



# Progress towards achieving **Aichi Target 11** in **Mexico**

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November 2020

Mexico City



**MEDIO AMBIENTE**  
SECRETARÍA DE MEDIO AMBIENTE Y RECURSOS NATURALES



**CONANP**  
COMISIÓN NACIONAL DE ÁREAS  
NATURALES PROTEGIDAS



**CONABIO**  
COMISIÓN NACIONAL PARA EL  
CONOCIMIENTO Y USO DE LA BIODIVERSIDAD



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## 1. Overview

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This document presents the latest status of Mexico related to achieving Aichi Target 11 as a national commitment within the Convention on Biological Diversity (CBD) updated to November 2020. It describes the progress achieved in Mexico for each of the components of the Target 11 (**Annex 1**) including supportive data and relevant annotations on the progress. The results of the evaluation of management effectiveness of the protected areas based on *the i-efectividad System* are also included.

The representativeness level of the established protected areas is determined based on the percentage of coverage of the terrestrial and marine ecoregions considering the global and national regionalization. Additionally, it includes information on the protected areas in Mexico that cover two international designations: Key Biodiversity Areas (KBA) and the sites of the Alliance for Zero Extinction (AZE). Moreover, it includes *priority attention sites for conservation* and restoration defined by CONABIO in collaboration with the National Commission of Natural Protected Areas (CONANP) and more than 260 specialists for this national reference framework.

The document presents spatial analysis that allows estimations of the level of connectivity between protected areas and climatic gradient corridors which indicate routes with less human impact and that follow gradual transitions of the altitudinal or latitudinal climatic gradients that would facilitate the movement of organisms of various species and would help to maintain the connectivity of the landscape including also information about the level of governance and participation through the Advisory Councils in the areas of federal jurisdiction.

## 2. National territory coverage

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Through officially established protected areas to date, Mexico has managed to cover **13.25%** of its land surface<sup>1</sup>, and **22.9%** of its marine Exclusive Economic Zone (EEZ) (**Table 1; Fig. 1**), exceeding this target in this second component by 12.9% with respect to the commitment of 10%. The remaining land area to be

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<sup>1</sup> The total protected land area of the country includes both the continental surface and the sum of the emerged surfaces of the island territory.

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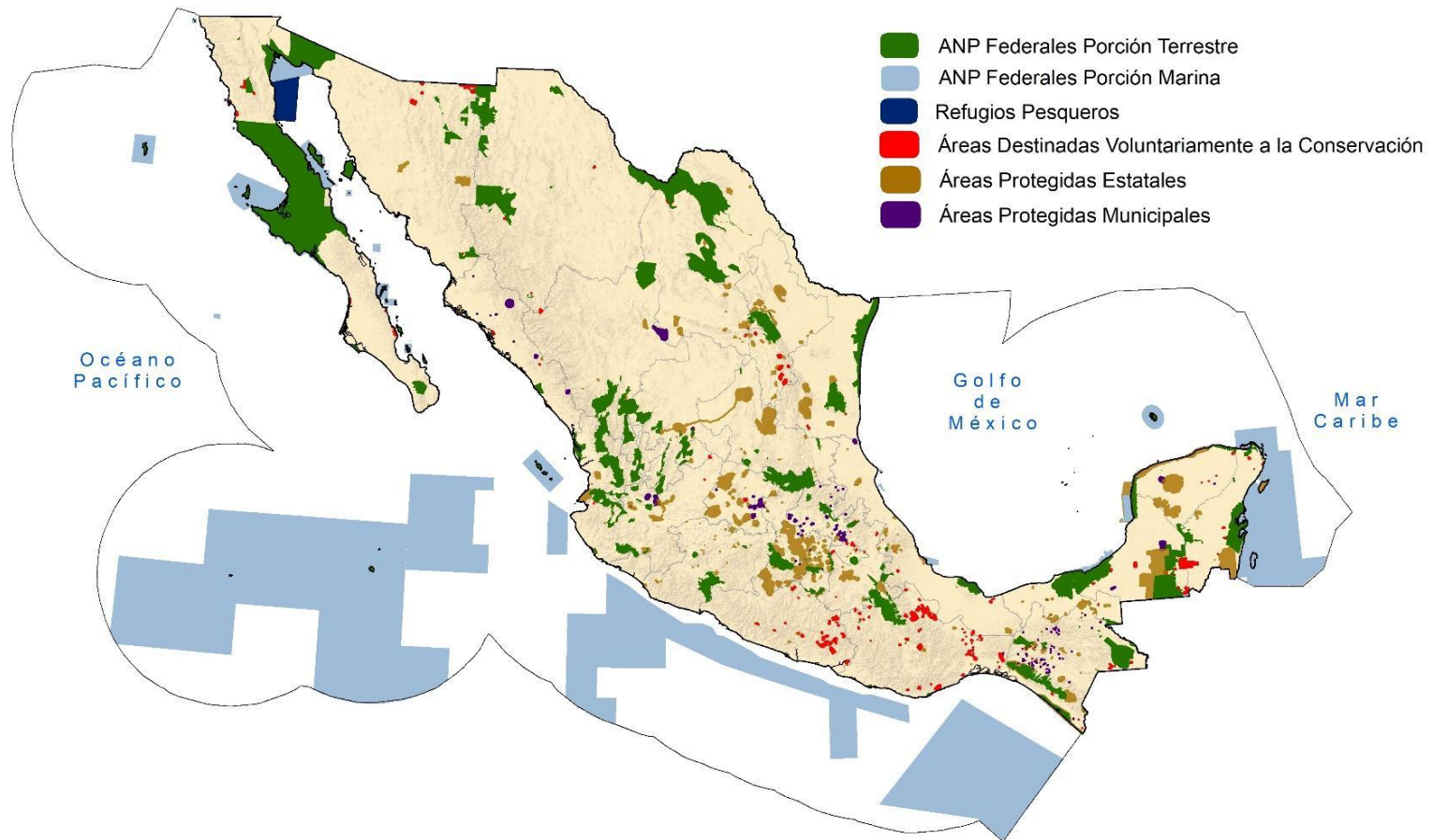
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protected to reach the 17% target is **7.8 million hectares of terrestrial territory**. Thus, it is essential to point out that measuring the protected areas coverage required a meticulous work to avoid any possible duplication due to overlaps that eventually occur between the polygons of the protected areas.

**Table 1.-** Protected land and marine coverage in Mexico through officially established protected areas until August 2020.

<b>Protected area coverage of the terrestrial and island territory emerged</b>		
<b>Environmental Policy Instrument</b>	<b>Protected area coverage (hectares)</b>	<b>% of the national land territory</b>
<b>Federal Protected Areas</b>	<b>21,184,130</b>	<b>10.78</b>
<b>State or Subnational Protected Areas</b>	4,110,184	2.09
<b>Municipal Protected Areas</b>	200,145	0.10
<b>Voluntarily Destined for Conservation Areas (Certified private and communal reserves)<sup>2</sup></b>	155,978	0.28
<b>CURRENT TOTAL</b>	<b>26,640,337</b>	<b>13.25 %</b>
<b>Marine protected area coverage</b>		
<b>Environmental Policy Instrument</b>	<b>Protected area coverage (hectares)</b>	<b>% of total marine area (EEZ)</b>
<b>Federal Protected Areas</b>	<b>69,458,748</b>	<b>22.05</b>
<b>Fishing refugees/no take zones</b>	754,033	0.24
<b>CURRENT TOTAL</b>	<b>70,212,782</b>	<b>22.29 %</b>

<sup>2</sup> Only includes Voluntarily Destined for Conservation Areas certified for over 50 years.



**Figure 1.-** Distribution of the Protected Areas counted until november 2020 that cover the land territory and the marine EEZ of Mexico.

Currently, there are ongoing proposals to establish 6 Federal Protected Areas that would add an area of 1,966,245 hectares in the terrestrial territory and 19,227,218 hectares in the marine (Fig. 2).

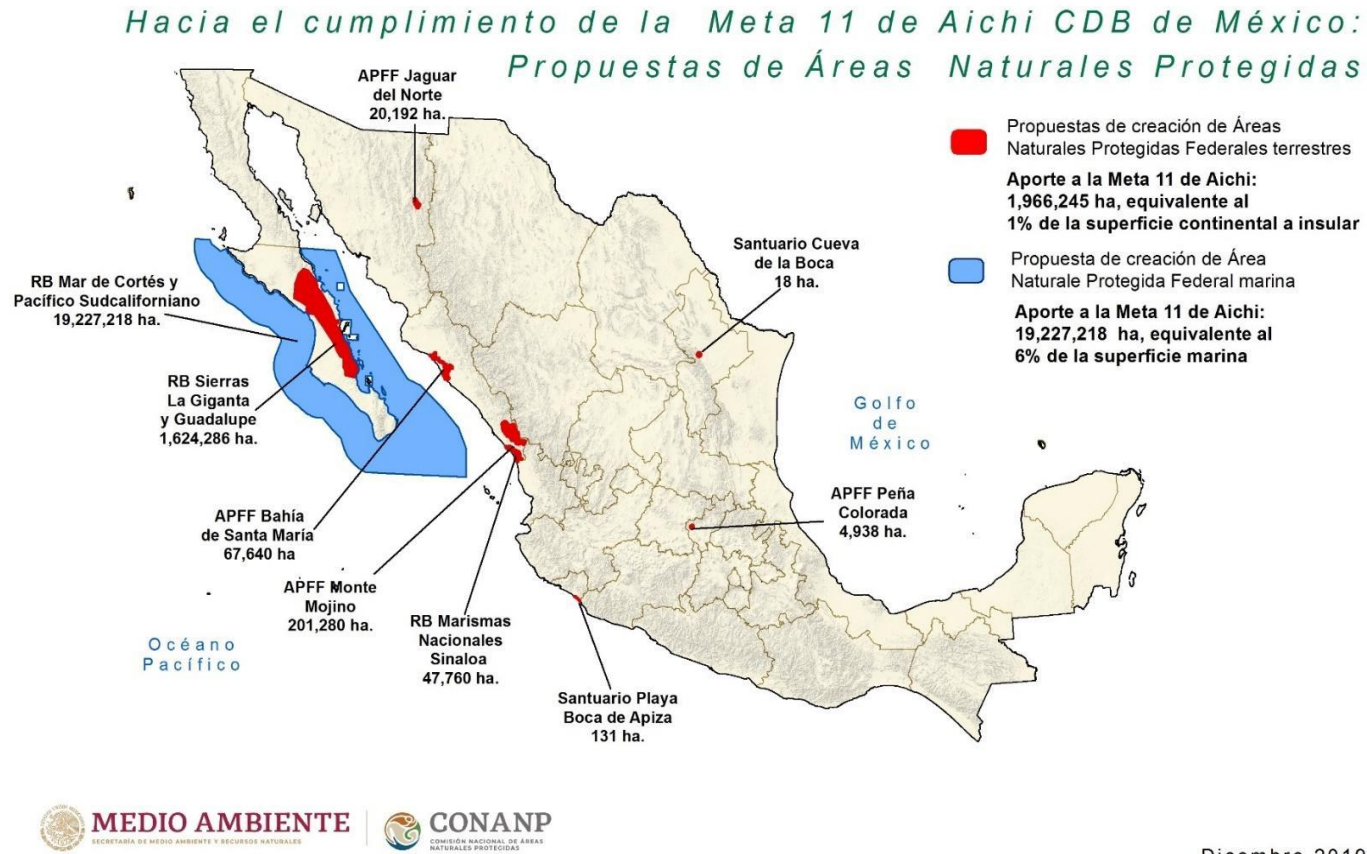


Figura 2.- Proposals to establish federal land and marine Protected Areas

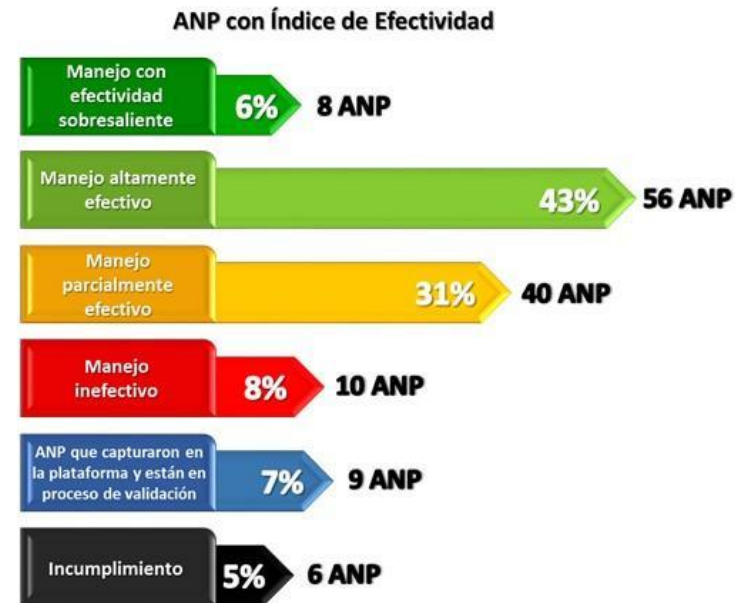




### 3. Management Effectiveness of Protected Areas

In 2018, Mexico implemented the *Permanent System for Evaluation of the Management Effectiveness of Federal Protected Natural Areas (i-efectividad)*<sup>3</sup>, which has been applied to **129** federal protected areas that have a Management Program. The system has a total of 48 indicators included in five components: 1) Context and Planning, 2) Administrative and Financial, 3) Uses and Benefits, 4) Governance and Social Participation, and 5) Management.

Of the 129 PA with a management plan, **8** obtained an *Outstanding Effectiveness Index*; **56** a *Highly Effective Index*; **40** an index of *Partially Effective Management* and **10** with an index of *Ineffective Management*. Six protected areas did not comply with the effectiveness evaluation process and were classified as “*in non-compliance*” (Fig. 3).



**Figure 3.-** Distribution of the 129 Federal Protected Natural Areas evaluated to determine their effectiveness in management.

<sup>3</sup> <https://simec.conanp.gob.mx/efectividad.php>

CONANP has already updated the results of the effectiveness evaluation to the World Database of Protected Areas (WDPA) managed by the World Conservation Monitoring Center (WCMC-PAME)<sup>4</sup>.

To date, there is no data on evaluations of the management effectiveness carried out in protected areas at the state or municipal level. However, the system is currently in process to evaluate the effectiveness of the *Voluntarily Destined for Conservation Areas* (Áreas Destinadas Voluntariamente a la Conservación, ADVC).

## **4. Representativeness**

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### **a) Global Eco regional Framework**

#### **a.1) Terrestrial Eco regions**

According to the globally proposed eco regional division<sup>5</sup>, there are 23 terrestrial eco regions in Mexico that have representation level within protected areas greater than 10% with respect to their surface within the national territory, and 23 eco regions below this percentage (**Table 2; Fig. 4**).

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<sup>4</sup> <https://livereport.protectedplanet.net/chapter-5>

<sup>5</sup> Olson, D. M. *et al.*, 2001.



**Table 2.-** Distribution of terrestrial ecoregions according to their level of protection in terms of percentage of their surface within the national territory.

	<b>Ecoregions not represented (0 %)</b>	<b>1</b>
	<b>Ecoregions with minimal representation (0.1 – 5 %)</b>	<b>10</b>
	<b>Ecoregions with low representation (5.1-10 %)</b>	<b>12</b>
	<b>Ecoregions with medium representation (10.1 – 17%)</b>	<b>10</b>
	<b>Ecoregions with representation over 17 %.</b>	<b>13</b>

Nivel de protección de las ecorregiones terrestres (Dinerstein, 2017)  
por las Áreas Naturales Protegidas en México (federales, estatales, municipales y ADVC)

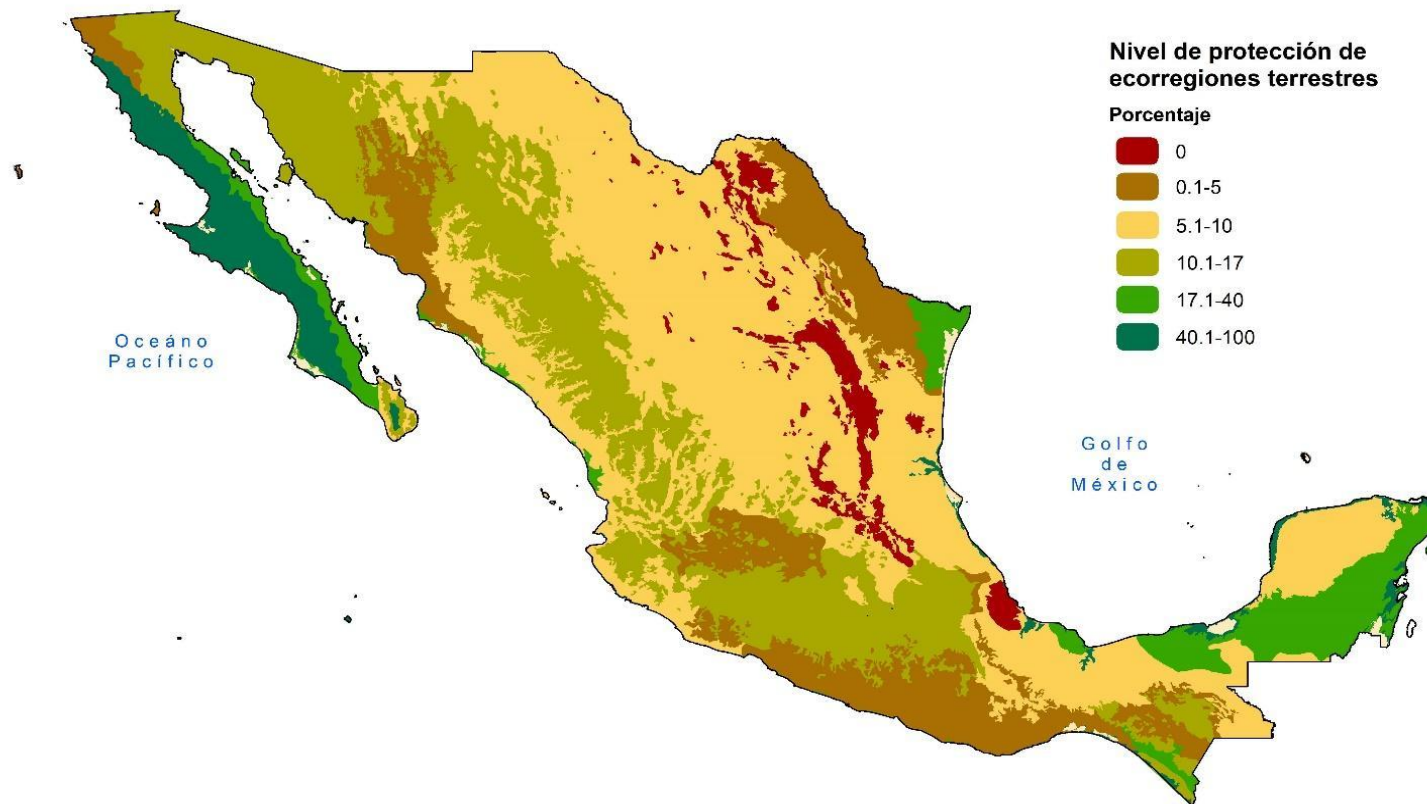


Figure 4.- Map of terrestrial ecoregions according to their level of protection in Mexico.

## a.2) Marine Ecoregions

According to the marine ecoregions defined for North America (Wilkinson *et al.*, 2009), there are 13 of 23 Level II marine ecoregions that have over 10% of their surface within Federal Protected Areas (ANP) (**Table 3; Fig. 5**), being the Mexican Caribbean Region the one with the greatest percentage of protection.

**Table 3.-** Level of protection of marine ecoregions in terms of percentage of their surface within the national territory.

Marine Ecoregion Level II	Protected Percentage
Archipiélago Oceánico de Revillagigedo	99
Saliente Mesoamericana del Caribe	96
Cuenca de Guatemala	82
Cordillera Caimán del Caribe	81
Pendiente Mesoamericana del Caribe	78
Cresta de Tehuantepec	77
Fosa Mesoamericana	75
Creciente del Pacífico Este	63
Islas Oceánicas del Sur de California	46
Pendiente de la Transición del Pacífico Mexicano	42
Cuenca de Yucatán	41
Planicie y montes submarinos de la Transición del Pacífico Mexicano	39
Estrecho de las islas de Enmedio	25
Saliente de San Diego	18
Saliente de Cortés	9
Planicie y Montes submarinos del Sur de California	8
Saliente del Golfo de México Sur	7
Saliente del Golfo de México Norte	5
Cuenca y Pendiente del Golfo de California	4

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Marine Ecoregion Level II	Protected Percentage
Planicie y Montes submarinos del Golfo de California	4
Límites de Baja California	1
Saliente del Golfo de Tehuantepec	1
Saliente de la Transición del Pacífico Mexicano	0

*Niveles de Protección de las ecorregiones marinas nivel 2 por las Áreas Naturales Protegidas de México*

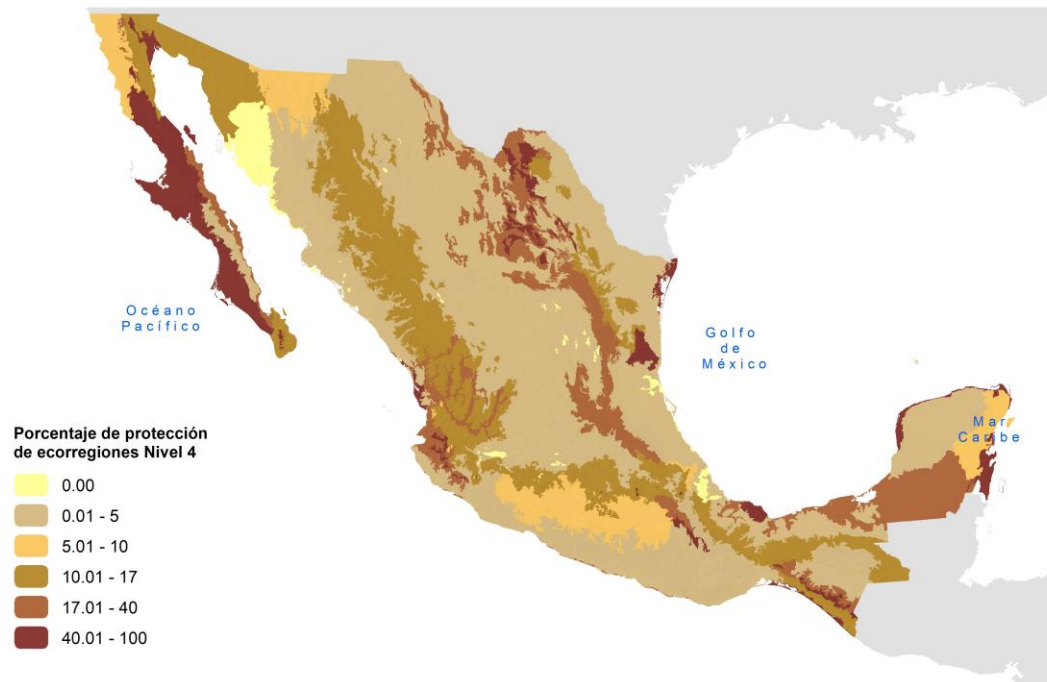


Figure 5.- Map of marine ecoregions according to their level of protection in Mexico



## b) National Eco regional Framework

Mexico has carried out its own delimitation of ecoregions (INEGI-CONABIO-INE, 2008<sup>6</sup>) within the framework of the ecoregional classification of North America (CCA 1997), supported by a solid scientific base and a participatory process. At level IV -which is the most detailed-, divides the country into 99 ecoregions, 96 on the mainland and 3 on islands. Of these, 39 have 10% or more of their surface within protected areas, 26 with between 1 and 10%, and 28 with less than 1% of their surface within protected areas (**Fig. 6; Annex 2**)



**Figure 6.-** Map of terrestrial ecoregions Level IV according to their level of protection in Mexico.

<sup>6</sup> [http://www.conabio.gob.mx/informacion/metadatos/gis/ecort08gw.xml?\\_xsl=/db/metadatos/xsl/fgdc\\_html.xsl&\\_indent=no](http://www.conabio.gob.mx/informacion/metadatos/gis/ecort08gw.xml?_xsl=/db/metadatos/xsl/fgdc_html.xsl&_indent=no)

### c) Coverage of Alliance for Zero Extinction sites (AZE)

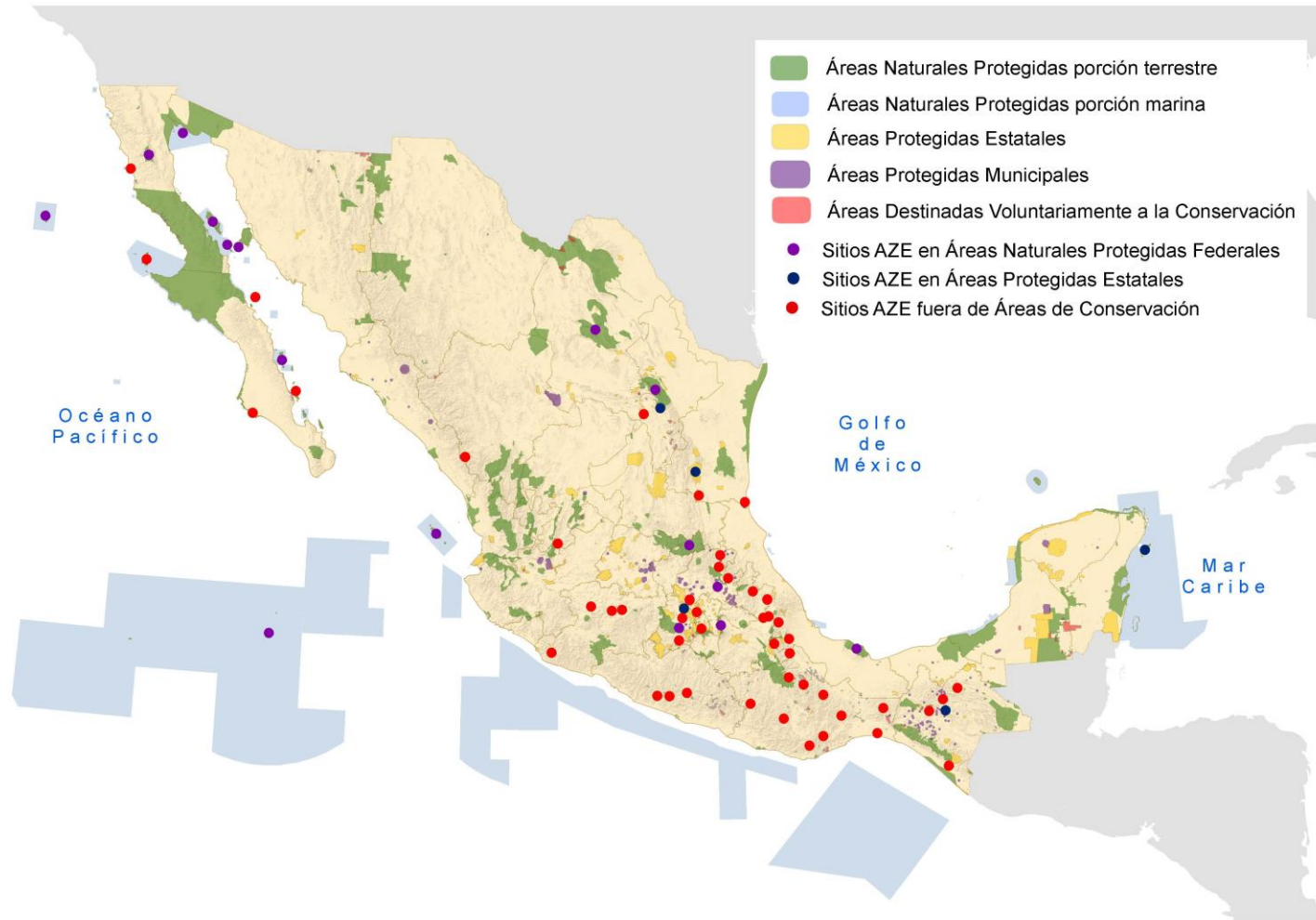
Of the 151 sites identified by the *Alliance for Zero Extinction*<sup>7</sup> in Mexico, only a quarter (37 sites) are found within protected areas (**Table 4; Fig. 7**).

**Table 4.-** Location of AZE Sites with respect to Protected Areas

	Number of sites	Percentage of total
Total México	151	%
Federal Protected Area	30	19.87
State Protected Area	7	4.64
Outside Protected Area	114	75.50

<sup>7</sup> <https://zeroextinction.org/>





**Figure 7.-** Distribution of AZE Sites in relation with Protected Areas of Mexico.

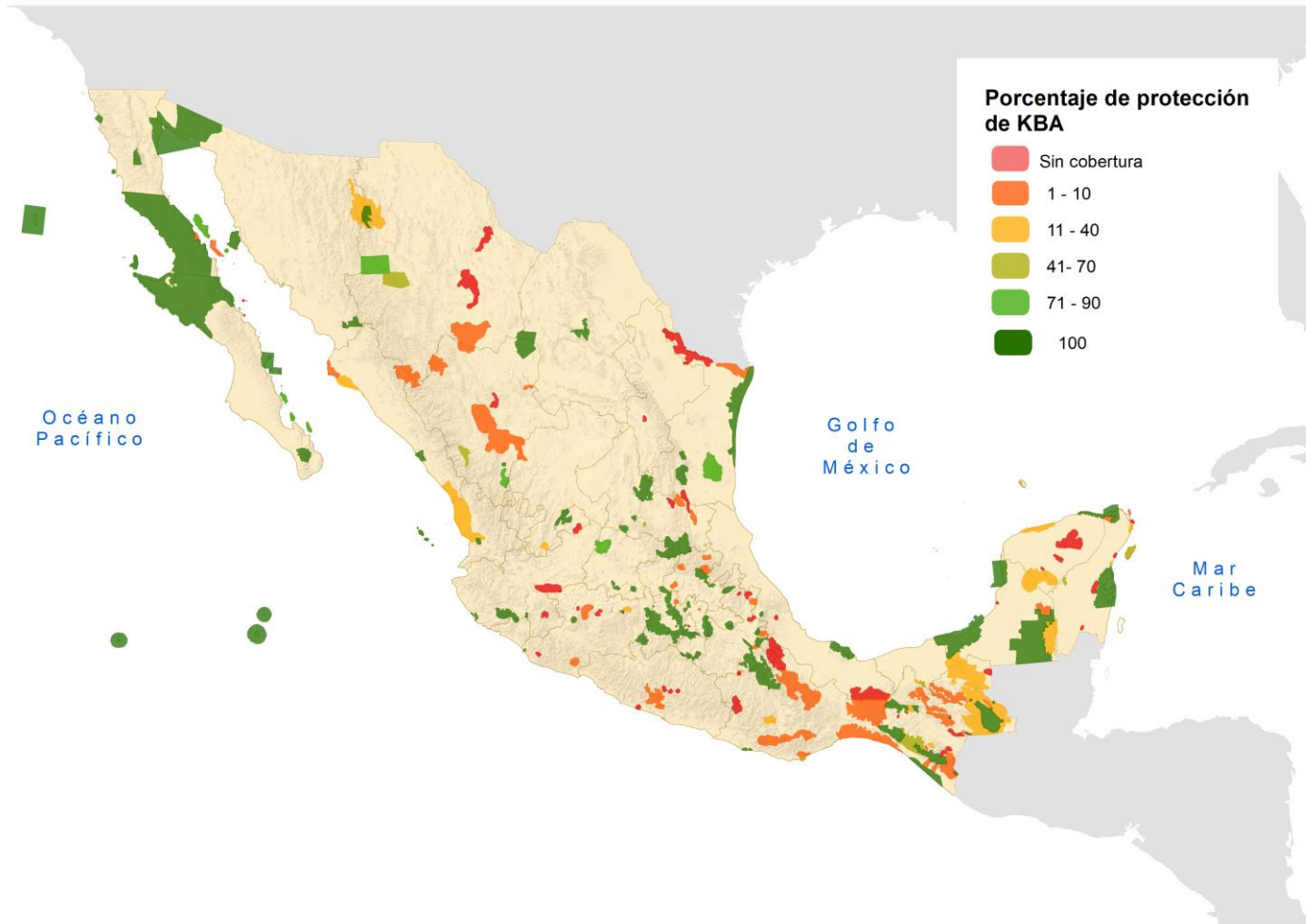
#### d) Coverage of Key Biodiversity Areas (KBA)

Of the 222 Key Biodiversity Areas (KBA) identified for México<sup>8</sup>, 178 have some degree of representativeness in protected areas, 94 are fully covered by protected areas and cover 90% of the KBA surface with some degree of protection. However, there are still 44 KBA with a combined surface area of 1,847,411 hectares that have no representation in any protected area (**Table 5; Fig. 8**).

**Table 5.-** Distribution of KBA sites in Mexico based on their degree of protection.

Coverage of Key Conservation Areas (KBA)	Number of KBA sites	Accumulated protected area (1)	% of the total protected area KBA	% of all KBA sites
KBA with full coverage by protected areas	94	17,454,290	90	42
Protected coverage from 71 to 90%	10	819,971	4	5
Protected coverage from 41 to 70%	10	294,087	2	5
Protected coverage from 11 to 40%	16	737,680	4	7
Protected coverage from 1 to 10%	48	136,473	1	22
KBA without protected area coverage or other category of conservation (2)	44	1,847,411	-	20

<sup>8</sup> World Database of Key Biodiversity Areas <https://www.iucn.org/resources/conservation-tools/world-database-of-key-biodiversity-areas>



**Figure 8.-** Distribution of KBA sites in Mexico based on their degree of protection

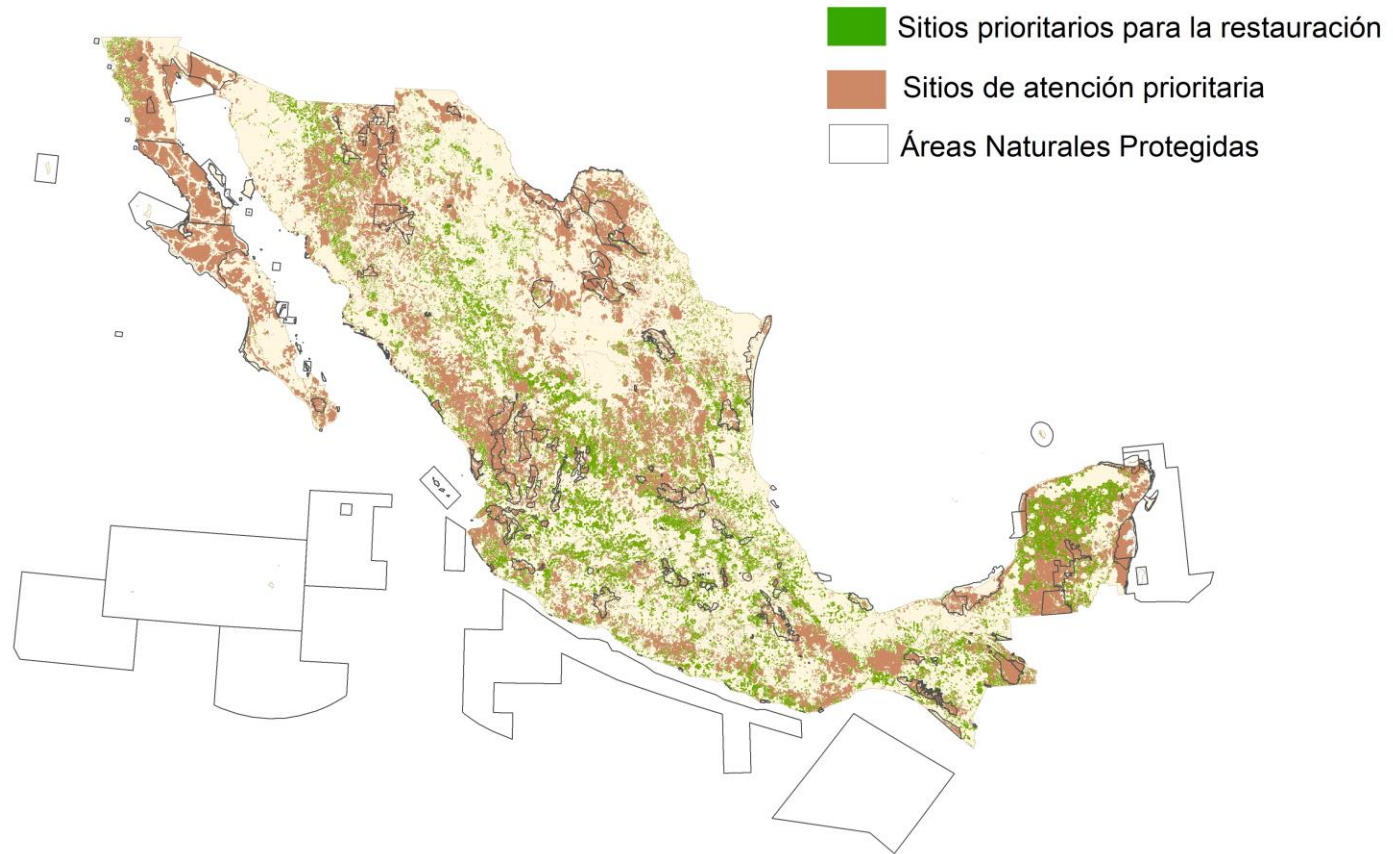
### e) Coverage of *Sitios de Atención Prioritaria para la conservación* (Priority Attention Sites for conservation) - SAP

Several national efforts have taken place to identify priorities regarding conservation of epicontinental marine, terrestrial and aquatic environments. These efforts, which take into consideration updated data and criteria to consider opportunities and limitations for the implementation of *in situ* conservation instruments at a finer scale, resulted in the identification of the sites of importance for biodiversity that require actions to maintain them in good conservation status (SAP)<sup>9</sup>. The analysis integrates the results of the gaps and omissions in the conservation of biodiversity in Mexico that were developed in the context of the 2004 CBD Programme of Work on Protected Areas (PoWPA). The SAPs cover approximately 30% of the country's continental surface, of which 25% are covered by Federal Protected Areas (**Fig. 9**). 4.1% of the SAP coincide with bioclimatic corridors identified for Mexico<sup>10</sup>. Considering the surface of the Federal Protected Areas in the country, 66% are SAP.

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9 For more information: [http://bioteca.biodiversidad.gob.mx/janium-bin/janium\\_zui.pl?jzd=/janium/Documentos/AP/7530/d.jzd&fn=7530](http://bioteca.biodiversidad.gob.mx/janium-bin/janium_zui.pl?jzd=/janium/Documentos/AP/7530/d.jzd&fn=7530)  
[http://geoportal.conabio.gob.mx/metadatos/doc/html/sap\\_gw.html](http://geoportal.conabio.gob.mx/metadatos/doc/html/sap_gw.html)

10 CONABIO, CONANP, PNUD. 2020. Conservación, restauración y conectividad: la biodiversidad de México ante el cambio global. Síntesis y mensajes clave. Comisión Nacional para el Conocimiento y Uso de la Biodiversidad, Comisión Nacional de Áreas Naturales Protegidas, SEMARNAT, Programa de las Naciones Unidas para el Desarrollo, México. Available at: <http://bioteca.biodiversidad.gob.mx/janium/Documentos/15226.pdf>



**Figure 9.** Priorities for the conservation of Mexico's biodiversity and Protected Areas at the federal level (CONABIO *et al.* 2010, 2016).

### f) Coverage of Priority Sites for Restoration - SPR

There are sites that host unique elements of biodiversity with a certain degree of degradation to a greater or lesser extent. The SPRs are important sites for biodiversity with moderate levels of fragmentation of the vegetation and other human impact factors, therefore they require actions for their recovery<sup>11</sup>. The SPRs cover 15% of the country's surface, in accordance with Aichi Target 15. Considering the surface of the SPR, 6.2% of the SPR coincides with Federal Protected Areas. On the other hand, 7.2% of the surface of the Federal Protected Areas are SPR (**Fig. 9**) and 3.9% of the SPRs coincide with the climatic gradient corridors (CBC) (**Fig. 10**).



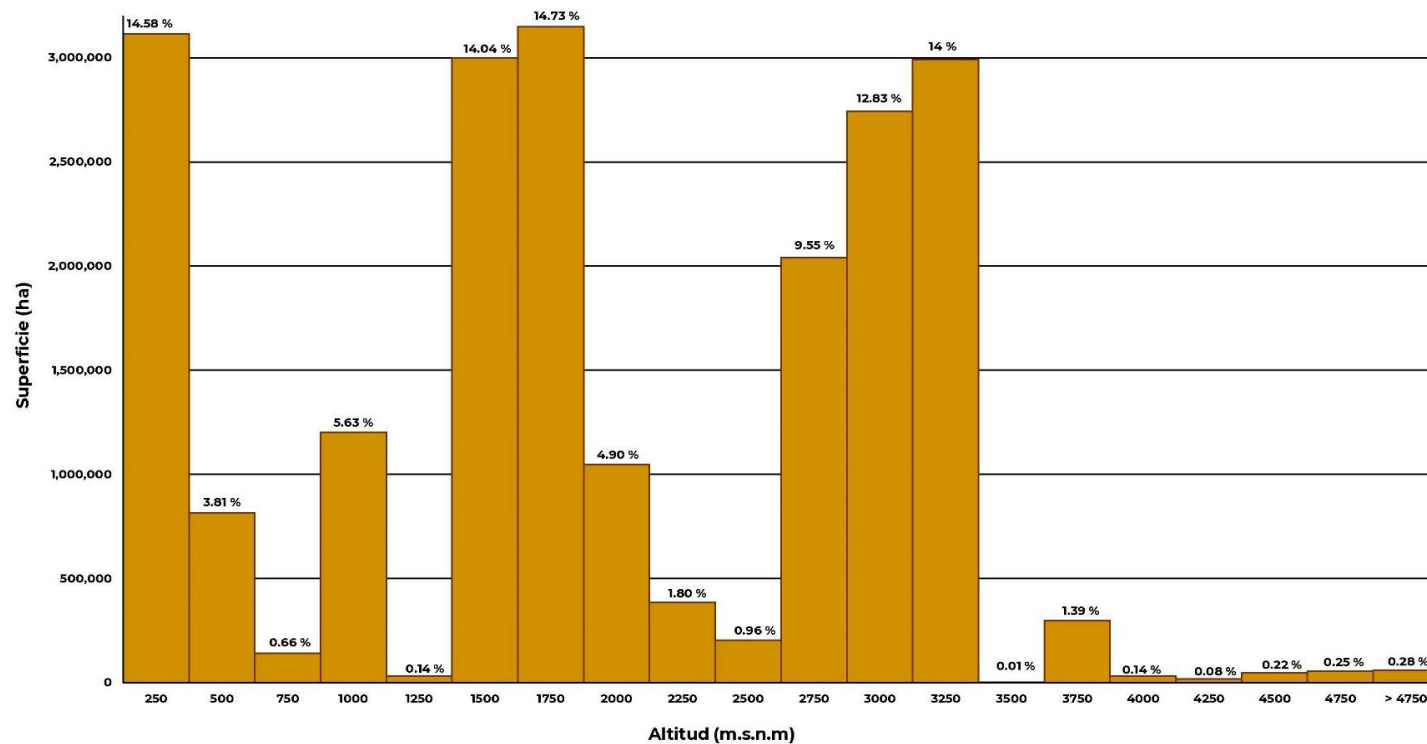
**Figure 10.-** Priorities for the conservation of Mexico's biodiversity. SAP: priority attention sites for conservation; SPR: Priority sites for restoration; CBC: bioclimatic corridors.

<sup>11</sup> [http://geoportal.conabio.gob.mx/metadatos/doc/html/spr\\_gw.html](http://geoportal.conabio.gob.mx/metadatos/doc/html/spr_gw.html)



### g) Coverage of altitudinal and bathymetric ranges

Considering only the Federal Protected Areas, the established PA offer a differential coverage of the altitudinal ranges that occur in the country (**Fig. 11**). The largest protected land area is located in the altitudinal ranges 0 to 250 masl (meters above sea level), 1250 to 1500 masl, 1500 to 2,000 masl, and 2500 to 3500 masl.



**Figure 11.-** Distribution of the surfaces of the PA in the terrestrial environment according to the altitudinal or hypsometric ranges in relation to the sea depths, the most protected marine surface in Mexico is 4,500 meters deep onwards (**Fig. 12**).

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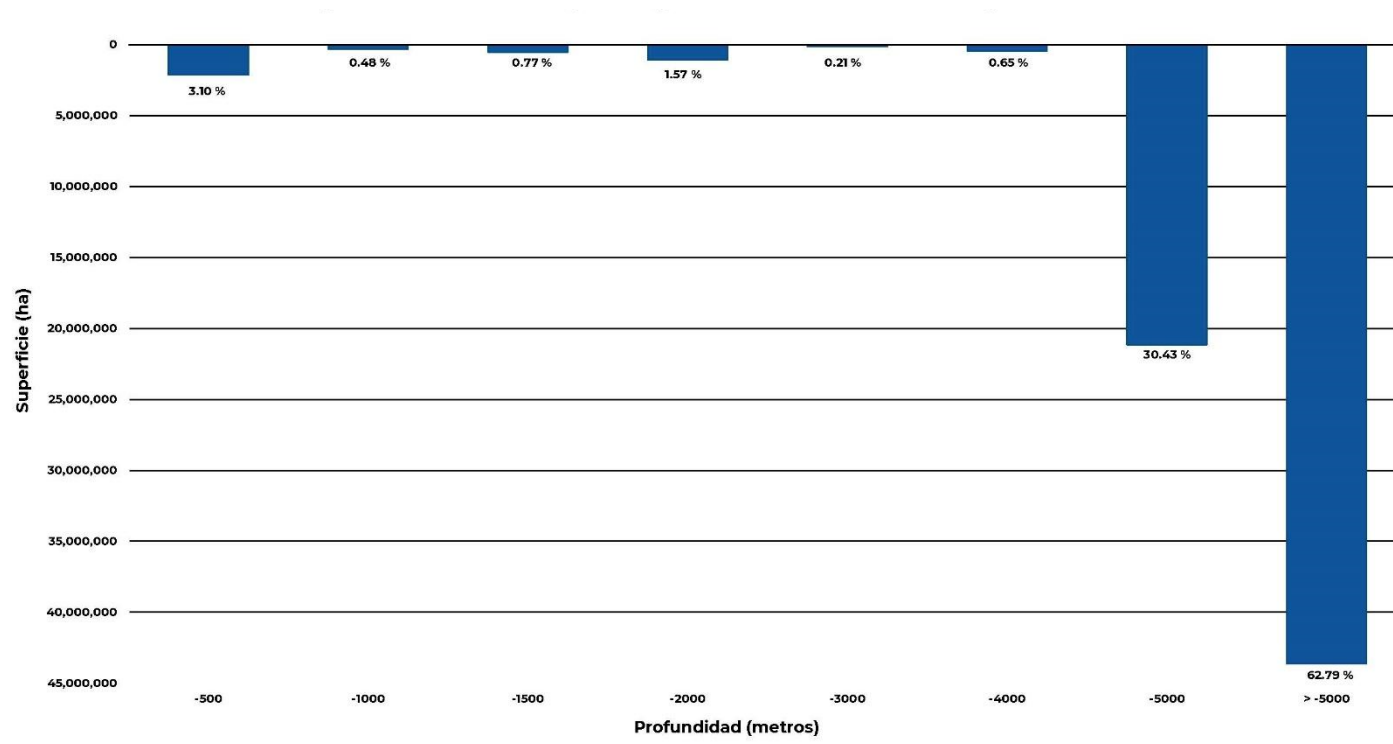


Figure 12.- Distribution of PA surfaces in the marine environment according to depth or bathymetric ranges





## h) Coverage of ecosystem types

The coverage that the Federal Protected Areas account for the different terrestrial and marine ecosystems of Mexico can be synthesized as follows:

### h.1) Types of vegetation and ecosystems

Considering the terrestrial remnants with natural vegetation that exist in Mexico (Serie VI INEGI), the types of vegetation with the greatest protection are mangrove, xerophilous scrub, evergreen tropical forest, thorny dry tropical forest, pine-oak forest and mountain cloud forest. The vegetation types with underrepresentation in the protected areas are the deciduous and sub-deciduous tropical forest and natural grasslands (**Table 6; Fig. 13**).

**Table 6.** Concentration of notable figures on the contribution of Federal Protected Areas in the conservation of ecosystems and biological biodiversity in the country.

	Types of vegetation and ecosystems	National total of hectares of vegetation types and ecosystems	Percentage of each of the vegetation types covered by Federal Protected Areas
<b>Terrestrial ecosystems</b>	<b>Evergreen tropical forest</b>	9,156,566	<b>15.49 %</b>
	<b>Thorny dry tropical forest</b>	1,728,248	<b>13.46 %</b>
	<b>Deciduous tropical dry forest</b>	16,572,322	<b>7.28 %</b>
	<b>Sub-deciduous tropical dry forest</b>	4,241,607	<b>6.39 %</b>
	<b>Pine and oak forests</b>	15,495,377	<b>13.81 %</b>
	<b>Coniferous forests</b> (different from pine forests)	16,773,050	<b>12.29 %</b>
	<b>Mountain cloud forest</b>	1,853,453	<b>13.29 %</b>
	<b>High altitude mountain ecosystems</b> (Forests and páramos, glaciers y other ecosystems upper to 4,000 masl)	1,611	<b>100 %</b>
	<b>Xerophilous scrub</b>	51,244,231	<b>17.04 %</b>
	<b>Natural grassland</b>	11,791,421	<b>5.32 %</b>
<b>Marine/coastal ecosystems</b>	<b>Mangrove</b>	849,174	<b>57.27 %</b>

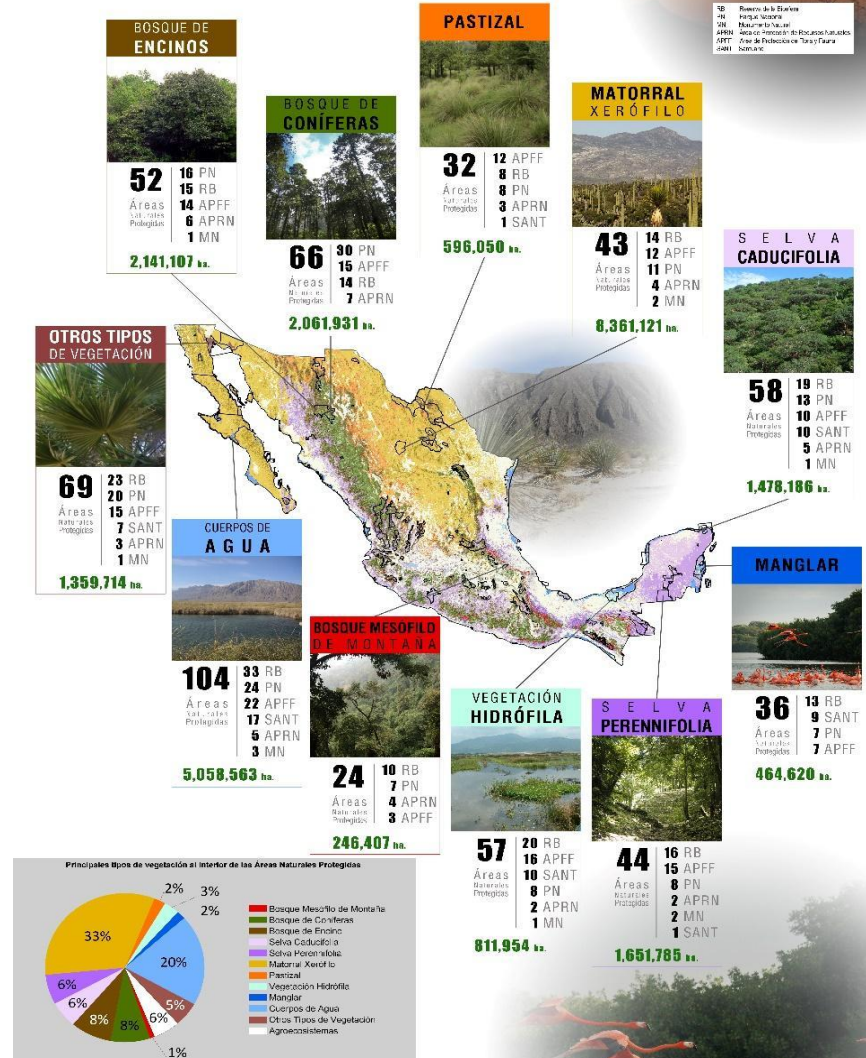


**Figure 13.-** Vegetation surfaces and epicontinental waters covered by federal ANP in Mexico.

Types of vegetation/ecosystems	No. of Federal PA	Surface (hectares)
Oak forest	52	2,141,107
Coniferous forest	66	2,061,931
Cloud forest	24	246,407
Evergreen tropical forest	44	1,651,785
Deciduous tropical dry forest	58	1,478,186
Xerophilous scrub	43	8,361,121
Natural grassland	32	596,050
Mangrove	36	464,620
Hydrophilic vegetation	57	811,954
Other vegetation types	69	1,359,714
Water (Lakes, lagoons and rivers)	104	5,058,563

Half of the surface in terrestrial protected areas contains xerophilous scrub and bodies of water

Tipos de vegetación en las Áreas Naturales Protegidas



## h.2) Islands

The insular ecosystems of Mexico have a high degree of protection. Of the 2,060 islands in Mexico (INEGI, 2015), 1,418 (68%) are totally or partially within Federal Protected Areas. The protected island area is distributed into 28 PA and covers 560,147 hectares, which are equivalent to 75.9% of the total Mexican island territory.

## h.3) Coral reefs

The most important coral reefs in Mexico -on both the Pacific and Atlantic slopes and the Caribbean- are found within the Federal Protected Area coverage, except for some reefs distributed in the Gulf of Mexico (**Fig. 14 y 15**).





**Figure 14.-** Protected Areas that contain the main coral reefs in Mexico.



**Figure 15.-** Coral reefs of the Gulf of Mexico outside Protected Areas.

## 5. Connectivity

### a) Projects and initiatives that support ecological connectivity

In the last 10 years, Mexico has implemented **14 initiatives and projects** for conservation and sustainable development, in which actions have been promoted to promote ecological connectivity of **50.4 million protected hectares** (Table 7; Fig. 16).

**Table 7.-** Initiatives and projects in conservation and sustainable development that have promoted ecological connectivity in Mexico.

Initiative or project number	Initiatives and projects with focus on connectivity	Superficies (hectáreas)					% of total land area protected	% of total marine-coastal area protected
		Federal PA	ADVC	State PA	Municipal PA	Total		
1	<b>Western Sierra Madre Connectivity</b> (Conectividad de la Sierra Madre Occidental, CONANP)	4,017,548	17,921	279,343	26,814	4,341,627	13.56	
2	<b>Big Bend - Río Bravo Conservation Region</b> EUA-Mex binational Cooperation	2,435,737	52,332	44,663		2,532,732	7.91	
3	<b>Coastal basins and Climate Change Project</b> (CONAFOR, GEFFMCN, World Bank, INECC)	3,027,366	921	94,195	5,283	3,127,765	32.97	0.32
4	<b>Eastern Sierra Madre Biological Corridor</b> (MIP Corredor Ecológico de la Sierra Madre Oriental -CESMO (GIZ)	1,392,404	2,197	122,299	466	1,517,367	4.74	
5	<b>Mayan Rainforest Corridor</b> (Corredor Selva Maya) (GIZ, KFW, IUCN)	2,080,666	94,729	550,803		2,726,198	8.51	



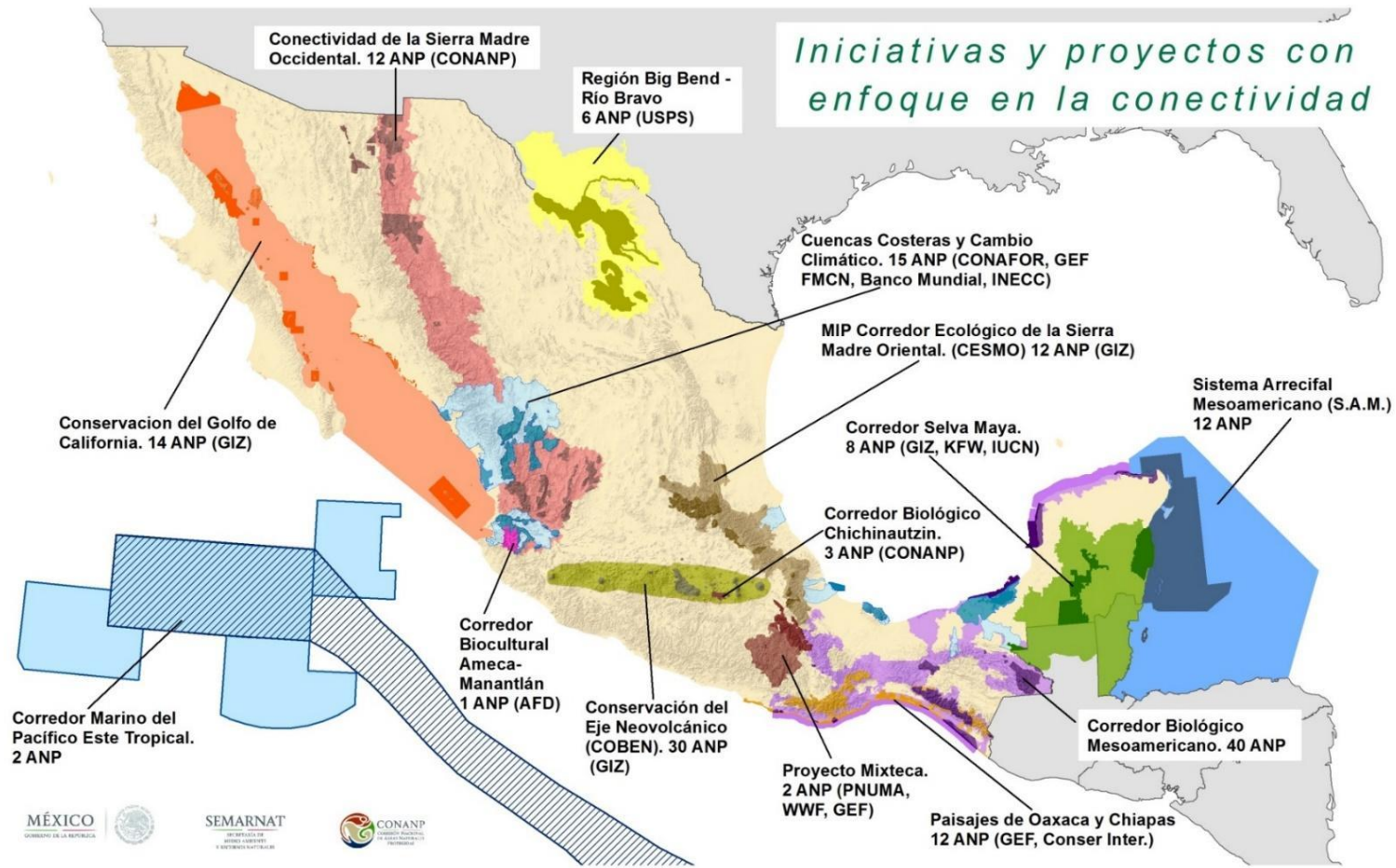
Initiative or project number	Initiatives and projects with focus on connectivity	Superficies (hectáreas)					% of total land area protected	% of total marine-coastal area protected
		Federal PA	ADVC	State PA	Municipal PA	Total		
6	<b>Chichinautzin Biological Corridor</b> (CONANP)	65,351		61,674		127,025	0.40	
7	<b>Mesoamerican Biological Corridor</b> (Corredor Biológico Mesoamericano) (CONABIO)	4,831,573	142,392	1,405,199	35	6,379,199	16.33	1.64
8	<b>Oaxaca y Chiapas Landscapes</b> (GEF, Conservation International)	799,277	20,241	417,190	7	1,236,716	3.86	
9	<b>Mixtec Project</b> (Proyecto Mixteca) (PNUMA, WWF, GEF)	494,099	7,144	473,291		974,534	3.04	
10	<b>Neovolcanic Mountain Range Corridor</b> (Corredor del Eje Neovolcánico) (COBEN). (GIZ)	473,968	1,315	581,082	1,260	1,057,626	3.30	
11	<b>Central and western Mexico Biocultural Corridor</b> (Corredor Biocultural Centro y Occidente de México) (AFD, Reforestemos Mexico, subnational governments)	352,091		149		352,240	1.10	
12	<b>Gulf of California Conservation Project</b> BIOMAR-Conservación del Golfo de California (GIZ-CONANP)	4,065,359				4,065,359	2.73	4.54

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Initiative or project number	Initiatives and projects with focus on connectivity	Superficies (hectáreas)					% of total land area protected	% of total marine-coastal area protected
		Federal PA	ADVC	State PA	Municipal PA	Total		
13	<b>Mesoamerican Reef System Project</b> (Sistema Arrecifal Mesoamericano) (S.A.M.)	6,852,163		299,968		7,152,131	2.40	9.09
14	<b>East tropical Pacific Corridor Project</b> (Corredor Marino del Pacífico Este Tropical)	14,808,780				14,808,780		21.09





**Figura 16.-** Distribution of regions and zones of conservation and sustainable development initiatives that promote integrated landscape management and ecological connectivity in Mexico.

## b) Connectivity between conservation areas based on their topology

Clusters of Protected Areas are considered to be the groups of federal, state, municipal protected areas, ADVC and cross-border protected areas of neighboring countries which polygons make direct contact, thereby having direct connectivity within each other. There are currently 29 clusters that encompass 201 protected areas covering 68.1 million hectares (**Table 8; Fig. 15**).

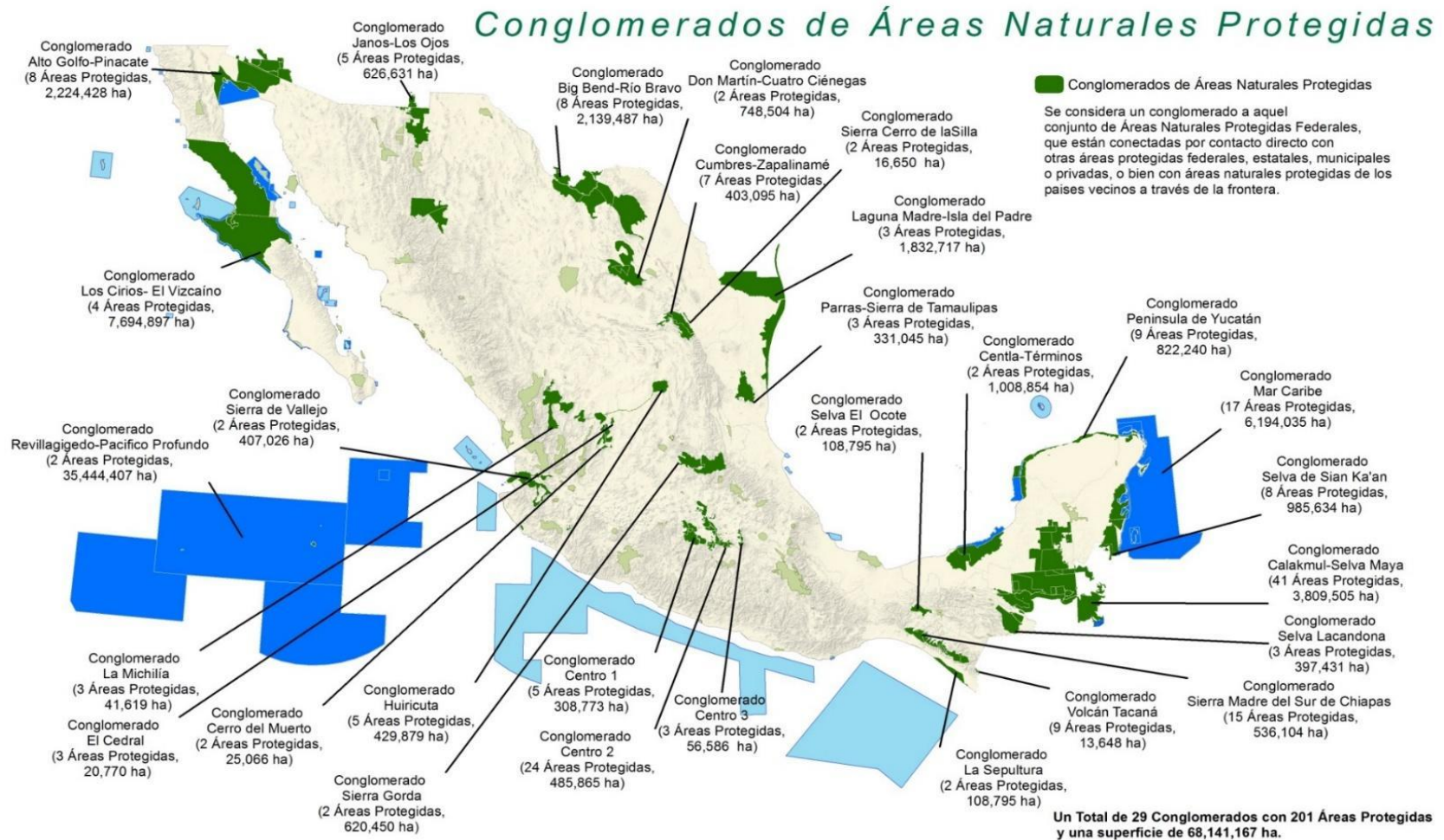
**Table 8.-** Name and extension of the 29 clusters of protected areas that have direct connectivity

No.	Conglomerate PA Name	Total protected areas involved	Surface (hectares)
1	Revillagigedo-Pacifico Profundo	2	35,444,407
2	Los Cirios- El Vizcaíno	4	7,694,897
3	Mar Caribe	17	6,194,035
4	Calakmul-Selva Maya	41	3,809,505
5	Alto Golfo-Pinacate	8	2,224,428
6	Big Bend-Río Bravo	8	2,139,487
7	Laguna Madre-Isla del Padre	3	1,832,717
8	Centla-Términos	2	1,008,854
9	Selva de Sian Ka'an	8	985,634
10	Península de Yucatán	9	822,240
11	Don Martín-Cuatro Ciénegas	2	748,504
12	Janos-Los Ojos	5	626,631
13	Sierra Gorda	2	620,450
14	Sierra Madre del Sur de Chiapas	15	536,104
15	Centro 2	24	485,865
16	Huiricuta	5	429,879
17	Sierra de Vallejo	2	407,026



No.	Conglomerate PA Name	Total protected areas involved	Surface (hectares)
18	Sierra de Vallejo	2	407,026
19	Cumbres-Zapalinamé	7	403,095
20	Selva Lacandona	3	397,431
21	Parras-Sierra de Tamaulipas	3	331,045
22	Centro 1	5	308,773
23	La Sepultura	2	108,795
24	Centro 3	3	56,586
25	La Michilía	3	41,619
26	Cerro del Muerto	2	25,066
27	El Cedral	3	20,770
28	Sierra Cerro de la Silla	2	16,650
29	Volcán Tacaná	9	13,648
	<b>TOTAL</b>	<b>201</b>	<b>68,141,167</b>

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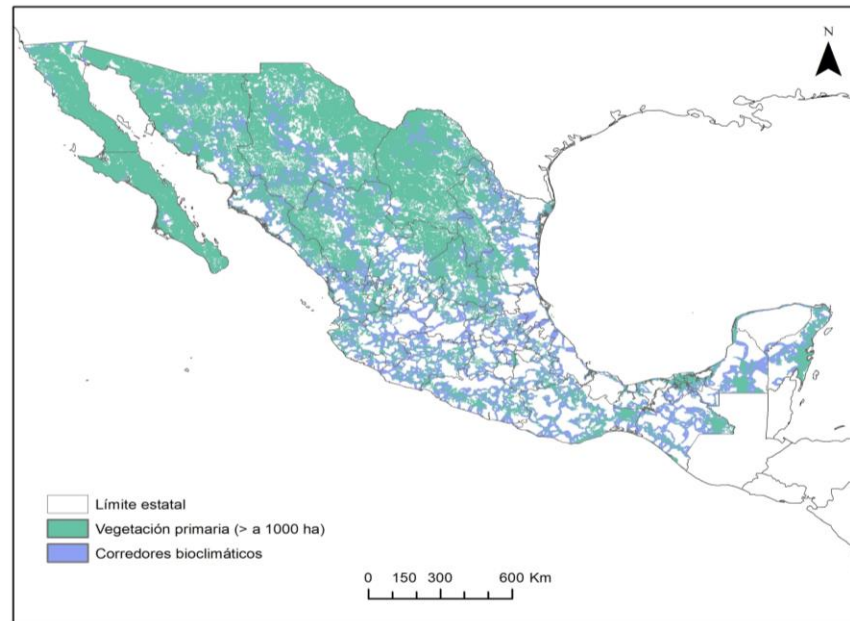


**Figura 17.-** Distribution of the 29 clusters of Protected Areas in Mexico, considering the protected areas of neighboring countries (USA, Guatemala and Belize).



### c) Bioclimatic Corridors (CBC)

Bioclimatic corridors (CBC) were identified in order to provide a spatially explicit guide that encourages the connectivity of natural ecosystems. CBCs are routes that connect fragments of primary vegetation (> 1000 ha; INEGI 2013), in order to facilitate the movement of organisms of various species while maintaining ecological connectivity between the fragments -particularly in the face of climate change-. Therefore, CBCs avoid areas with high environmental degradation according to the *MexBio human impact index* (CONABIO 2019) and explicitly consider climatic factors to avoid sudden changes in the climate, both current and projected for the future and to follow gradual transitions of the altitudinal or latitudinal climatic gradients (CONABIO 2020). The CBCs connect in 82% of the cases fragments of the same type of vegetation; riparian vegetation, a natural element to promote connectivity, coincides 77% with the CBC (see **Fig. 10; Fig. 18**).



**Figure 18.** Bioclimatic corridors between large fragments of primary vegetation

#### d) Connectivity Analysis Using the ProtConn Metric

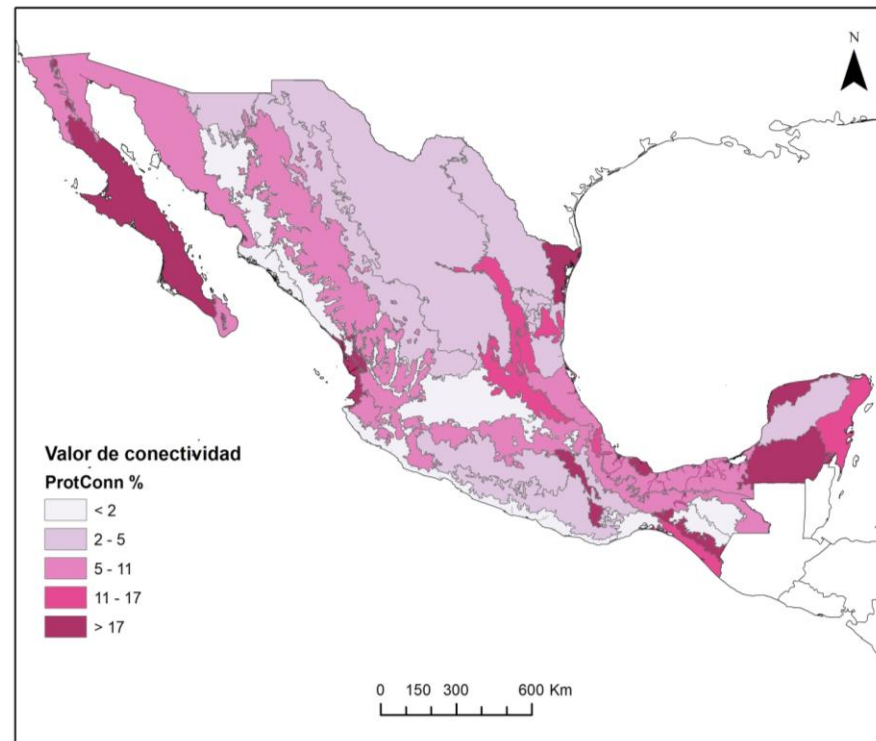
The *ProtConn* metric quantifies the percentage of the area of a study region that is covered by protected and connected lands (Saura *et al.* 2017). In Mexico, *ProtConn* values are estimated for the country's terrestrial ecoregions (levels I to III; CCA, 1997) using the spatial information of the limits of federal PA (SEMARNAT-CONANP 2017), state, municipal, communal, private (CONABIO 2015) & voluntarily destined for conservation areas -ADVC- (CONANP 2019), and a human impact index (CONABIO 2019) to consider the effect of land use and infrastructure on connectivity (CONABIO, CONANP, UNDP 2020; Godínez-Gómez *et al.* 2019).

**Table 9.** Average values of the *ProtConn* metric in three levels of terrestrial ecoregions of Mexico using spatial information from federal and subnational protected areas

Type of protected area	Average value of <i>ProtConn</i> (%) by level of terrestrial ecoregions		
	I	II	III
Federal	4.2	9	12.3
Federal and State (Subnational)	4.5	10.1	13.4
Federal, State, Municipal, Communal*, Private	4.6	10.2	13.5
Federal, State, Municipal, Ejidal, Private & ADVC	4.6	10.2	13.5



**Note:** The spatial information on the limits of the state, municipal, communal and private subnational protected areas was obtained from the Conabio geoportal (CONABIO 2015) and may differ from that reported in other sources of cartographic information such as the World Database on Protected Areas (WDPA).



**Figure 19.** Values of the *ProtConn* metric in the terrestrial ecoregions of Mexico level III using the spatial information of the federal and subnational Protected Areas

In addition, in the Protected Planet report for Latin America and the Caribbean to be published, a *ProtConn* value of 3.2% was estimated for the entire country using the information from the WDPA protected areas (July 2020 update) and the global human footprint map (Williams *et al.* 2020) to consider the effect of anthropic impact on connectivity.

## **6. Participation and governance**

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One of the central mechanisms of governance in Protected Areas in Mexico are the Advisory Councils. These Councils include representatives of rural communities or Indigenous Peoples within or close to the PA, universities and research centers with activities in the PA, members of organized civil sector organizations, tourism service providers and government agencies<sup>12</sup>.

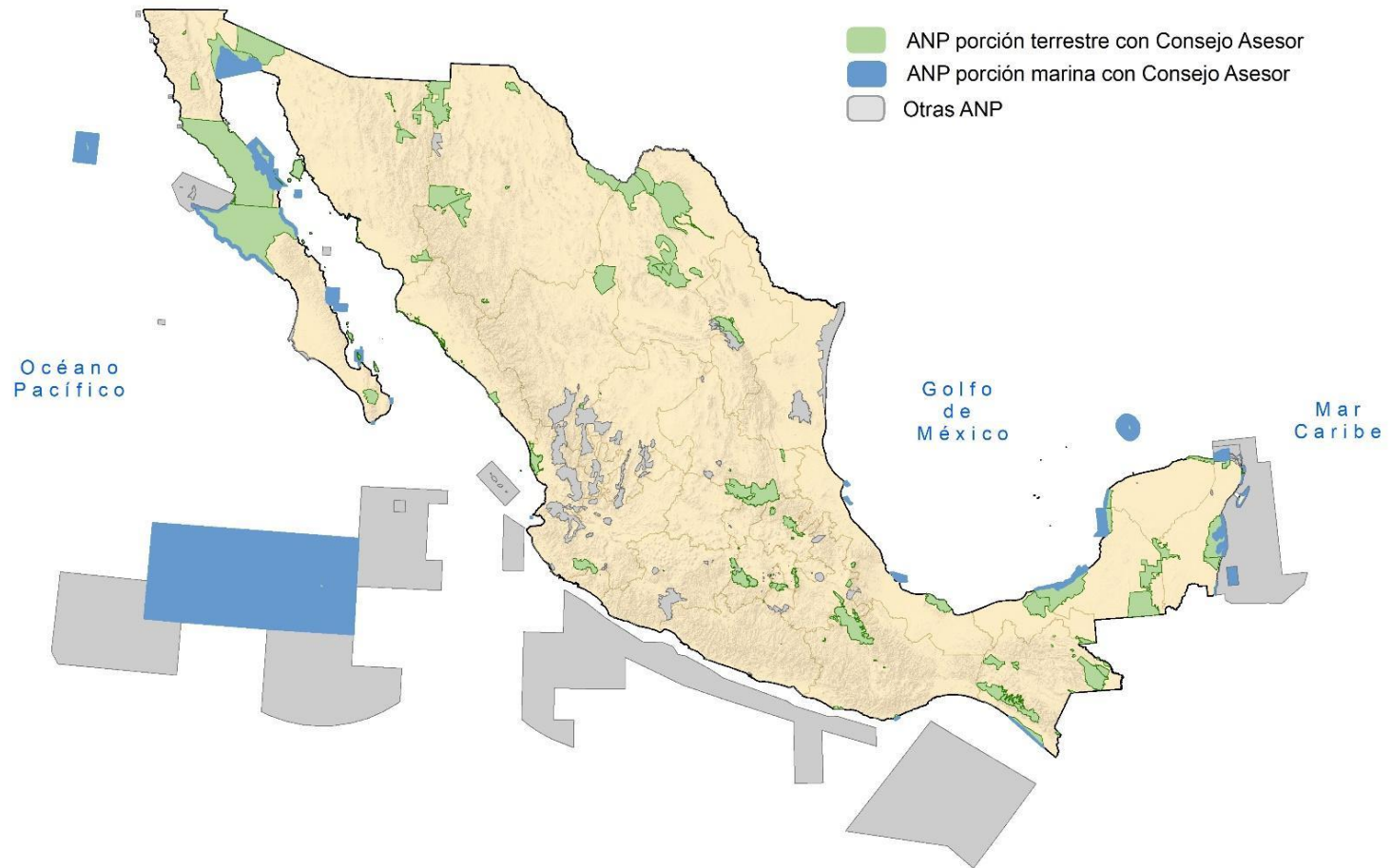
Currently there are 111 PA that have a current Advisory Council (**Fig. 20**); the sum of the surfaces of these PA is 35,089,165 hectares, which is equivalent to 38.63 % of the total surface of the 182 PA.

The composition of the Advisory Councils of these 111 PA as a whole includes a total of 1,426 representatives corresponding to five sectors (**Table 10**). There are 13 Indigenous Peoples that have representatives in the Advisory Councils of 20 PA.

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<sup>12</sup> <https://www.conanp.gob.mx/documentos/CriteriosInstitucionalesConsejosAsesoresANP.pdf>





**Figure 16.-** Distribution of the 111 PA with current Advisory Councils.

**Table 10.-** Distribution of the representatives in the current Advisory Councils according to the sector they belong to.

Sector	No. of representatives	% of total representatives
Federal Government	149	10
State & Municipal Governments	325	23
Universities & Research Centers	169	12
NGOs	520	37
Indigenous Peoples, rural communities and private owners	263	18
<b>TOTAL</b>	<b>1,426</b>	<b>100</b>

## 7. Next Steps

- Promote the establishment of the current proposed Protected Areas at the federal level.
- Support the establishment of new *Áreas Destinadas Voluntariamente a la Conservación* ADVC (Voluntary Areas Destined for Conservation), particularly in underrepresented ecoregions and seeking to provide coverage to AZE, KBA, SAP, SPR and CBC sites. This will also help to reinforce connectivity between protected areas.
- Implement systems to evaluate the management effectiveness in the State Protected Areas Systems and in the ADVC.
- Optimize existing governance mechanisms (Advisory Councils) and develop additional ones that increase the participation of local communities.

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## 9. Annexes

### Annex 1.- Aichi Target 11 description



**Annex 2- List of Ecoregions of Mexico Level IV (INEGI-CONABIO-INE, 2008), according to the percentage of surface within protected areas.**

\* Ecoregions with coverage greater than 10% in PA are indicated in green, in yellow those with coverage greater than 1 and less than 10%, and in red those with less than 1%.

ECOREGIONS OF MEXICO LEVEL IV	Percentage covered by Protected Areas
1. Sierras con pradera de alta montaña y sin vegetación aparente	93.44
2. Planicies y sierras del Desierto Central Bajacaliforniano con matorral xerófilo sarcocrasicaule y rosetófilo	86.09
3. Sierra con bosques de encino y coníferas	82.97
4. Humedales costeros del Pacífico Bajacaliforniano	80.65
5. Sierras y Lomeríos con bosques de coníferas, encinos y mixtos (de San Pedro Mártir)	76.76
6. Valles endorreicos de Cuatro Ciénegas con vegetación xerófila micrófilo-halófila-gipsofila	72.65
7. Depresión de la Cañada con selva baja caducifolia y matorral xerófilo	67.85
8. Humedales de la Laguna Madre	67.37
9. Elevaciones mayores del Desierto Chihuahuense con vegetación xerófila, bosques de coníferas, de encinos y mixtos	63.59
10. Humedales del Caribe Mexicano	58.08
11. Sierra Madre Centroamericana con bosque mesófilo de montaña	56.01
12. Humedales de la planicie aluvial del Río Grande de Santiago	49.80
13. Humedales del Norte de Yucatán	49.24
14. Sierra de los Tuxtlas con Selva Alta Perennifolia	44.51
15. Sierras del Occidente de Jalisco con bosque mesófilo de montaña	43.01
16. Planicies y lomeríos de los Desiertos del Vizcaino y Magdalena con vegetación xerófila sarcocrasicaule y halófila	41.77
17. Selva baja caducifolia y bosque de encino de la Sierra de Dientes de Moreno	41.73
18. Humedales del Soconusco	40.56



<b>ECOREGIONS OF MEXICO LEVEL IV</b>	<b>Percentage covered by Protected Areas</b>
19. Humedales del Sur del Golfo de México	35.68
20. Planicies y Lomeríos costeros Bajacalifornianos del Mar de Cortes con matorral xerófilo sarcocrasicaule	34.77
21. Valle de Tehuacán con matorral xerófilo	31.81
22. Humedales del Pacífico Sur Mexicano	27.50
23. Sierras y Lomeríos con bosques de coníferas, encinos y mixtos (de Juárez)	24.60
24. Sierra con bosques de encinos, coníferas y mixtos	23.64
25. Cañones con selva baja caducifolia de la Sierra Madre Occidental	23.56
26. Sierras del Occidente de Jalisco con bosques de coníferas, encinos y mixtos	21.09
27. Sierra Madre Centroamericana con bosques de coníferas, encinos y mixtos	20.21
28. Planicie y Lomeríos con selva mediana subperennifolia del Occidente	19.01
29. Lomeríos del Sur de Yucatán con selva alta y mediana subperennifolia	18.59
30. Lomeríos y sierras bajas del Desierto Chihuahuense Norte con matorral xerófilo micrófilo-rosetófilo	17.24
31. Lomeríos y Sierras con matorral xerófilo y bosques de encino	14.40
32. Sierra con bosques de coníferas, encinos y mixtos	14.35
33. Desiertos del Alto Golfo (Altar, El Pinacate, corredor Mexicali-San Felipe, cuencas de Asunción, Sonoyta, y San Ignacio-Aribaipa)	14.31
34. Humedales costeros del oriente del Mar de Cortés	14.31
35. Planicie Costera y Lomeríos con selva alta perennifolia	13.95
36. Selva alta perennifolia de la vertiente del Golfo de la Sierra Madre del Sur	12.69
37. Planicies Interiores y Piedemontes con pastizal, matorral xerófilo y selvas bajas de la porción occidental del Sistema Neovolcánico Transversal	10.34
38. Lomeríos y Sierras con bosques de coníferas, encinos y mixtos	10.27
39. Planicie y Lomeríos con selva baja caducifolia y matorral xerófilo	10.18

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40. Sierra con bosque mesófilo de montaña del Sistema Neovolcánico Transversal	9.84
41. Lomeríos y Planicies con matorral xerófilo, pastizal y elevaciones aisladas con bosques de encinos y coníferas	7.18
42. Lomeríos y Planicies con matorral xerófilo y chaparral	6.96
43. Valles y piedemonte con selvas bajas, mezquitales y bosques de encino	5.81
44. Depresión del Balsas con selva baja caducifolia y matorral xerófilo	5.71
45. Planicie con selva mediana y alta subperennifolia	5.41
46. Bosque mesófilo de montaña del norte de Oaxaca	4.94
47. Planicies del centro del Desierto Chihuahuense con vegetación xerófila micrófilo-halófila	4.93
48. Planicie Costera Tamaulipeca con vegetación xerófila o sin vegetación aparente	4.54
49. Sierras con bosques de coníferas, encinos y mixtos de Guerrero y Oaxaca	3.95
50. Piedemontes y Planicies con pastizal, matorral xerófilo y bosques de encinos y coníferas	3.44
51. Lomeríos y Planicies con selva baja caducifolia (de la Sierra de Cucharas)	3.37
52. Sierra de Maratines con selva mediana caducifolia	3.35
53. Bosque mesófilo de montaña de los Altos de Chiapas	3.30
54. Humedales Lacustres del Interior	3.27
55. Depresión de Chiapas con selva baja caducifolia y mediana subcaducifolia	3.06
56. Lomeríos con selva mediana caducifolia del Sur de Oaxaca	2.53
57. Sierra con bosque mesófilo de montaña de la Sierra Madre Oriental	2.47
58. Planicie Costera con selva baja espinosa	2.46
59. Lomeríos con matorral xerófilo y selva baja caducifolia de Sinaloa y Sonora	2.20
60. Planicie Noroccidental con selva baja caducifolia	1.83
61. Planicie Interior Tamaulipeca con matorral xerófilo	1.54
62. Cañón y Lomeríos de Tehuantepec con selva baja caducifolia	1.23
63. Planicie Central Yucateca con selva mediana subcaducifolia	1.22
64. Bosque mesófilo de montaña de las Sierras del Sur de Oaxaca	1.11
65. Humedales de Sinaloa	1.08





<b>ECOREGIONS OF MEXICO LEVEL IV</b>	<b>Percentage covered by Protected Areas</b>
66. Planicie Costera y Lomeríos del Pacífico Sur con selva baja caducifolia	0.98
67. Planicie con selva espinosa	0.96
68. Lomeríos y Planicies del Altiplano con matorral xerófilo y pastizal	0.56
69. Planicies del Altiplano Zacatecano-Potosino con matorral xerófilo micrófilo-crasicaule	0.56
70. Selva alta perennifolia de la planicie Costera del Golfo	0.47
71. Valles Centrales de Oaxaca con mezquital, selva baja caducifolia y bosque de encino	0.46
72. Bosque mesófilo de montaña de las Sierras de Guerrero	0.45
73. Bosques de coníferas, encinos y mixtos de los Altos de Chiapas	0.38
74. Planicie interior con mezquital	0.32
75. Sistema de sierras del corredor de la Giganta con vegetación xerófila y subtropical	0.32
76. Lomeríos del Norte de Veracruz con selva mediana y alta perennifolia	0.24
77. Planicie Costera del Istmo con selva baja espinosa	0.15
78. Lomeríos y sierras bajas del Desierto Chihuahuense Sur con matorral xerófilo micrófilo-rosetófilo	0.09
79. Planicies Interiores y Piedemontes con pastizal, matorral xerófilo y selvas bajas de la porción oriental del Sistema Neovolcánico Transversal	0.09
80. Lomeríos del Norte de Veracruz con selva mediana subperennifolia	0.06
81. Planicie Costera Sinaloense con selva baja espinosa	0.03
82. Bosques de coníferas, encinos y mixtos de la Sierras Madre del Sur de Michoacán	0.01
83. Planicie aluvial de la cuenca del Río Bravo - La Cochina con vegetación xerófila	0.01
84. Planicies aluviales de los Ríos Yaqui, Mayo y Fuerte con matorral y mezquital xerófilos	0.01
85. Desierto Central Sonorense	0.00
86. Elevaciones aisladas y plegamientos del Altiplano Zacatecano-Potosino con vegetación xerófila, bosques de coníferas, de encino y mixtos	0.00
87. Humedales de la costa de Vallarta	0.00
88. Humedales de las desembocaduras de los Rios Mayo y Yaqui	0.00

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<b>ECOREGIONS OF MEXICO LEVEL IV</b>	<b>Percentage covered by Protected Areas</b>
89. Humedales del Norte de Veracruz	0.00
90. Humedales del Pánuco	0.00
91. Lomeríos de la planicie de Sinaloa con selva baja caducifolia	0.00
92. Lomeríos y Planicies con selva baja caducifolia (del Sureste de Xalapa)	0.00
93. Sierras y Lomeríos con bosques de coníferas, encinos y mixtos	0.00