Socioecological effects of swidden management in traditional Maya agroforests in the Selva Lacandona of Chiapas, Mexico

Falkowski, Tomasz B. (tbfalkowski@nmhu.edu; New Mexico Highlands University, Department of Forestry, Las Vegas, NM, USA); Chankin, Adolfo; Lehmann, Johannes; Drinkwater, Laurie E.; Diemont, Stewart A.W.; Nigh, Ronald

Supplemental Information

Tables

Table 1: Sample sizes (n) and fallow history of sites sampled in this study

Stage	n	Mean fallow duration prior to burning (years)
Milpa	2	0
Robir	1	1
Jurup che	3	2.666667
Pak che kor	4	5
Mehen che	0	NA
Nu kux che	1	32
Tam che	1	NA
All	12	5.545455

Table 2: Sample sizes (n) incubated for different materials in this study

Item	n
Adhered char DBH≥0.1 m	7
Adhered char DBH<0.1 m	10
Surface char	12
Maize	2
Litter biomass	14
Biomass DBH≥0.1 m	15
Biomass DBH<0.1 m	23
Total	83

Figures

Figure 1: Murals and posters found in study communities condemning the use of fire for the sake of ecological conservation

Figure 2: Map of communities where study sites were located

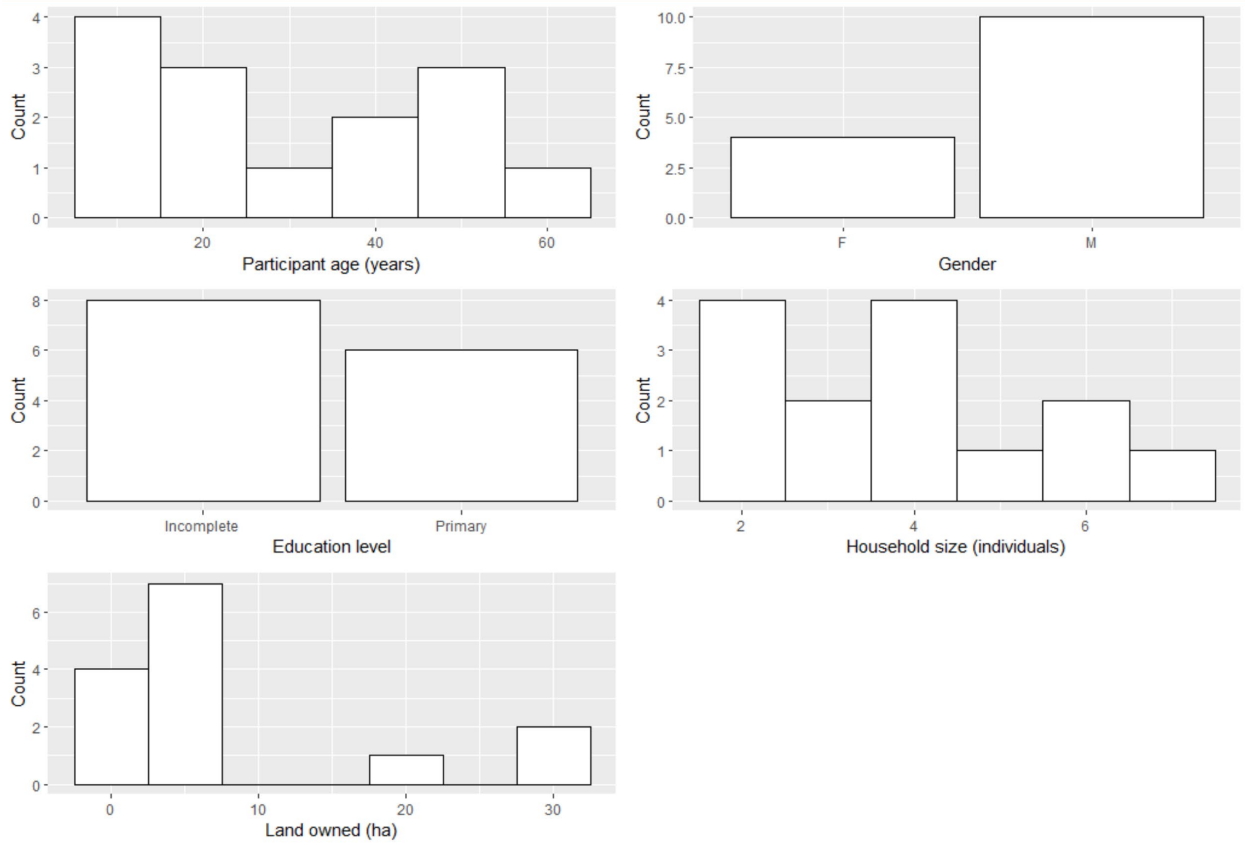

Figure 3: Demographic information for interview participants

Figure 4: Illustrative examples of Maya fire management in traditional swiddens: (a) fire breaks, (b) using water to quench flames to produce char, and (c) dense char deposits are preferred locations for seeding certain crops.

Equations

$$(a)\ \ MRT = {}^{1}/_{n}\,;{}^{1}/_{m}$$

$$(b)\ \ HL = MRT \times \ln(2)$$

Equation 1: Equations calculating mean residence time (MRT) and half life (HL) from double exponential model terms

Interview Protocol

Demographic Questions

1. What is your ethnic identity?
2. How old are you?
3. How many years have you farmed by yourself?
4. How much of your harvest did you sell at the market, if any? How much did earn from selling your crops?
5. Which of the following items do you or your family own: television, computer, car, motorcycle, cell phone, electricity, running water, maize grinder
6. Are you a full-time farmer, or do you have other sources of income?

7. Who taught you to farm? How long did you farm with them?
8. How much land do you farm?
9. Did you attend/complete: primary, secondary, higher education?
10. How long have you farmed this land?

Fire Management Questions

11. What are the benefits of the burn? Are there any negatives?
12. What is the importance of burning for you? Your community?
13. How do the burns affect nature/environment?
14. How has your fire management changed in your lifetime?
15. How does your fire management compare to your parents? How will it be different for your children?
16. How do you control the fire? How often do you burn?
17. Has the government influenced your fire management?
18. How has the weather changed over the past years? How has this influenced your burning?