

DATA & METHODS REPORT

QUINTANA ROO JURISDICTIONAL SUSTAINABILITY PROFILE

This form references data and methods used for the reporting of indicators of the jurisdictional sustainability profile of Quintana Roo, Mexico, in *The State of Jurisdictional Sustainability* published by Earth Innovation Institute and the Center for International Forestry Research, in 2018. Find more at the report website <https://earthinnovation.org/state-of-jurisdictional-sustainability> and <http://gcfimpact.org>.

Indicator: Deforestation

The Annual deforestation area (2002-2015) reported in the plot corresponds to forest loss calculated by CONAFOR based on INEGI land use land cover maps and statistical analysis.

Source: National Institute of Statistics, Geography and Informatics (INEGI) and National Forestry Commission (CONAFOR), Mexico.

Temporality: 2002 to 2017.

Methods: Spatial and statistical analysis of INEGI LULC maps. Mexico has adopted a forest definition that includes primary forest, secondary forest as well as herbaceous and shrubby vegetation for its FREL and IRE proposals. The complete set of classes accounted by CONAFOR to estimate forest cover and deforestation on the LULC INEGI maps is presented in the table at the end of the document. Further to the spatial analysis of INEGI maps, CONAFOR adjusted the deforestation figures based on statistical analysis of the accuracy and uncertainty of INEGI maps of each state. The deforestation shown in the map corresponds to the spatial analysis of areas that transitioned from forest classes to non-forest classes over the period 1985-2014. Six versions of the INEGI LULC maps have been produced with reference years 1985, 1993, 2002, 2007, 2001, and 2014. INEGI maps are based on the visual interpretation of Landsat image, have a 250,000 representation scale and a minimum mapping unit of 25 hectares.

URL: <http://www.inegi.org.mx/geo/contenidos/recnat/usosuelo/>

Indicator: Forest cover map

Forest cover shown in the map corresponds to remaining forest in 2014 as mapped by the LULC INEGI maps using the forest classification scheme presented in the table at the end of this document.

Source: National Institute of Statistics, Geography and Informatics (INEGI) LULC maps, Mexico.

Methods: spatial analysis of forest lands in the INEGI version 6 map using the forest classification scheme defined by Mexico for its FREL and IRE proposals (see classification scheme at the end of this document).

Temporality: 2014.

Methods: URL: <http://www.inegi.org.mx/geo/contenidos/recnat/usosuelo/>

Indicator: State forest reference emission level

Forest Reference Levels are benchmarks for assessing a country's performance in implementing REDD+ activities. FRELs are voluntarily constructed and formally submitted to the UNFCCC (<https://redd.unfccc.int>). The Mexican FREL/FRL is based on historical deforestation during the periods 2000-2010.

Source: National Forestry Commission (CONAFOR), Mexico.

Temporality: 2000-2010.

Methods: The average deforestation FREL line shown in the plot is derived from the performance criteria defined by Mexico in its FREL for the period 200-2010.

URL: <https://redd.unfccc.int/submissions.html?country=mex>

Indicator: Average annual emissions from deforestation (Million tons CO₂ per year)

This indicator represents the average carbon dioxide (CO₂) emissions from deforestation activities considering the carbon pools defined by the FREL submitted by the National Forestry Commission (CONAFOR) to the UNFCCC, namely: above-ground biomass and below-ground biomass. Average emissions are calculated using activities from the period 2010-2015.

Source: Deforestation area extent derived from CONAFOR-INEGI estimation as explained above. Carbon emission factors derived from the Mexican FREL.

Temporality: Average of yearly emissions for the period 2010-2015.

Methods: Average emissions calculated by multiplying the estimated deforestation by CONAFOR with the average carbon density of each pool. Reduction from carbon atomic weight to CO₂ equivalent emissions using a factor of 44:12.

Indicator: Drivers of deforestation

Identifies proximate drivers of deforestation and forest degradation in the jurisdiction. Proximate drivers are direct human actions (i.e. agriculture, mining, cattle ranching, land and resource uses). Natural causes such as floods, droughts and pests are also considered.

Source: Jurisdictional LED-R survey undertaken by CIFOR and Earth Innovation Institute in Governors' Climate and Forest Task Force member and other jurisdictions.

Temporality: Survey conducted in 2018.

Methods: LED-R Survey implemented in the state based on a questionnaire administered by a designated enumerator to an expert or group of experts in the state.

Indicator: Main economic activities

Indicates the main economic activities in the state based on economic output.

Source: Jurisdictional LED-R survey undertaken by CIFOR and Earth Innovation Institute in Governors' Climate and Forest Task Force Member Jurisdictions. Based on the regional accounts system of the National Institute of Statistics, Geography and Informatics (INEGI).

Temporality: Survey conducted in 2018

Methods: LED-R Survey implemented in the state based on a questionnaire administered by a designated enumerator to an expert or group of experts in the state.

Indicator: Human development index

This index is a summary measure of average achievement in key dimensions of human development: life expectancy, education and income. Values close to 0 indicate lower human development while values close to 100 higher achievement across the 3 considered dimensions.

Source: United Nations Development Programme (UNDP), Mexico.

Temporality: 2012

Methods: The human development index is obtained as the geometric mean of the three sub-indices of dimensions that comprise the index: life expectancy, education and income.

URL: <http://www.mx.undp.org/content/mexico/es/home/library/poverty/indice-de-desarrollo-humano-para-las-entidades-federativas--mexi.html>

Indicator: Gross domestic product (GDP)

The Gross domestic product (GDP) of the jurisdiction is an inflation-adjusted measure that reflects the value of all goods and services produced by an economy in a given year, expressed in base-year prices, and is often referred to as constant price. The indicators card reports the most recent GDP in dollars. The plot presents a series of yearly GDP observations in local currency (Mexican Pesos).

Source: National Institute of Statistics, Geography and Informatics (INEGI), Mexico.

Temporality: 2003-2016, Base year 2013.

Methods: Data downloaded directly from the INEGI website.

URL: <http://www.inegi.org.mx/sistemas/bie/?idserpadre=10200070#D10200070>

Indicator: GINI of income coefficient

The Gini coefficient is used as an indicator of the socio-economic equity. Values close to 0 indicate greater equality of income while values close to 1 greater inequality.

Source: The Organization for Economic Co-operation and Development (OECD)

Temporality: 2014

Methods: Data downloaded directly from the national report pdf.

URL: <http://www.oecd.org/cfe/regional-policy/Mexican-States-Highlights-English.pdf>

Indicator: Population

Indicates the estimated population in the state in 2018.

Source: National Institute of Statistics, Geography and Informatics (INEGI), Mexico.

Temporality: 2018

Methods: The projection is based on the 2010 Demographic Census of National Institute of Statistics, Geography and Informatics, Mexico.

Indicator: Rural and urban population

Proportion of population living in rural and urban areas.

Source: National Institute of Statistics, Geography and Informatics (INEGI), Mexico.

Temporality: 2010

Classes used by CONAFOR for the identification of forest lands in the INEGI LULC maps. The scheme follows the forest definition adopted by Mexico for its FREL and IRE proposals.

KEY CONAFOR	KEY INEGI MAP	Class name
BCO/P	BA	Bosque de Oyamel Primario
BCO/P	BB	Bosque de Cedro Primario
BCO/P	BJ	Bosque de Tásbate Primario
BCO/P	BP	Bosque de Pino Primario
BCO/P	BPQ	Bosque de Pino-Encino Primario
BCO/P	BS	Bosque de Ayarín Primario
BCO/P	MJ	Matorral de Coníferas Primario
BCO/P	VSA/BA	Bosque de Oyamel Secundario Arbóreo
BCO/P	VSA/BB	Bosque de Cedro Secundario Arbóreo
BCO/P	VSA/BJ	Bosque de Tásbate Secundario Arbóreo
BCO/P	VSA/BP	Bosque de Pino Secundario Arbóreo
BCO/P	VSA/BPQ	Bosque de Pino-Encino Secundario Arbóreo
BCO/P	VSA/BS	Bosque de Ayarín Secundario Arbóreo
BCO/S	VSA/BA	Bosque de Oyamel Secundario Arbustivo
BCO/S	VSA/BB	Bosque de Cedro Secundario Arbustivo
BCO/S	VSA/BJ	Bosque de Tásbate Secundario Arbustivo
BCO/S	VSA/BP	Bosque de Pino Secundario Arbustivo
BCO/S	VSA/BPQ	Bosque de Pino-Encino Secundario Arbustivo
BCO/S	VSA/BS	Bosque de Ayarín Secundario Arbustivo
BCO/S	VSA/MJ	Matorral de Coníferas Secundario Arbustivo
BCO/S	VSh/BA	Bosque de Oyamel Secundario Herbáceo
BCO/S	VSh/BB	Bosque de Cedro Secundario Herbáceo
BCO/S	VSh/BJ	Bosque de Tásbate Secundario Herbáceo
BCO/S	VSh/BP	Bosque de Pino Secundario Herbáceo
BCO/S	VSh/BPQ	Bosque de Pino-Encino Secundario Herbáceo
BCO/S	VSh/BS	Bosque de Ayarín Secundario Herbáceo
BCO/S	VSh/MJ	Matorral de Coníferas Secundario Herbáceo
BE/P	BQ	Bosque de Encino Primario
BE/P	BQP	Bosque de Encino-Pino Primario
BE/P	VSA/BQ	Bosque de Encino Secundario Arbóreo
BE/P	VSA/BQP	Bosque de Encino-Pino Secundario Arbóreo
BE/S	VSA/BQ	Bosque de Encino Secundario Arbustivo
BE/S	VSA/BQP	Bosque de Encino-Pino Secundario Arbustivo
BE/S	VSh/BQ	Bosque de Encino Secundario Herbáceo
BE/S	VSh/BQP	Bosque de Encino-Pino Secundario Herbáceo
BM/P	BM	Bosque Mesófilo de Montana Primario
BM/P	VSA/BM	Bosque Mesófilo de Montana Secundario Arbóreo
BM/S	VSA/BM	Bosque Mesófilo de Montana Secundario Arbustivo
BM/S	VSh/BM	Bosque Mesófilo de Montana Secundario Herbáceo
EOTL/P	MK	Bosque de Mezquite Primario
EOTL/P	VPN	Palmar Natural Primario
EOTL/P	VSA/MK	Bosque de Mezquite Secundario Arbóreo
EOTL/P	VSA/VPN	Palmar Natural Secundario Arbóreo
EOTL/S	BI	Bosque Inducido
EOTL/S	VPI	Palmar Inducido
EOTL/S	VSA/MK	Bosque de Mezquite Secundario Arbustivo
EOTL/S	VSA/VPN	Palmar Natural Secundario Arbustivo
EOTL/S	VSh/MK	Bosque de Mezquite Secundario Herbáceo
EOTL/S	VSh/VPN	Palmar Natural Secundario Herbáceo
MXL/P	MC	Matorral Crasicaule Primario
MXL/P	MET	Matorral Espinoso Tamaulipeco Primario
MXL/P	MKX	Mezquital Xerófilo Primario

MXL/P	ML	Chaparral
MXL/P	MRC	Matorral Rosetófilo Costero Primario
MXL/P	MSC	Matorral Sarcocaula Primario
MXL/P	MSCC	Matorral Sarco-Crasicaule Primario
MXL/P	MSM	Matorral Submontano Primario
MXL/P	MSN	Matorral Sarco-Crasicaule de Neblina Primario
MXL/P	VSA/MSM	Matorral Submontano Secundario Arbóreo
MXL/S	VSa/MC	Matorral Crasicaule Secundario Arbustivo
MXL/S	VSa/MET	Matorral Espinoso Tamauhuico Secundario Arbustivo
MXL/S	VSa/MKX	Mezquital Xerófilo Secundario Arbustivo
MXL/S	VSa/ML	Chaparral Secundario Arbustivo
MXL/S	VSa/MRC	Matorral Rosetófilo Costero Secundario Arbustivo
MXL/S	VSa/MSM	Matorral Sarcocaula Secundario Arbustivo
MXL/S	VSa/MSCC	Matorral Sarco-Crasicaule Secundario Arbustivo
MXL/S	VSa/MSM	Matorral Submontano Secundario Arbustivo
MXL/S	VSa/MSN	Matorral Sarco-Crasicaule de Neblina Secundario Arbustivo
MXL/S	VSh/MC	Matorral Crasicaule Secundario Herbáceo
MXL/S	VSh/MET	Matorral Espinoso Tamauhuico Secundario Herbáceo
MXL/S	VSh/MKX	Mezquital Xerófilo Secundario Herbáceo
MXL/S	VSh/MRC	Matorral Rosetófilo Costero Secundario Herbáceo
MXL/S	VSh/MSM	Matorral Sarcocaula Secundario Herbáceo
MXL/S	VSh/MSCC	Matorral Sarco-Crasicaule Secundario Herbáceo
MXL/S	VSh/MSM	Matorral Submontano Secundario Herbáceo
MXL/S	VSh/MSN	Matorral Sarco-Crasicaule de Neblina Secundario Herbáceo
SC/P	MKE	Mezquital Tropical Primario
SC/P	MST	Matorral Subtropical Primario
SC/P	SBC	Selva Baja Caducifolia Primaria
SC/P	SBK	Selva Baja Espinosa Caducifolia Primaria
SC/P	SMC	Selva Mediana Caducifolia Primaria
SC/P	VSA/MKE	Mezquital Tropical Secundario Arbóreo
SC/P	VSA/SBC	Selva Baja Caducifolia Secundaria Arborea
SC/P	VSA/SBK	Selva Baja Espinosa Caducifolia Secundaria Arborea
SC/P	VSA/SMC	Selva Mediana Caducifolia Secundaria Arborea
SC/S	VSA/MKE	Mezquital Tropical Secundario Arbustivo
SC/S	VSa/MST	Matorral Subtropical Secundario Arbustivo
SC/S	VSA/SBC	Selva Baja Caducifolia Secundaria Arbustiva
SC/S	VSA/SBK	Selva Baja Espinosa Caducifolia Secundaria Arbustiva
SC/S	VSA/SMC	Selva Mediana Caducifolia Secundaria Arbustiva
SC/S	VSh/MKE	Mezquital Tropical Secundario Herbáceo
SC/S	VSh/MST	Matorral Subtropical Secundario Herbáceo
SC/S	VSh/SBC	Selva Baja Caducifolia Secundaria Herbácea
SC/S	VSh/SBK	Selva Baja Espinosa Caducifolia Secundario Herbáceo
SC/S	VSh/SMC	Selva Mediana Caducifolia Secundario Herbáceo
SP/P	SAP	Selva Alta Perennifolia Primaria
SP/P	SAQ	Selva Alta Subperennifolia Primaria
SP/P	SBP	Selva Baja Perennifolia Primaria
SP/P	SBQ	Selva Baja Espinosa Subperennifolia Primario
SP/P	SBQP	Selva Baja Subperennifolia Primaria
SP/P	SMP	Selva Mediana Perennifolia Primaria
SP/P	SMQ	Selva Mediana Subperennifolia Primaria
SP/P	VSA/SAP	Selva Alta Perennifolia Secundaria Arborea
SP/P	VSA/SAQ	Selva Alta Subperennifolia Secundaria Arborea
SP/P	VSA/SBP	Selva Baja Perennifolia Secundaria Arborea
SP/P	VSA/SBQ	Selva Baja Espinosa Subperennifolia Secundaria Arborea
SP/P	VSA/SBQP	Selva Baja Subperennifolia Secundaria Arborea
SP/P	VSA/SMP	Selva Mediana Perennifolia Secundaria Arborea

SP/P	VSA/SMQ	Selva Mediana Subperennifolia Secundaria Arborea
SP/S	VSA/SAP	Selva Alta Perennifolia Secundaria Arbustiva
SP/S	VSA/SAQ	Selva Alta Subperennifolia Secundaria Arbustiva
SP/S	VSA/SBP	Selva Baja Perennifolia Secundaria Arbustiva
SP/S	VSA/SBQ	Selva Baja Espinosa Subperennifolia Secundaria Arbustiva
SP/S	VSA/SBQP	Selva Baja Subperennifolia Secundaria Arbustiva
SP/S	VSA/SMP	Selva Mediana Perennifolia Secundaria Arbustiva
SP/S	VSA/SMQ	Selva Mediana Subperennifolia Secundaria Arbustiva
SP/S	VSh/SAP	Selva Alta Perennifolia Secundaria Herbácea
SP/S	VSh/SAQ	Selva Alta Subperennifolia Secundaria Herbácea
SP/S	VSh/SBP	Selva Baja Perennifolia Secundario Herbáceo
SP/S	VSh/SBQ	Selva Baja Espinosa Subperennifolia Secundario Herbáceo
SP/S	VSh/SBQP	Selva Baja Subperennifolia Secundario Herbáceo
SP/S	VSh/SMP	Selva Mediana Perennifolia Secundario Herbáceo
SP/S	VSh/SMQ	Selva Mediana Subperennifolia Secundario Herbáceo
SSC/P	SBS	Selva Baja Subcaducifolia Primaria
SSC/P	SMS	Selva Mediana Subcaducifolia Primaria
SSC/P	VSA/SBS	Selva Baja Subcaducifolia Secundaria Arborea
SSC/P	VSA/SMS	Selva Mediana Subcaducifolia Secundaria Arborea
SSC/S	VSA/SBS	Selva Baja Subcaducifolia Secundaria Arbustiva
SSC/S	VSA/SMS	Selva Mediana Subcaducifolia Secundaria Arbustiva
SSC/S	VSh/SBS	Selva Baja Subcaducifolia Secundario Herbáceo
SSC/S	VSh/SMS	Selva Mediana Subcaducifolia Secundario Herbáceo
VHL/P	BG	Bosque de Galería Primario
VHL/P	PT	Vegetación de Peten Primario
VHL/P	SG	Selva de Galería Primaria
VHL/P	VG	Vegetación de Galería Primario
VHL/P	VM	Manglar Primario
VHL/P	VSA/BG	Bosque de Galería Secundario Arbóreo
VHL/P	VSA/PT	Vegetación de Peten Secundario Arbóreo
VHL/P	VSA/SG	Selva de Galería Secundaria Arborea
VHL/P	VSA/VM	Manglar Secundario Arbóreo
VHL/S	VSA/BG	Bosque de Galería Secundario Arbustivo
VHL/S	VSA/PT	Vegetación de Peten Secundario Arbustivo
VHL/S	VSA/SG	Selva de Galería Secundaria Arbustiva
VHL/S	VSa/VG	Vegetación de Galería Secundario Arbustivo
VHL/S	VSA/VM	Manglar Secundario Arbustivo
VHL/S	VSh/BG	Bosque de Galería Secundario Herbáceo
VHL/S	VSh/PT	Vegetación de Peten Secundario Herbáceo
VHL/S	VSh/SG	Selva de Galería Secundario Herbáceo
VHL/S	VSh/VG	Vegetación de Galería Secundario Herbáceo
VHL/S	VSh/VM	Manglar Secundario Herbáceo