



Executive Summary of the Brazilian Action Plan for Amazon River Turtle Conservation



Action Plan for Amazon River

Turtle



SUMMARY

Brazil is home to 36 species of turtles, including 29 freshwater species, five marine species and two terrestrial. Of these, 17 species can be found in the Amazon (Table 1) and are distributed in five families: two belong to the suborder Pleurodira (*Podocnemididae* and *Chelidae*) and three belong to the suborder Cryptodira (*Kinosternidae*, *Geoemydidae* and *Testudinidae*).

With regards to the practical challenges and dilemmas internationally affronting us today in regard to the sustainable use of biodiversity, the Amazon is a very important area, as it is responsible for 60% of Brazil territory and housing 10% of the species of the planet.

In the Amazon, the use of chelonians as food or as raw material for household use was adopted by Indians in precolonial times, followed by the colonizers and then incorporated in the traditional habits of use by local communities.

As the demand for food grows and the fast fish industrialization, the aquatic fauna exploration alarmingly increased, the necessity to protect these animals and expand the knowledge about their population dynamics in order to make it possible for implementation of conservation actions and the use of turtles in a rational and sustainable manner becomes urgent.



Drawing showing the indigenous habit of turtle consumption in the Amazon.
Credit: Arutsan Robinho Kamaipurá e Sorato Kamaipurá – Indígenas da Aldeia Kamaipurá/Monerá.

According to the International Union for Conservation of Nature (IUCN), *Podocnemis expansa* is classified as "Low Risk of Extinction – LR", although "Conservation programs dependent". The *Podocnemis unifilis* and *P. sextuberculata* are listed as "Vulnerable to Extinction – VU", since their populations presents a reduction due to the direct exploration and to the habitat reduction. *Podocnemis* spp, *Peltocheilus dumerilianus*, *Chelonoidis carbonaria* and *C. denticulata* are also listed in the "Appendices II" of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), and has the trade controlled to mitigate an incompatible use with maintenance of their population.

The elaboration and implementation of the National Action Plan for Amazon Turtle Conservation aims to ensure and reinforce the conservation actions for threatened chelonian species, inserting local communities, research institutions,

private sectors, and social organizations in a process of environmental co-management.



Confiscation of turtles.
Credit: RAN's collection



Yellow-spotted Amazon River Turtle, Six-tubercled Amazon River Turtle, Red-headed Amazon River Turtle and Giant South American River Turtle hatchling.

Credit: Camila Ferrara

The conservation status evaluation process, coordinated by the ICMBio/RAN and executed in 2010, states that the species *Podocnemis expansa* (Giant South American River Turtle), *Podocnemis sextuberculata* (Six-tubercled Amazon River Turtle) and *Podocnemis unifilis* (Yellow-spotted River Turtle) were classified as "Near Threatened – NT", validated by the scientific, held in 2013, and now is in the publication phase by the ICMBio.

This action will be achieved from the integration of multi-institutional efforts from Ibama and ICMBio and the collaboration of several sectors of society directly involved in the events encouraged by this Action Plan, which translates into short, medium and long term acts, in effective promotion strategies and recovery of populations of target species (Table 1).

Conservation

Table 1 – List of 17 species of turtles found in the Brazilian Amazon and covered in this Action Plan.

Target Species	
Taxonomic group	Common name
PLEURODIRA	
Podocnemididae	
<i>Podocnemis expansa</i> (Schweigger, 1812)	tartaruga-da-amazônia, capitari
<i>Podocnemis unifilis</i> (Troschel, 1848)	tracajá, zé-prego
<i>Podocnemis sextuberculata</i> (Cornalia, 1849)	ioçá, pitiú, cambéua
Benefited Species	
<i>Podocnemis erythrocephala</i> (Spix, 1824)	irapuça, calalumã,
<i>Peltecephalus dumerilianus</i> (Schweigger, 1812)	cabeçudo
Chelidae	
<i>Chelus fimbriatus</i> (Schneider, 1783)	mata-matá
<i>Platemys platycephala</i> (Schneider, 1792)	jabuti-machado
<i>Mesoclemmys nasuta</i> (Schweigger, 1812)	cágado-da-cabeça-de-sapo
<i>Mesoclemmys raniceps</i> (Gray, 1855)	lala
<i>Mesoclemmys gibba</i> (Schweigger, 1812)	cágado-de-poças-da-floresta
<i>Phrynops geoffroanus</i> (Schweigger, 1812)	cágado-de-barbicha, cangapara
<i>Phrynops tuberosus</i> (Peters, 1870)	cágado-de-barbicha
<i>Rhinemys rufipes</i> (Spix, 1824)	cágado-vermelho
CRYPTODIRA	
Kinosternidae	
<i>Kinosternon scorpioides</i> (Linnaeus, 1766)	jurará, peito-de-mola, muçuã
Geoemydidae	
<i>Rhinoclemmys punctularia</i> (Daudin, 1801)	perema
Testudinidae	
<i>Chelonoidis carbonaria</i> (Spix, 1824)	jabuti-piranga, negro
<i>Chelonoidis denticulata</i> (Linnaeus, 1766)	jabuti-amarelo, jabuti-tinga

Target Species

Podocnemis expansa (Giant South America River Turtle)

The Giant South American River Turtle is the largest species of the genus *Podocnemis* reaching up to 90 cm in carapace length and weighing 65 kg. Occurs in almost all the tributaries of the Amazon River, from the east of the Andes to the Orinoco River Basin (Figure. 1).



Adult female of *Podocnemis expansa*.
Credit: Roberto Lacava.

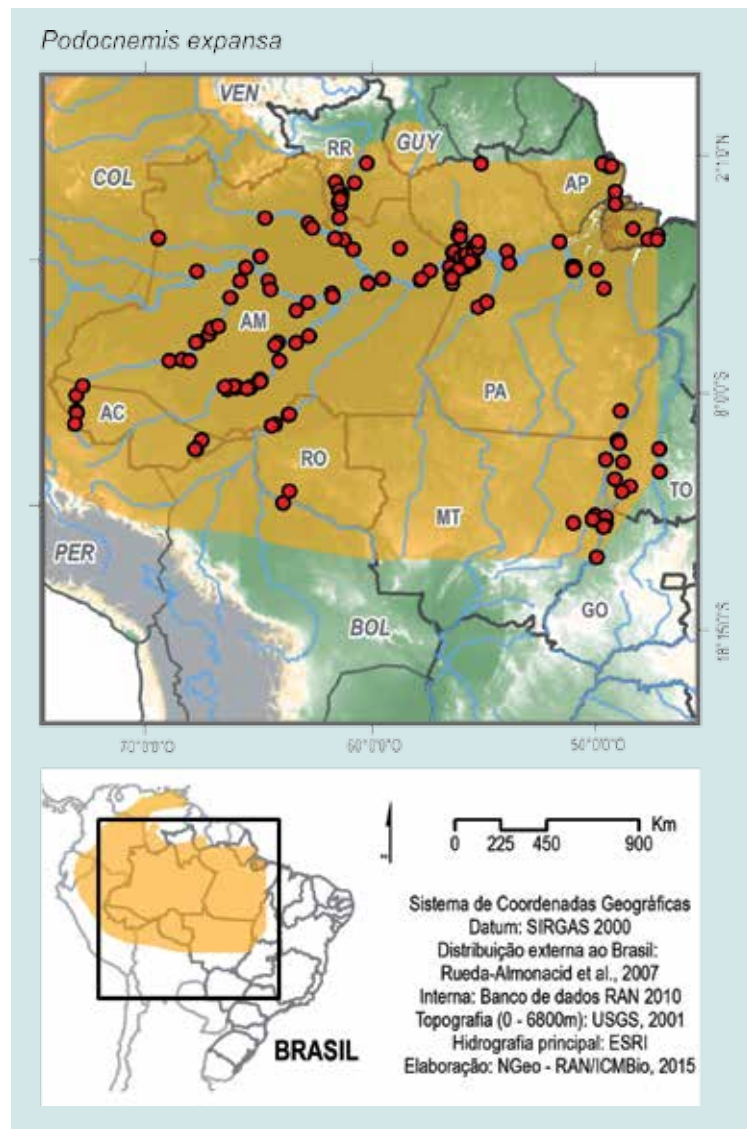


Figure 1 – Distribution map of *Podocnemis expansa*.

It is an aquatic turtle that lives black, clear, and turbid water rivers. During the rainy season they enter the flooded forests to feed on the fruits and seeds that fall in the water. In the dry season they go to the rivers to nest on sandy beaches.

The species has a single annual breeding cycle, it occurs the nesting aggregations and the females lay a single clutch per season and the nesting period varies according to the regional differences in the water levels of the rivers. The incubation period varies between 45 and 75 days. The numbers of eggs and their sizes varies between localities, being found nests with 50 to 135 eggs.

Podocnemis unifilis (Yellow-spotted River Turtle)

The Yellow-spotted River Turtle is the most common species of the *Podocnemis* genus, reaching up to 50 cm in carapace length and weighing 12.5 kg. It has a wide distribution in northern tropical lowlands of South America, the Venezuelan basins of Orinoco and Amazon rivers, eastern Colombia and Ecuador, northeastern Peru, French Guiana, Guyana, Suriname and the Amazon River Basin, in northern Brazil and North Bolivia (Table 2).



Juvenile individual of *Podocnemis unifilis*.

Credit: Acervo Ran's collection.

This species lives in wide variety of habitats including large rivers, lakes, ponds, swamps, and marshes, and sediment filled, clear and black water rivers. Juveniles are found more frequently in small ponds and inlets and the adults live in large rivers and lakes. During the rainy season they migrate to flooded forests, where immatures remain for longer periods than younger individuals of the Giant South America River Turtle. They migrate to larger rivers during the summer dry season when they nest either on clay soil river banks or sandy beaches.

The females become sexually mature when they reach about 30 cm of carapace length. The males reach maturity at about 25 cm. The species nests in the dry season, commonly individually or in small groups. They nest once or twice during a breeding season. Prefer to nest in sand and in banks of little inclination, on the shore of lakes and in the middle of vegetation. The incubation period varies in 66 to 159 days. The numbers of eggs and their sizes vary according to the locality, been found nests with seven to 40 eggs.

Podocnemis sextuberculata (Six-tuberclad Amazon River Turtle)

The Six-tuberclad Amazon River Turtle is a smaller species of the *Podocnemis* genus, reaching about 34 cm and weighing 3.5 kg. Their geographical distribution includes the Amazon River basin drainage in Brazil, Peru and Colombia (Figure 3).



Female of *Podocnemis sextuberculata*.

Credit: Acervo Ran's collection.

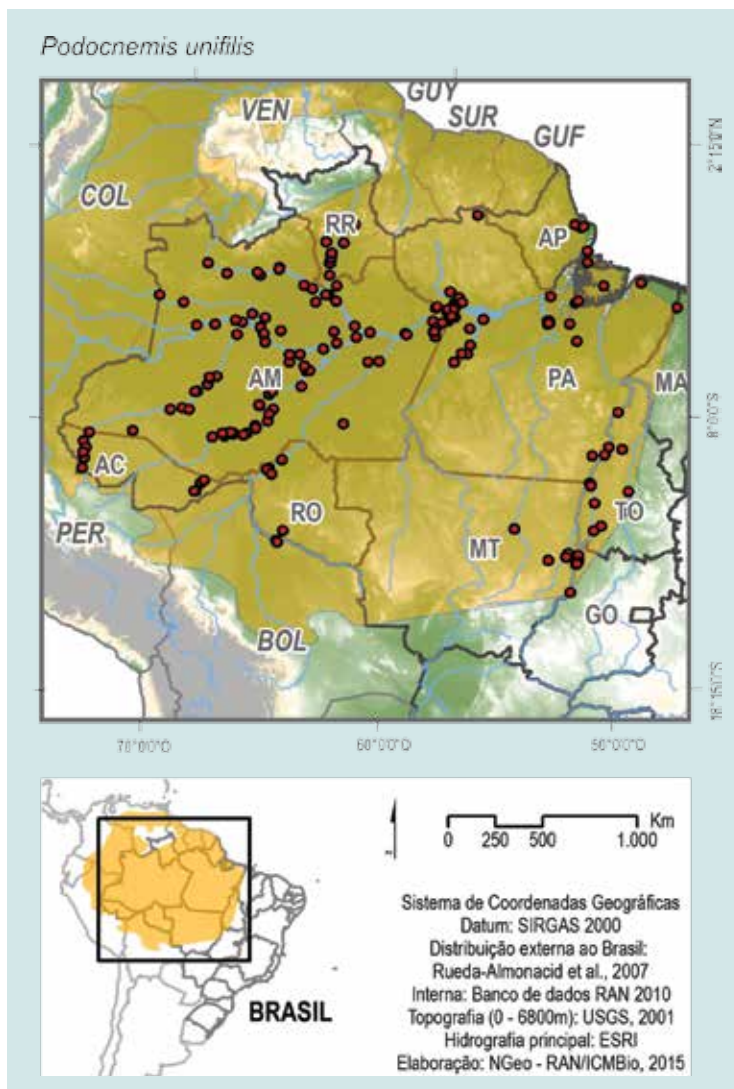


Figure 2 — Distribution map of *Podocnemis unifilis*.

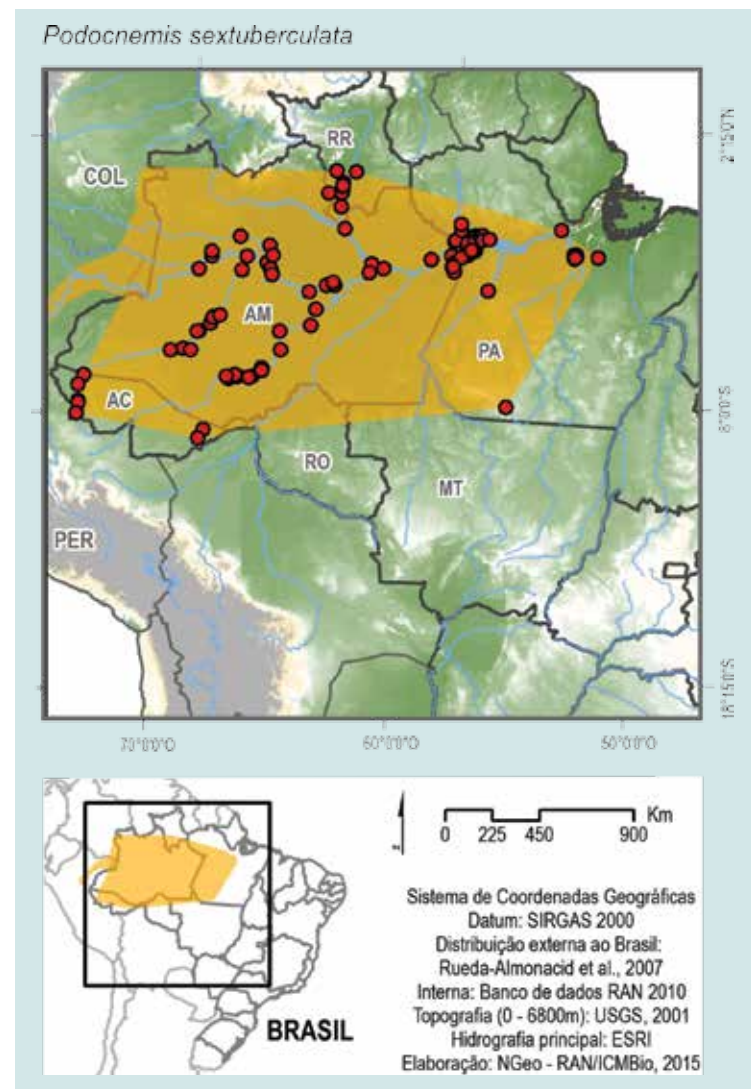


Figure 3 — Distribution map of *Podocnemis sextuberculata*.



The specie occurs mostly in sandy and clear water rivers of the Amazon, including habitats such as ponds and floodplains. It can occur in turbid waters like Juruá River, and dark water rivers in low lands. At the times of floods remain in lakes, but when the water level goes down return to main channel of the rivers. Nesting takes place in the dry season, when the river is at its lowest level, usually once or twice a year, with two weeks interval. It nests in beaches at night at a distance of about seven meters from the shore, alone or in groups. The nests may contain 6 to 39 eggs. The incubation period varies from 45 to 87 days.

Benefited Species



Adult of *Peltocephalus dumerilianus*.
Credit: Acervo Ran's collection.

The Big-Headed Side Neck Turtle (*Peltocephalus dumerilianus*) is "Vulnerable to Extinction - VU" according to IUCN and is listed in the Appendix II of CITES. When evaluated by the ICMBio/RAN, in approval process, it was categorized as "Least Concern – LC, because it has a wide geographic distribution and do not show

plausible threats to their populations, despite the intense hunting pressure in some location.

The Red-Headed Amazon River Turtle (*Podocnemis erythrocephala*) is classified as "Vulnerable to Extinction – VU" according the IUCN, it is in the Appendix II of CITES and, in the ICMBio/RAN evaluation, it is "Data Deficient – DD" in order to secure categorization of the real conservation status of their populations.



Juvenile individual of *Podocnemis erythrocephala*.
Credit: Acervo Ran's collection.

For the other species benefited by this Action Plan (Table 1), according to the ICMBio/RAN evaluation, in 2010, *Kinosternon scorpioides* and *Mesoclemmys nasuta* were classified as "Data Deficient" and all the other as "Least Concern".

THREATS

Typically, the chelonian species population equilibrium, is hampered by the long life cycle, in which sexual maturity is reached late, resulting in a low individual replacement rate in the population. Because of this, maintain healthy natural populations depends on the existence of a viable amount of sexual mature animals, especially adult reproductive females, which are the most hunted because of the large body size and greater susceptibility to capture during the nesting, especially among the podocnemids. Although the capture of adults and the collecting of eggs is prohibited by Brazilian law, this is a common practice in the Amazon nowadays. Beaches that are not protected can have up to 100% of their eggs stolen.



Adults Adults of *P. expansa* captured and immobilized by traditional methods.
Credit: Samuel Lima Rodrigues.

The Giant South American Turtle, Yellow-spotted river turtle and the Six-tubercled Amazon River Turtle are commonly consumed in the basin of the Purus, Negro and Madeira Rivers. Meat, eggs and by-products are intensively used by riverine communities, restaurants and illegal trade since the occupation of the Europeans in the Amazon until the present. The Scorpion Mud Turtle is also consumed in the Pará and Maranhão states. Natural field areas are burned sometimes on purpose to capture this species as they emerge from the burning fields.



Turtle meat confiscated in airport.
Credit: Luiz Albarelli.

Studies have shown that the population of Giant South America Turtle are greatly reduced in the Médio Solimões, due to the strong hunting pressure, and consider the specie almost absent in the Mamirauá Sustainable Development Reserve (RDS), despite the signs of nesting recorded in the last three years.

Action Plan for Amazon River Turtle Conservation

A severe decline in the number of Giant South American River Turtle has been evident in the Rio Trombetas Biological Reserve in the last 10 years. In the Araguaia River and its tributaries, the Javaés, Crixás-Açu and Morte Rivers, the decline of the species is also suspected.

In the state of Tocantins, the Giant South American River Turtle and the Yellow-spotted Amazon River Turtles habitats are being reduced and fragmented due to the implementation of waterways and reservoirs of hydroelectric plants.

The unregulated tourism in the reproductive areas can cause disturbances during the nesting process of the Giant South American River Turtle and the Yellow-spotted Amazon River Turtle in Goaisé, south-west of Pará, Tocantins and Mato Grosso states.



Tourism in the Araguaia River/GO.
Credit: Relatório PQMA

The main adversities to the populations of these turtles arise from innate vulnerabilities, which have been magnified by human intervention through historical, diverse and severe habitat modification, standing out, among others, fires; floodplain and riparian forest deforestation, which are sources of shelter and food during the flood season; canalization and contamination of watercourses; backfill and compaction of wetland; expansion of agropastoral activities, replacing native forests, abuses of water bodies with the construction of dam that prevent the turtle migration downstream or upstream the nesting beaches.



Deforestation on the shore of Pracuúba Lake/AP.
Credit: RAN's collection.

It's important to point out that conversion or destruction of the preferred habitats for most Amazonian turtles, such as flooded forests, has not been properly considered, but the population decline evidenced for some species coincides with the increase of the logging and cattle pasture in the Amazon plain.

CONSERVATION STRATEGIES

The conservation action implemented by the Programa Quelônios da Amazônia (PQA) have long been presenting efforts to protect some of these species. The nesting areas monitoring, together with nests and hatchling management of *P. expansa*, *P. unifilis* and *P. sextuberculata* carried out over 35 years in the PQA in 11 areas and 212 nesting sites of these species showed large fluctuation in the number of nests sampled in most locations.



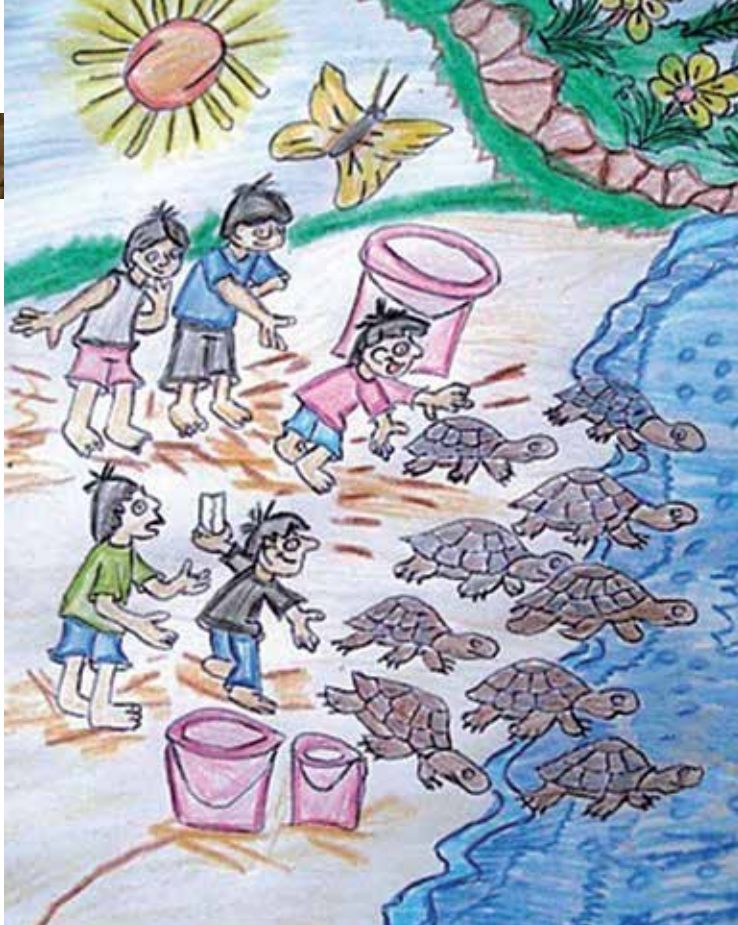
Giant South American River Turtle management in the Guaporé River/RO
Credit: RAN's collection.

In 35 years of PQA execution (1979 to 2014), it has managed to release more than 65 million hatchlings and monitored 800 thousand nesting females in the states of North and Midwest regions of Brazil. These actions have contributed to the conservation and recovery of the wild populations of these species and, therefore, helping for the conservation of biodiversity associated with them.

It's emphasized that thanks to this project effort, in its many interfaces, none of these species are in any threat category today in Brazil.

It's also important noticing that the PQA areas of activities are located in natural reproductive sites relevant for these species, which suffer more pressure from illegal use and habitat loss, however, most of these areas is not within protected areas.

Until 2007, the PQA was coordinated by the National Center for Research and Conservation of Reptiles and Amphibians/RAN. With the institutional affiliation from RAN to the Instituto Chico Mendes de Biodiversidade (ICMBio), the PQA, now called Programa Quelônios da Amazônia, along with its structure and habitual purpose, came under responsibility of the Coordenação de Fauna Silvestre (COFAU/ Diretoria de Uso Sustentável da Biodiversidade e Floresta (DBFLO) from Ibama.



Drawing demonstrating the community management of Amazon turtles.
 Credit: Arutsan Robinho Kamaiurá e Sorato Kamaiurá — Indígenas da Aldeia Kamaiurá/Monerá.



Giant South American River Turtle females nesting.
 Credit: RAN's collection.

Despite the PQA conservation efforts and numerous other entities with similar initiatives, it has been documented that significant declines in Amazon turtles populations, in many localities in its high occurrence area.

The maintenance of desirable levels of podocnemidid population depends on the continuous development of conservation, management and research for the recovery and conservation of their populations.

Given the interest of technical cooperation between IBAMA and ICMBio in converge efforts for the conservation of Amazon turtles, it was proposed this National Action Plan coordinated by these institutes and with various institutions and partner organizations.

The area covered by this Action Plan, detailing the PQA executive units and potential protected areas participants, appears in the following map (Figure 4).

The RAN, from 2007, through its Monitoring and Conservation Management Programs of Amazon Turtles, continued to execute numerous actions aimed for conservation, especially directed for research and management of federal protected areas.

The National Action Plan for the Amazon Turtles Conservation aims to improve conservation strategies for the Amazon Turtles, especially the target species and to promote their recovery and sustainable use by 2020.

Area of the National Action Plan for the Amazon Turtles

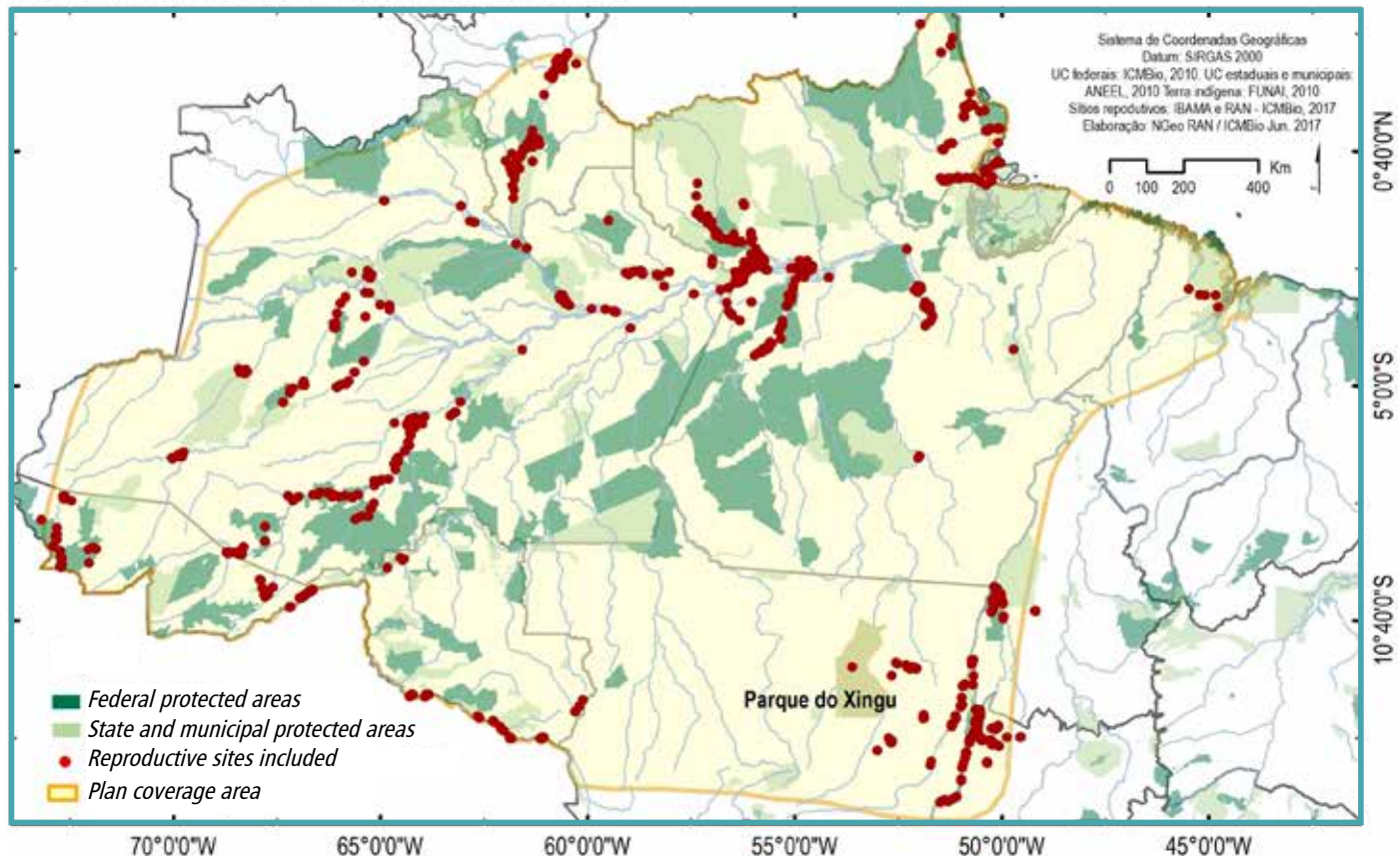


Figure 4 — The covered area of the National Action Plan for the Amazon turtles Conservation.

Actions and budget of the National Action Plan

Nº	ACTION	Estimated cost
Specific Objective 1. Adequacy of legal frameworks related to husbandry marketing and management of community-based Amazon Turtle		
1.1	Elaborate a document consolidating the claims of the society sectors involved in the husbandry and marketing of species of Amazon Turtles (IN Ibama nº 07/2015).	5.000,00
1.2	Elaborate proposal on regulation of husbandry and marketing of Amazon Turtles, at the state level, to adapt to local realities.	5.000,00
1.3	Elaborate proposal on regulation of protection and husbandry of Amazon Turtles in community bases.	20.000,00
1.4	Support the development and adaptation of legal mechanisms to enable implementation of experimental management systems.	50.000,00
1.5	Elaborate a legal project proposal to include the provision of environmental compensation/conversion of penalties focused on the PQA.	0,00
Specific Objective 2. Increase the information on the exploitation of species of Amazon Turtles.		
2.1	Collect information for estimate the consumption and illegal trade of Amazon Turtles through a standard protocol.	200.000,00
2.2	Generate information to assess the population status of the target species and species classified as data deficient (DD) in the PAN.	10.000,00
2.3	Compile, systematize and update existing information on the population status of contemplated species in the PAN.	20.000,00
2.4	Compile and analyze information in confiscated Amazon Turtles.	0,00
Specific Objective 3. Control the exploitation of the Amazon Turtles, especially the target species in the PAN.		
3.1	Elaborate and execute a surveillance plan for Amazon Turtles.	2.000.000,00
3.2	Execute a surveillance plan for Amazon Turtles in Protected Areas.	3.000.000,00
3.3	Elaborate, execute and strengthen environmental education actions for conservation of Amazon Turtles.	2.500.000,00
3.4	Implement the monitoring of breeding areas of Amazon Turtles according to the conservation management and population monitoring technical manual.	10.000.000,00
Specific Objective 4. Standardize the Amazon Turtles in situ management methodology.		
4.1	Finish the conservation management and population monitoring technical manual.	30.000,00
4.2	Capacitate the different institution/actor based on the conservation management and population monitoring technical manual.	1.000.000,00
4.3	Standardize the in situ management methods referred in the conservation management and population monitoring technical manual.	50.000,00
4.4	Perform biennial national evaluation meetings of the conservation management and population monitoring of Amazon Turtles practices.	500.000,00
4.5	Systematize data from reproductive management and population monitoring of Amazon Turtles (Siquelônios).	100.000,00
4.6	Support the implementation of participatory protocol of Amazon Turtles population monitoring with sustainable use potential.	500.000,00
4.7	Evaluate and implement experimental communities systems of sustainable use.	1.500.000,00
Specific Objective 5. Review and improvement of ex situ management methods of Amazon Turtles.		
5.1	Evaluate and implement experimental community system of Amazon Turtles husbandry.	20.000,00
5.2	Elaborate a technical manual for Amazon Turtles commercial husbandry.	300.000,00
Specific Objective 6. Creation of a governance system for maintenance of conservation actions for Amazon Turtles.		
6.1	Establish a network of cooperation to protect the Amazon Turtles, integrating all the actors who support and potential collaborators of the PAN.	50.000,00
6.2	Institutionalize partnerships between PAN collaborators with government and non-government sectors in Amazon Turtles conservations projects.	50.000,00
6.3	Submit related PAN projects for funding agencies.	50.000,00
Specific Objective 7. Noise pollution reduction, collisions and collapsing margins (cliffs/beaches) in the rivers that occurs Amazon Turtles.		
7.1	Identify the sites that occurs noise pollution, collisions and collapsing margins in rivers that occurs Amazon Turtles.	0,0
7.2	Conduct studies to evaluate the effect of vessels flow, of different sizes, on the behavior of target species of the PAN in critical areas.	300.000,00
7.3	Elaborate proposal for regulate the vessels flow together with the relevant authorities and agencies as to mitigate the impacts on the target species of the PAN.	200.000,00
Specific Objective 8. Conservation and recovery of reproductive and feeding habitats necessary for the life cycle of the target species of the PAN.		
8.1	Identify and map the main living areas of Amazon Turtles.	1.000.000,00
8.2	Elaborate a diagnose of the tourism impact to support the authorities responsible for regulating these activities.	10.000,00
8.3	Elaborate and submit a protocol to guide the assessment, monitoring, mitigation and compensation necessary for the licensing process of constructions with potential impact over the Amazon Turtles, including the boat traffic of different sizes.	60.000,00
8.4	Produce a map of vulnerability (large constructions, deforestation, opening of roads, traffic, dams, among others) relating threat information on nesting and feeding areas of Amazon Turtles.	0,00
8.5	Identify the possible impacts or conflicts of the fishing activity over the Amazon turtles that can subsidize the institutions responsible for the organization of these activities.	100.000,00
Total		R\$ 23.710.000



To know the actions and the developers of the PAN Amazon turtles access:

<http://www.ibama.gov.br/fauna-silvestre/quelonios-pqa/plano-de-acao-nacional-para-conservacao-dos-quelonios-amazonicos> ou <http://www.icmbio.gov.br/portal/biodiversidade/fauna-brasileira/lista-planos-de-acao-nacionais>.

Partners



Leaders

