Supplementary Material

Tab. S1 - Dependent (Y_i) and independent (X_i) variables included in the deforestation risk probabilistic model.

Variable	Name	Type of variable	Units or values	Source
Y_i	Probability of land-use change	Discrete	(0-4)[1]	Land-use change (1986-2011) Landsat images
X_1	Distance to sawmills	Continuous	m	(SDRSOT 2013)[4]
X_2	Lands under forest management	Discrete	(0, 1)[2]	(SDRSOT 2013)[4]
X_3	Distance to paved roads	Continuous	m	Topographic maps (INEGI 1999)
X_4	Distance to unpaved roads	Continuous	m	Topographic maps (INEGI 1999)
X_5	Distance to permanent watercourses	Continuous	m	Hydrographic map (INEGI 1999)
X_6	Population density	Continuous	inhab ha^{-1}	(CONAPO 2010)
X_7	Distance to springs	Continuous	m	Topographic maps (INEGI 1999)
X_8	Elevation	Continuous	m	Author-made (INEGI 1999)
X_9	Slope	Continuous	%	Author-made based on (DEM)
X_{10}	Distance to deforested gaps	Continuous	m	Topographic maps (INEGI 1999)
X_{11}	Distance to trails	Continuous	m	Topographic maps (INEGI 1999)
X_{12}	Distance to homes using firewood or charcoal	Continuous	m	Population census (INEGI 2010)
X_{13}	Distance to high poverty marginalization	Continuous	m	(CONAPO 2010)
X_{14}	Distance to very high poverty marginalization	Continuous	m	(CONAPO 2010)
X_{15}	Distance to medium poverty marginalization	Continuous	m	(CONAPO 2010)
X_{16}	Distance to low poverty marginalization	Continuous	m	(CONAPO 2010)
X_{17}	Distance to a community with more than 100 inhabitants	Continuous	m	Population census (INEGI 2010)
X_{18}	Distance to agricultural lands	Continuous	m	Classified Landsat images, 1986
X_{19}	Distance to pasture	Continuous	m	Classified Landsat images, 1986
X_{20}	Ejidal tenure[5]	Discrete	(0, 1)[3]	(INEGI 2013)
X_{21}	Private ownership	Discrete	(0, 1)[3]	(INEGI 2013)

[1] Probability of land-use change: 1 = forest to forest; 2 = forest to agriculture; 3 = forest to pasture; and 4 = forest to residential uses.

[2] Properties under forest management: 0 = no management; 1 = forest management.

[3] Land ownership: 0 = without Ejidal or private ownership; 1= Ejidal or private ownership.

[4] 2013. Information provided by the Forestry Department, Puebla, Mexico.

[5] Ejidal tenure is a rural property of collective use.

Tab. S2 - Relationship between carbon content and the number of existing species per forest management unit and municipality.

Municipality of Chignahuapan			Municipality of Zacatlan		
Forest Land Unit	**Species (Number)**	**Mg CO_2 ha^{-1}**	**Forest Land Unit**	**Species (Number)**	**Mg CO_2 ha^{-1}**
Quexnón	4	13.66	El Monte	2	58.61
Ejido Michac	6	300.55	Metlaxistla	3	58.61
Chichicaxtla	3	163.93	Milman	2	26.64
Ejido Villa Cuauhtémoc	10	355.19	Rancho Milman	2	26.64
Ejido Ocojala	5	81.97	2a Fracción Milman	2	198.77
Ejido Ocojala	4	81.97	3a Fracción Milman	2	53.69
Ejido San José Corral Blanco	3	218.58	Innominado	3	53.69
La Luz	2	109.29	Yehuala	4	157.79
Ejido Llano Grande	7	95.63	Xochitlmani	2	157.79
Piedra Ancha	7	300.55	Martinajco y amanalco	4	157.79
La Gloria	5	81.97	Innominado en Atotonilco	3	259.29
Rancho de Cuautelolulco	4	136.61	Cerro Tezontle	3	96.17
Innominado	4	81.97	Cerro del Tezontle	3	96.17
Ejido Acopinalco	6	177.60	Huehuetecaco	3	269.95
Ejido Cruz Colorada	9	259.56	Gracianola	2	336.75
Tecoyuca	9	177.60	Ejido Poxcuatzingo	1	530.46
Ejido Las Mesas	6	314.21	Santiago Tlalixtlipa	3	271.04
Ejido Chignahuapan	6	163.93	Icatitla	3	208.74
Ejido Acolihuia	3	245.90	Ejido Tuliman	3	188.52
Rancho Ayotla	2	68.31	Fracción Ahuazotepec	3	40.71
Ejido San Claudio	3	273.22	Ejido Cuatilulco	4	61.34
Ejido San Luis del Valle	7	136.61	El jaral	2	93.72
Ejido San José Atzintlimeya	8	409.84	El Rincón	3	55.74
			Xalpancingo	4	275.68
			Ejido Ocojala	4	78.96
			Nanacamila	7	99.73
			San Antonio Buenavista	7	217.08
			Metepec	5	315.85

Tab. S3 - Management strategies for the protection of priority conservation areas for carbon sequestration and responsible Agencies and Partners to apply them.

Strategy	Implementing Agencies and Partners	High Priority lands	Medium Priority lands	Low Priority lands
(1) Protect forest resources from illegal logging.	Forestry technicians, landowners, forest industry, CONAFOR and SEMARNAT	✓	✓	✓
(2) Increase forest management assistance programs on private lands to reduce resource degradation.	Forestry technicians, CONAFOR, forest industries and landowners	✓	✓	✓
(3) Promote new and improved opportunities for forest products processing.	Forestry technicians, CONAFOR, forest industries and landowners	✓	✓	✓
(4) Promote the creation of a carbon credit payment scheme for stands that have not yet reached merchantability.	CONAFOR, SEMARNAT, State government, landowners and forest industries		✓	✓
(5) Promote more sustainable use of agriculture and pasture lands.	Landowners and CONAFOR		✓	
(6) Explore the creation of voluntary payment mechanisms for ecosystem services provided by forests and agricultural lands (e.g., carbon sequestration, groundwater recharge, food provision).	SEMARNAT, CONAFOR, NGOs, landowners and forest industry		✓	✓
(7) Link forest resource owners with technical forestry service providers for improved management.	Forestry technicians and CONAFOR	✓	✓	
(8) Develop a management plan for agricultural, livestock and residential activities in order to conserve forest resources and prevent deforestation.	Municipality and SEMARNAT	✓	✓	
(9) Raise public awareness of the importance of forest resources as producers of environmental goods and services.	Forestry technicians	✓	✓	✓
(10) Counteract soil degradation through conservation practices (e.g., terraces, filter dams, contour plowing).	CONAFOR and CONAGUA	✓	✓	
(11) Reforest areas with steep slopes in order to restore forest cover.	CONAFOR, forestry technicians and Municipality	✓	✓	
(12) Generate economic alternatives that slow the advance of the agricultural frontier towards forest areas (e.g., implementation of new technologies for agricultural production, greenhouses, aquaculture, silvopastoral and agroforestry areas).	Municipality, State, CONAFOR and SAGARPA	✓	✓	
(13) Include forest areas in the environmental services market (e.g., carbon sequestration credits).	CONAFOR, SEMARNAT and NGOs	✓	✓	
(14) Link resource owners with government and non-governmental institutions to generate economic alternatives that are consistent with ecosystem protection.	Forestry technicians and CONAFOR	✓	✓	✓