Appendix 3.

Table A3.1. Characteristics of the forest states, actions behind the transitions and actions necessary for the recovery of the forests, obtained from the responses of ecologists and locals during the first round of interviews. The values into the ecologists and locals show the frequency of agrees with respect to the total number of interviewees during the member checking.

States	Categories	Codes	Ecologists	Locals
NATURAL STATE (REFERENCE STATE)				
NATURAL (N)	Structure	There is high woody species richness	8/8	6/6
		There are well-defined vertical strata (arboreal, shrubby and herbaceous)	8/8	6/6
		There is a dominant stratum:		
		Arboreal	8/8	4/6
		Shrubby	0/8	0/6
		Herbaceous	0/8	0/6
		The tree layer present sub-strata: dominant (emergent), codominant, and dominated.	8/8	0/6
		There is a high density of canopy cover	8/8	6/6
		The tree density (stems/ha) is:		
		400 to > 700	8/8	0/6
		The trees reach a canopy height of:		
		20–30 m	6/8	4/6
		14–20 m	2/8	2/6
	Characteristic species	**Species considered characteristics of this state:**		
		Ceiba trischistandra (Ceibo)	8/8	6/6
		Handroanthus chrysanthus (Guayacán)	7/8	6/6
		Simira ecuadorensis (Guápala) arbusto	7/8	6/6
		Terminalia valverdeae (Guarapo)	8/8	4/6
		Eriotheca ruizii (Pasallo)	7/8	3/6
		Pisonia aculeata (Pego Pego)	6/8	3/6
		Cavanillesia platanifolia (Pretino)	8/8	0/6
		Piscidia carthagenensis (Barbasco)	3/8	3/6
		Prockia crusis (Manzano)	5/8	0/6
		Geoffroea spinosa (Almendro)	0/8	3/3
	Regeneration	**The abundance of natural regeneration is:**		
		100%	1/8	1/6
		>75%	3/8	5/6
		10-75%	4/8	0/6

		< 10%	0/8	0/6
		What soil characteristics do you consider adequate to describe this state?:		
	Soil	High storage of seeds	2/8	0/6
		Very fertile (recycling of nutrients)	4/8	6/6
		Not very deep, it does not exceed 20 cm.	6/8	0/6
SEMI-NATURAL STATE				
		Compared to the N state the species richness is reduced to:		
		70%	3/8	0/6
		50%	5/8	5/6
		Change in coverage of the strata:		
		Arboreal	8/8	6/6
		Shrubby	4/8	6/6
		Herbaceous	4/8	6/6
		Change in stratum composition:		
	Structure	Arboreal	7/8	0/6
		Shrubby	1/8	3/6
		Herbaceous	2/8	3/6
		Compared to the N state, the density of canopy cover is:		
SEMI-NATURAL (sN)		>75%	1/8	2/6
		50–75%	7/8	4/6
		The tree density (stems/ha) is:		
		200–400	8/8	0/6
		Reduction of emergent trees compared to the N state.	7/8	6/6
		There is a canopy height of:		
		10–15 m	6/8	5/6
		15–20 m	1/8	1/6
		20–30 m	1/8	0/6
		Species considered as characteristic of this state.		
		Handroanthus chrysanthus (Guayacán)	8/8	6/6
		Simira ecuadorensis (Guapala)	8/8	6/6
	Characteristic species	*Piscidia carthagenensis* (Barbasco)	8/8	6/6
		Ceiba trischistandra (Ceibo)	7/8	6/6
		Cochlospermum vitifolium (Polo Polo)	7/8	0/6
		Bursera graveolens (Palo Santo)	8/8	0/6

		Croton sp.	7/8	0/6
		Eriotheca ruizii (Pasallo)	7/8	0/6
		Cavanillesia platanifolia (Pretino)	6/8	0/6
		Ziziphus thyrsiflora (ébano)	0/8	2/6
		Compared to the N state, the abundance of the natural regeneration is:		
		>75%	2/8	0/6
		75–50%	5/8	4/6
		<50%	1/8	0/6
	Regeneration	It has a limited capacity to gaps recover	6/8	0/6
		Compared to the N state, what proportion of species shows natural regeneration:		
		>75%	2/8	1/6
		75–50%	6/8	4/6
		<50%	0/8	0/6
		What soil characteristics do you consider appropriate to describe this state?		
		Fertile but with trampling	4/8	0/6
		Slight reduction in soil quality	0/8	2/6
	Soil	**Compared to the N state, the soil quality is:**		
		>75%	2/8	2/6
		75–50%	6/8	0/6
		<50%	0/8	0/6
SHRUB-DOMINATED STATE				
		Compared to the N state , the species richness is reduced to:		
		≥50%	2/8	0/6
		<50%	5/8	1/6
		<35%	0/8	5/6
		Change in coverage of the strata:		
SHRUB DOMINATED (Sd)		The tree layer reduced to 50%	2/8	0/6
	Structure	The tree layer reduced to <50%	6/8	6/6
		Trees may be isolated or absent	7/8	0/6
		Large trees infrequent or absent	6/8	0/6
		Increase of shrub and herbaceous strata	6/8	6/6
		Increasing ground dominance by low shrubs (*e.g. Ipomoea carnea*)	7/8	0/6
		Increase in abundance of Cactus	0/8	3/6
		Compared to the N state, the density of canopy cover is:		

		50–30%	3/8	4/6
		<30%	4/8	2/6
		The tree density (stems / ha) is:		
		100–150	8/8	0/6
		There is a canopy height of:		
		<10 m	6/8	0/6
		Species considered characteristics of this state.		
	Characteristic species	*Acacia macracantha* (Faique)	7/8	6/6
		Chloroleucon mangense (Charán blanco)	6/8	6/6
		Caesalpinia glabrata (Charán verde)	7/8	3/6
		Cactaceas	7/8	3/6
		Vernonanthura patens (Laritaco)	5/8	4/6
		Handroanthus chrysanthus (Guayacán)	8/8	0/6
		Piscidia carthagenensis (Barbasco)	7/8	0/6
		Bursera graveolens (Palo Santo)	0/8	4/6
		Prosopis juliflora (algarrobo)	0/8	3/6
		Acnistus arborescens (Pico Pico)	0/8	3/6
		Eriotheca ruizii (Pasallo)	0/8	3/6
		Aspidosperma sp. (Diente)	0/8	2/6
		The dominant species have high wood-density and resist browsing: e.g. *Acacia macrocantha*, *Caesalpinia glabrata* and *Chloroleucom mangense*.	7/8	0/6
	Regeneration	There is very little regeneration in open areas.	7/8	0/6
		The little regeneration is restricted to the base of the remaining trees	7/8	0/6
	Soil	**What soil characteristics do you consider appropriate to describe this state:**		
		There is 20% organic matter compared to the N state	4/8	0/6
		There is 10% organic matter compared to the N state	1/8	0/6
		Alternating soil, areas with rocky soil and other areas with thin soil.	7/8	2/6
ARID LAND STATE				
ARID LAND (Al)	Structure	**Compared to the N state, the richness of species is reduced to:**		
		>20%	0/8	0/6
		≤20%	8/8	6/6
		The tree layer is reduced to:		
		20–25%	0/8	0/6
		5–20%	6/8	6/6

	0–5%	1/8	0/6
	The tree density (stems/ha) is reduced to:		
	<20%	8/8	4/6
	<10%	0/8	2/6
	The canopy height is:		
	5–8 m	6/8	0/6
	Species considered characteristics of this state.		
Characteristic species	*Ipomoea carnea* (borrachera)	8/8	6/6
	Acacia macracantha (Faique)	7/8	6/6
	Cactaceas	7/8	5/6
	Caesalpinia glabrata (Charán verde)	6/8	5/6
	Bursera graveolens (Palo Santo)	4/8	3/6
	Croton sp.	5/8	0/6
Regeneration	**Compared to the N state, the abundance of natural regeneration is:**		
	20–10%	0/8	0/6
	<10%	6/8	2/6
	There is no regeneration	1/8	2/6
Soil	**Indicate the percentage range in which you consider the soil's rockiness:**		
	>90%	3/8	0/6
	70–90%	5/8	0/6
	Bare and compacted soil	0/8	4/6
	High runoff	3/8	2/6
Indicate the main action that you consider is generating transitions from one state to another.			
Natural → Semi-natural	Selective logging	1/8	5/6
	Livestock browsing	6/8	0/6
	Burning (for agriculture and livestock)	1/8	0/6
	Disease called "fever"	0/8	1/6
Semi-natural → Arid land	Livestock browsing	5/8	0/6
	Livestock and burning	1/8	0/6
	Agriculture and burning	1/8	0/6
Semi-natural → Shrub-dominated	Livestock browsing	6/7	0/6
	Burning (promote livestock fodder and agriculture)	1/7	3/6
	Selective logging	0/7	2/6
	Drought	0/7	1/6

Shrub-dominated → Simplified	Exclude livestock	3/7	0/6
Shrub-dominated → Arid land	Livestock browsing	6/7	0/6
	Burning (promote livestock fodder and agriculture)	1/7	0/6
	Soil processes disruption	1/7	0/6
	Drought	0/7	1/6
Indicate the years of disturbance (considering the current disturbance regime) that can cause a change between states			
Natural → Semi-natural	25–50 years	0/8	2/6
	15–20 years	0/8	1/6
	10–14 years	6/8	0/6
	5–9 years	2/8	0/6
	< 5 years	0/8	3/6
Semi-natural → Arid land	>15 years	2/8	0/6
	10–15 years	2/8	0/6
	4–10 years	1/8	0/6
	1–3 years	1/8	0/6
Semi-natural → Shrub-dominated	50 years	0/7	1/6
	30 years	0/7	0/6
	20 years	1/7	1/6
	5–10 years	5/7	1/6
	< 5 years	0/7	3/6
Shrub-dominated → Arid land	5–10 years	0/7	1/6
	≤ 5 years	4/7	3/6
	< 3 years	1/7	2/6
In the interview, you were asked about the actions necessary to recover an area of dry forest (to return to a less altered state). Among the actions listed below, indicate those that you consider most important.			
Semi-natural → Natural	Exclude livestock	7/8	4/6
	Tree planting	1/8	2/6
	Logging control	1/8	0/6
	Manually water	0/8	1/6
Arid land → Semi-natural	Exclude livestock	4/8	0/6
	Soil recovery	3/8	0/6
	Reforestation or enrichment of seeds (shrubs and trees)	1/8	0/6
	Use of water retainer substances (hydrogel)	2/8	0/6

Shrub-dominated → Semi-natural	Exclude livestock	7/7	5/6
	Reforestation or enrichment with seeds	2/7	3/6
	Manually water	0/7	1/6
Arid land → Shrub-dominated	Exclude livestock	7/7	3/6
	Reforestation with nurse or engineer plants	2/7	2/6
	Recovery of soils	1/7	0/6
	Manually water	0/7	1/6
Indicate the range of years that are required to restore a degraded state to a less degraded one, after applying the restoration measures listed above:			
Semi-natural → Natural	> 30 years	0/8	1/6
	5–30 years	3/8	1/6
	5–10 years	4/8	1/6
	3–25 years	1/8	3/6
Arid land → Semi-natural	50–100 years	2/8	0/6
	> 100 years	1/8	0/6
	Irreversible	2/8	0/6
Shrub-dominated → Semi natural	> 50 years	1/8	3/6
	20–30 years	1/8	0/6
	>10 years	1/8	1/6
	≤ 5 years	0/8	1/6
Arid land → Shrub-dominated	Irreversible	2/8	0/6
	50–100 years	0/8	1/6
	30–50 years	1/8	2/6
	10 years	0/8	1/6
Risk phase			
Dry season	Period when selective logging, goat ranching and burning intensify.	3/8	0/6
	Vulnerability to extreme drought events, which cause death of trees and low regeneration.	0/6	6/6
Rainy season	At the beginning of this season, local people burn areas to prepare them for cultivation	3/8	0/6
The transition between dry and rainy season	Many species disperse their seeds and germinate during or at the end of the rainy season, thus, the presence of browsing livestock in that period causes a high mortality of seedlings.	2/8	0/6