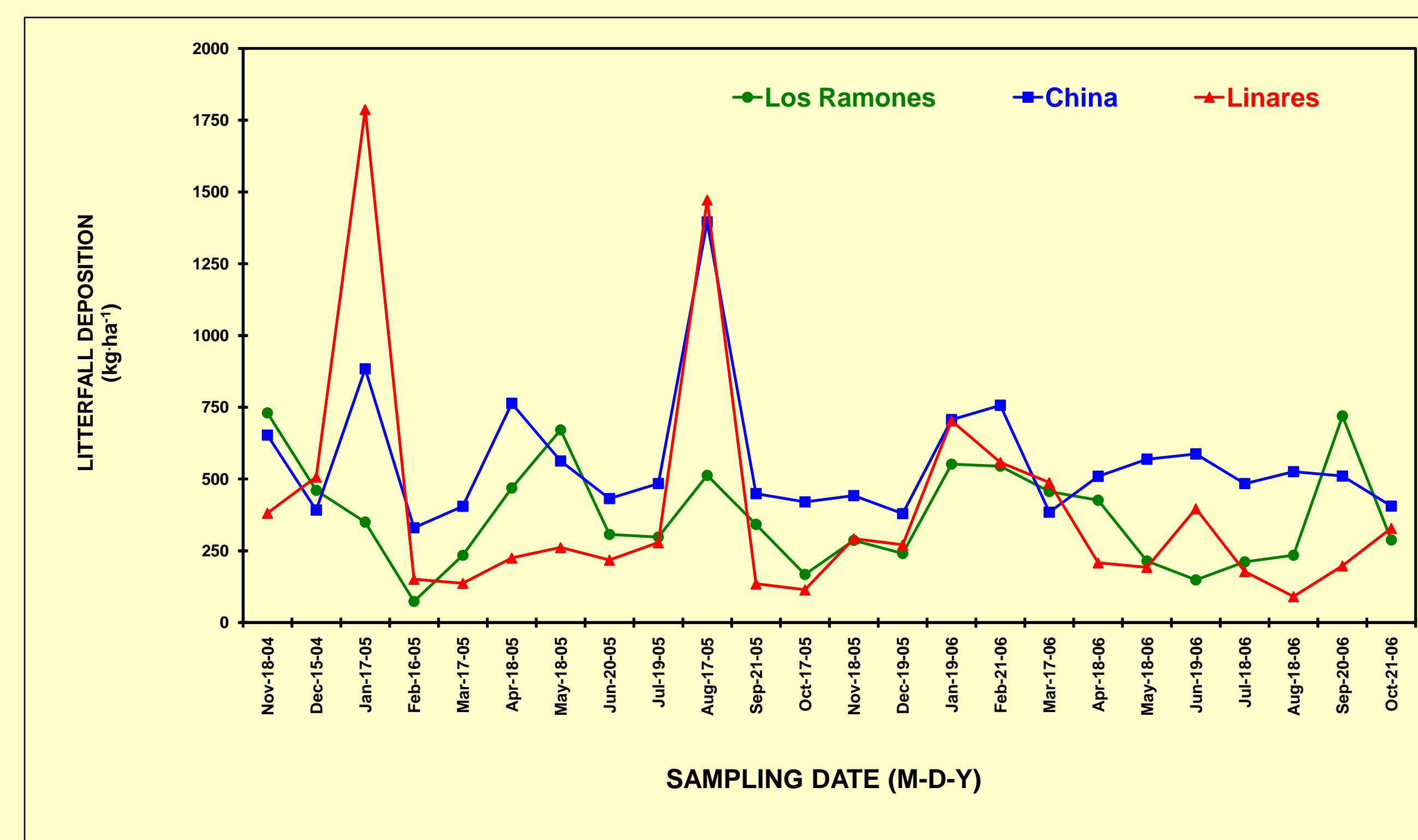


Figure 1. Litterfall deposition pattern at research sites, northeastern Mexico.

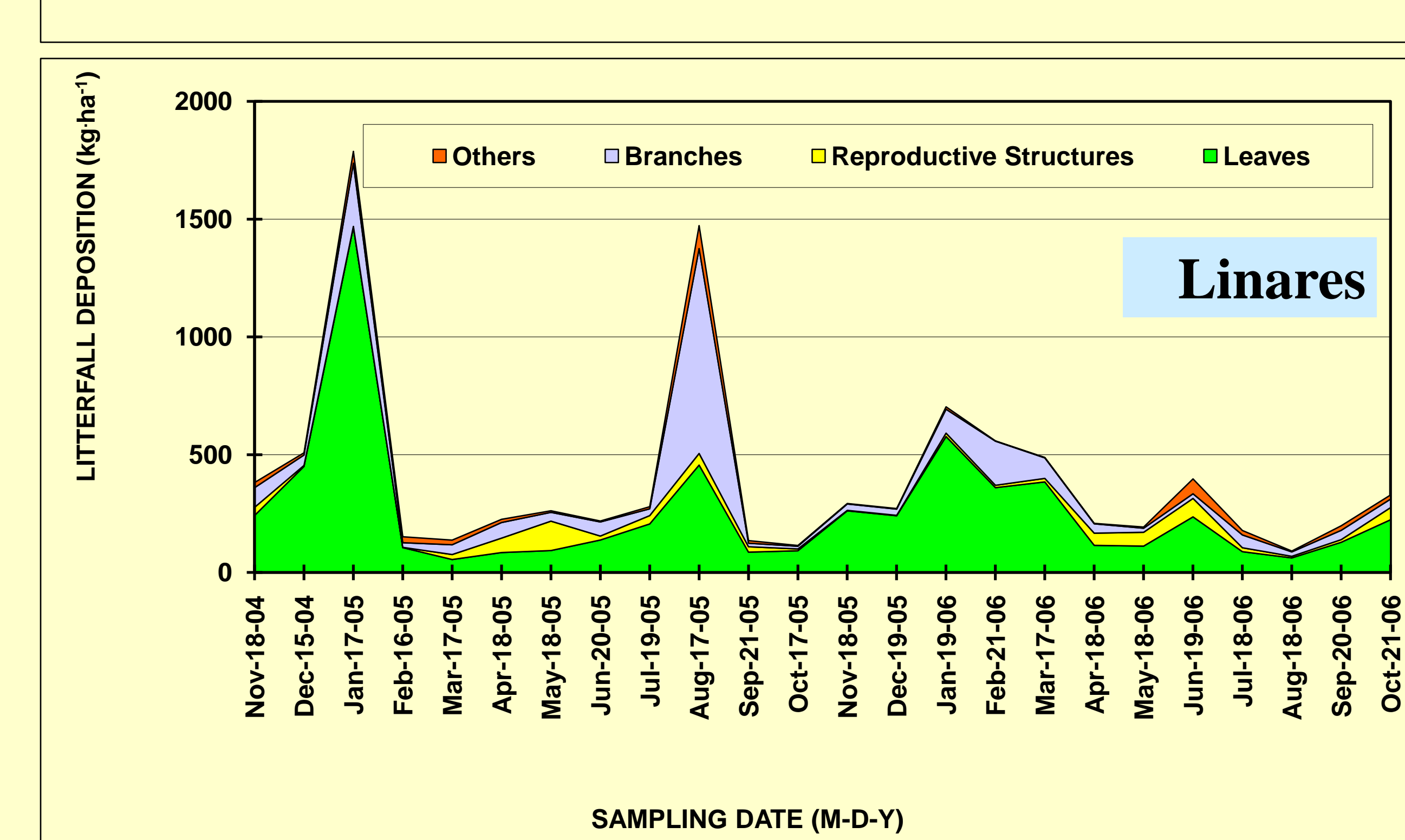
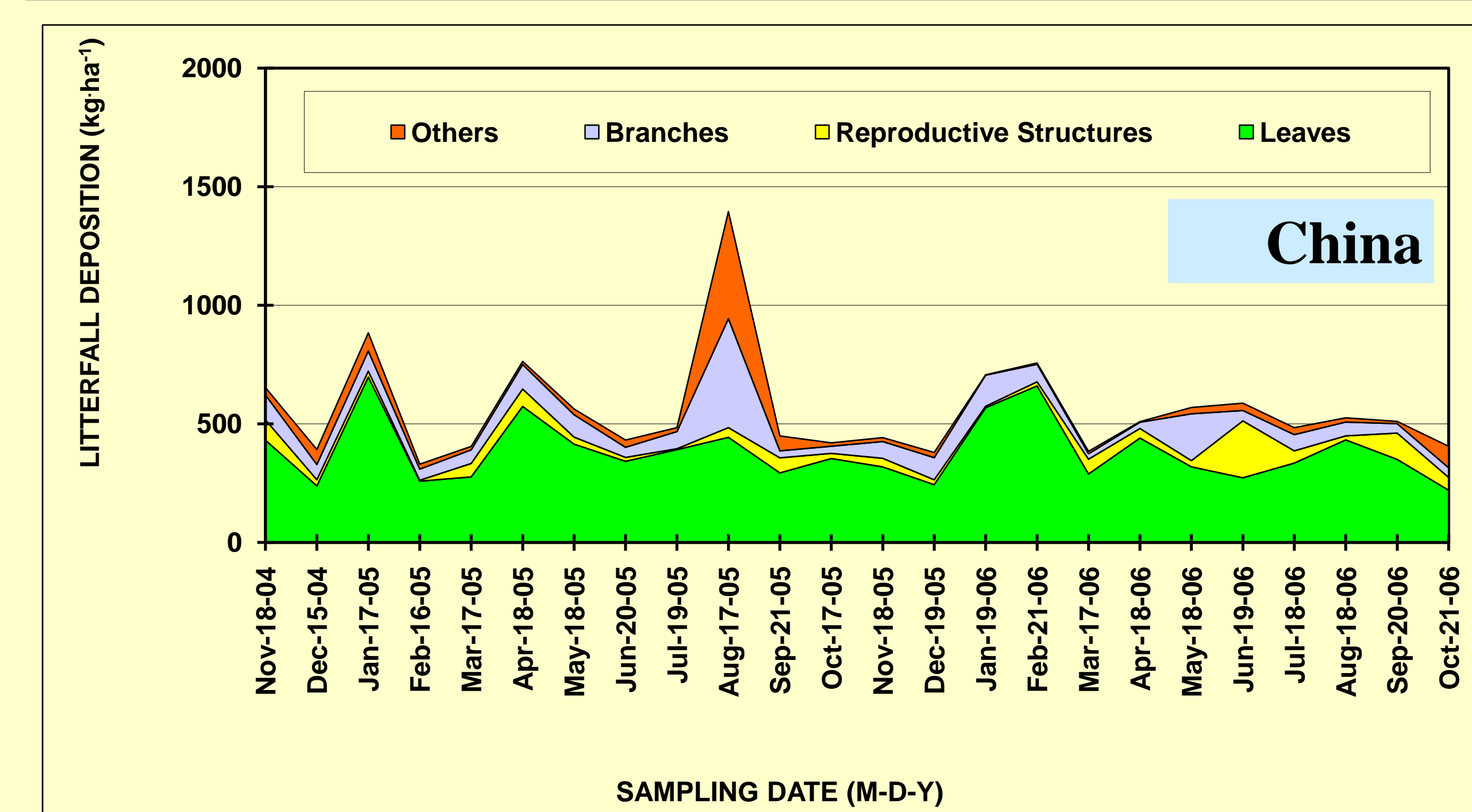
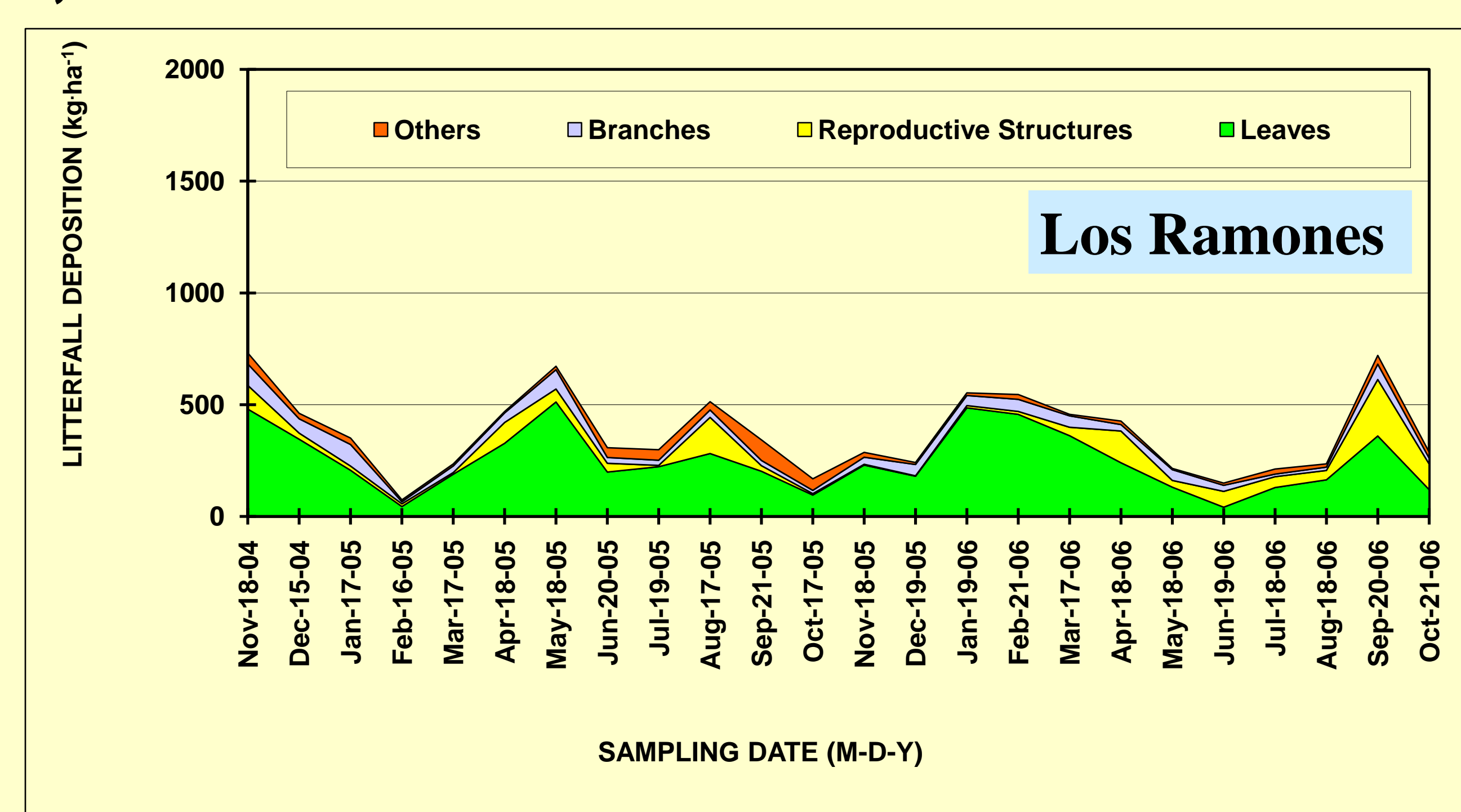


Figure 2. Contribution of litterfall constituents at research sites, northeastern Mexico.

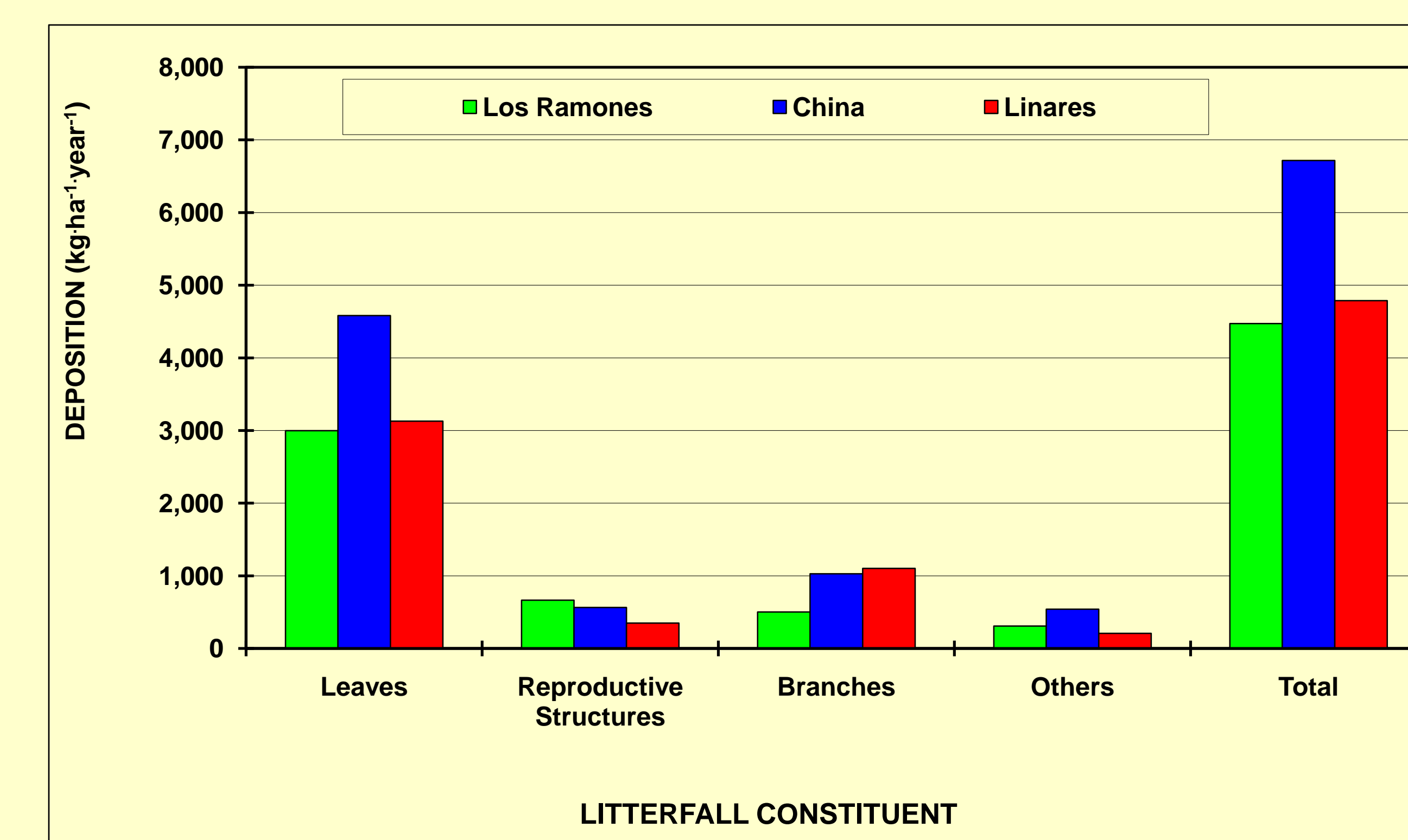


Figure 3. Mean annual production of litterfall constituents at research sites, northeastern Mexico.