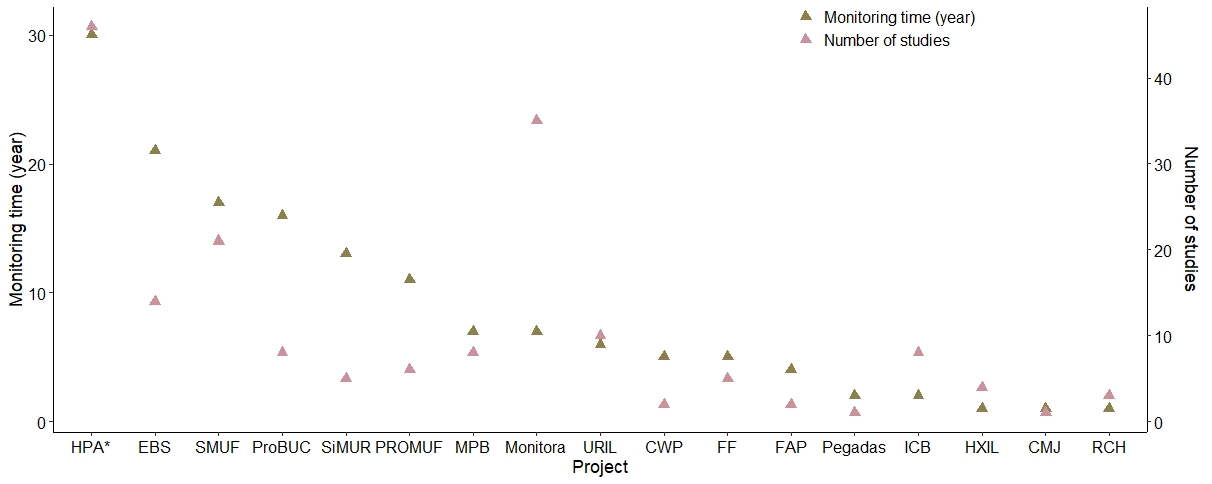
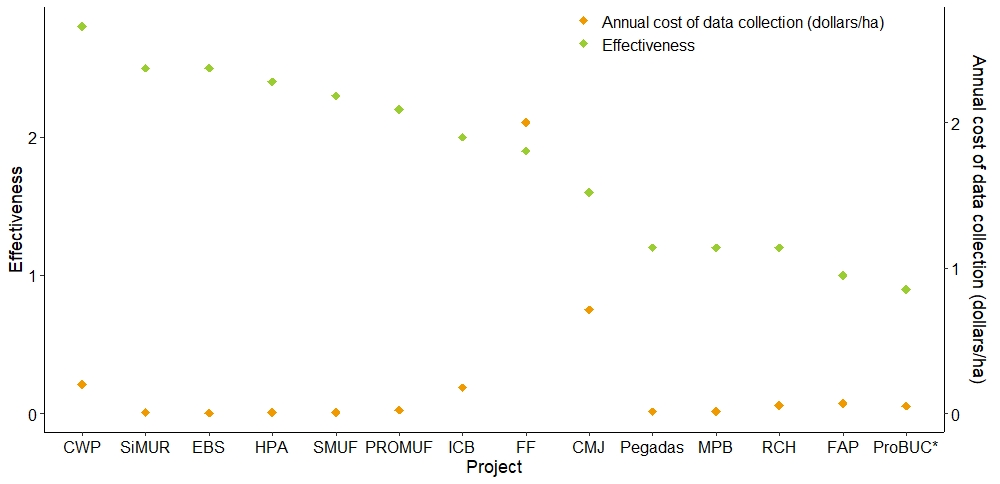
# **Appendix A. Supplementary data**

**Figure captions**

HPA\* - Number of studies (x2)

**Fig. S1.** Relationship between the monitoring time (year) and number of studies published by each analyzed project.

\* some information about effectiveness was not obtained through articles and forms.

**Fig. S2.** Relationship between the effectiveness and annual cost of data collection (dollars/ha) of each analyzed project.

**Table captions**

**Table S1.** Information extracted from the selected studies in relation to objectives of this review: (a) projects identification and mapping, (b) assessment of the main causes of monitoring interruptions, (c) comparison of the annual costs and (d) effectiveness analysis based on strategies used by each program to promote each conservation pillar.

|  |  |
| --- | --- |
| **Objective** | **Information collected** |
| **(a) Project identification and mapping** | - year of project implementation  - geographic coordinates  - biome, state and country  - inside or outside protected area  - number of communities/villages and human population  - number of communities/villages and average number of people attended by the project  - number of community members and non-community members (technicians, collaborating researchers, managers, etc.) involved in the project  - management duty  - source of funding  - sampling techniques and sampling effort per year  - data collector’s profile (i.e., done by local people and/or researchers) |
| **(b) Interruptions** | - period (year of project implementation and conclusion)  - reason for interruption (e.g., the project deadline has finished, lack of financial resources, lack of communities’ interest, conflicts between communities and the project's managers) |
| **(c) Annual cost** | - annual cost of data collection - US$ (including daily rates/remuneration, costs with field logistics and project material) |
| **(d) Effectiveness** |  |
| 1º pillar (provision of information on monitored resource through time) | - data entry and data analysis (how much was planned and analysed)  - list of publications related to the project |
| 2º pillar (empowerment of local stakeholders) | - if adequate training was provided to the monitors (with theoretical and practices classes)  - return of results, data entry and data analysis process (actors involved – communitarian, trainee without higher education, trainee with higher education or researcher)  - stakeholders who participated in the elaboration of the project (definition of targets and criteria for the choice of monitors)  - importance of the monitored resource |
| 3º pillar (implementation of management actions) | - species that start to be monitored afterwards from project information  - species banned from being hunted due to the obtained results  - results led to management strategies  - results led to protective policy |

**Table S2**. Form in English sent to researchers of community-based monitoring projects of terrestrial game species in the tropics.



**UNIVERSIDADE ESTADUAL DE SANTA CRUZ**

**PRÓ-REITORIA DE PESQUISA E PÓS-GRADUAÇÃO**

**PÓS-GRADUAÇÃO EM ECOLOGIA E CONSERVAÇÃO DA BIODIVERSIDADE**

**Project identification and mapping**

Project name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

Year of creation: \_\_\_\_\_\_\_\_\_\_\_\_\_\_. Year of implementation: \_\_\_\_\_\_\_\_\_\_\_.

Location (if possible, with geographic coordinates): \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Biome: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. State: \_\_\_\_\_\_\_\_\_\_\_\_\_. Country: \_\_\_\_\_\_\_\_\_\_\_\_\_.

Is it a protected area? yes ( ) no ( )

If so, what´s the name? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

Number of communities / villages in the protected area: ­­­­­­­­­­­­­­­­­­\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

Protected area population: \_\_\_\_\_\_\_\_\_\_.

Number of communities / villages attended by the project: \_\_\_\_\_\_\_\_.

Average number of the population attended by the project: \_\_\_\_\_\_\_\_\_.

Number of community members \_\_\_\_\_\_\_\_\_\_ and non-community members (technicians, collaborating researchers, managers, etc.) \_\_\_\_\_\_\_\_\_\_\_\_ involved in the project.

**Project management and identification of the main obstacles in proposing wildlife management strategies**

Main objective of the project:

Assess the efficiency of the protected area ( ) promote environmental education ( ) generate information to assist the management of the monitored resource ( ) conduct scientific research ( ) other ( )\_\_\_\_\_\_\_\_\_\_

Management duty: communities ( ) NGO ( ) CSO ( ) state government ( )

federal government ( ) other ( ) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

Origin of funding: state government ( ) federal government ( ) international ( )

other ( ) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

Who collects the data receives daily rates/remuneration? yes ( ) no ( )

Annual cost of data collection:

0-5 thousand dollars ( ) 6-10 thousand dollars ( ) 11-15 thousand dollars ( )

16-20 thousand dollars ( ) other ( ): \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

Sampling techniques: line-transect ( ) sign surveys ( ) camera-trapping ( ) hunting calendar ( ) other ( ): \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

Sampling effort per year of each technique: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

How was the training for monitoring carried out?

With theoretical classes ( ) with theoretical and practical classes ( ) with the presence of specialized researchers ( )

Has the project been interrupted? yes ( ) no ( )

If so, for how long? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

Is the monitoring still occurring? yes ( ) no ( )

If not, when did it end? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

If not, why did it end?:

The project deadline has finished ( ) lack of financial resources ( ) lack of communities interest ( ) conflicts between communities and the project's managers ( ) other ( ): \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

Who is in charge for data entry?

Communitarian ( ) trainee without higher education ( ) trainee with higher education ( ) researcher ( ) other ( ): \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

Who performs data analyses?

Communitarian ( ) trainee without higher education ( ) trainee with higher education ( ) researcher ( ) other ( ): \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

How much has been tabulated? 0-25% ( ) 25-50% ( ) 50-75% ( ) 75-100% ( )

How much has been analysed? 0-25% ( ) 25-50% ( ) 50-75% ( ) 75-100% ( )

Is the data publicly accessible? yes ( ) no ( )

If so, how to proceed to access the data (request)?:

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

How are the results made available?

Meeting with the community council / deliberative council ( ) community meeting ( ) monitors meeting ( ) newsletters ( )

other ( ) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

Who returns the results?

Communitarian ( ) researchers ( ) protected area management ( ) project technicians ( )

Year of the last return of the results: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

Stakeholders who participated in the elaboration of the program (definition of targets and criteria for the choice of monitors):

Communities ( ) researchers ( ) NGO ( ) CSO ( ) state government ( )

federal government ( ) other ( ) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

**Main project contributions in proposing strategies for managing wildlife**

Does the project work as initially proposed? yes ( ) no ( )

What is the importance of the monitored resource for the communities / villages?

Conservation ( ) main source of meat ( ) main source of income ( ) other ( )\_\_\_\_\_\_

Is there a temporal and spatial monitoring of the resource? yes ( ) no ( )

Have you published the monitoring program? yes ( ) no ( )

Which source? article ( ) dissertation ( ) thesis ( ) report ( ) other ( )

Publication(s) reference(s): \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Has any species or resource start to be monitored afterwards from program information?

yes ( ) no ( )

The species or monitored resource in interested to:

Researchers ( ) community ( ) protected area management ( ) program technicians ( )

Has any species or resource been banned from being hunted due to the results of the program? yes ( ) no ( )

Did results promote any resource management strategies? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

Did results promote any protective policy? If so, which one? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

**Table S3.** Characteristics of the 52 existing and past community-based monitoring projects of terrestrial game fauna in the tropics identified in our study. The first 17 projects were examined in terms of interruption, costs and effectiveness given that researchers, technicians or protected area manager answered a detailed form.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Project** | **Location** | **Protected area** | **Period** | **Resource monitored** | **Game fauna sampling methods** | **References** |
| 1 - Fauna Use Monitoring System (SMUF) | Brazil, Amazonas | Sustainable Development Reserve (SDR) Mamirauá and Amanã | 2002-2019 | Game species and harvest | hunting form, collection of biological material | EL Bizri et al. (2020), Valsecchi et al. (2014), Constantino et al. (2012) |
| 2 – Pegadas Project | Brazil, Amazonas | Piagaçu-Purus Sustainable Development Reserve (PP-SDR) | 2010-2012 | Game species | line-transect | Benchimol et al. (2017) |
| 3 - Monitoring Program for Biodiversity and Use of Natural Resources in Amazonas Conservation Units (ProBUC) | Brazil, Amazonas | State Park Rio Negro Setor Norte, Uacari and Uatumã Sustainable Development Reserves (SDR's) | 2005-\* | Game species and harvest | line-transect, hunting form | Constantino et al. (2012), Costa (2019) |
| 4 - Fauna Use and Management Program (PROMUF) | Brazil, Amazonas | Piagaçu-Purus Sustainable Development Reserve (PP-SDR) | 2006-2017 | Game species and harvest, semi-terrestrial birds, big felids | line-transect, camera-trapping, hunting form | Costa (2019) |
| 5 - Rio Unini Natural Resource Use Monitoring System (SiMUR) | Brazil, Amazonas | Rio Unini Extractive Reserve, Jaú National Park and Amanã Sustainable Development Reserve (SDR) | 2008-\* | Game species and harvest | hunting memories (register of hunted animals / month), memories of visual records and traces | Costa (2019) |
| 6 - Monitoring the Use of Natural Resources in Indigenous Lands in Acre (URIL) | Brazil, Acre | Indigenous Lands (IL),  mainly Kaxinawá and  Katukina | 2004-2010 | Game species and harvest | Hunting form | Constantino et al. (2012) |
| 7 - Game fauna and hunting sustainability in the Xerente Indigenous Land, Brazilian Cerrado (HXIL) | Brazil, Tocantins | Xerente Indigenous Land (XIL) | 2014-2015 | Game species and harvest | line-transect, hunting form, interviews with participatory mapping | de Paula et al. (2017) |
| 8 - Participatory Monitoring of Biodiversity in Protected Areas of the Amazon (MPB) | Brazil, Pará | Extractive Reserve Tapajós-Arapiuns | 2014-\* | Game species and harvest | line-transect, sign surveys, camera-trapping, hunting form, hunting census | Reis et al. (2019) |
| 9 - Monitoring of hunting in the Peruvian Amazon (HPA) | Peru, Loreto | Tamshiyacu Tahuayo Regional Conservation Area, Pacaya–Samiria National Reserve and Yavari-Mirin River (unprotected area) | 1991-\* | Game species and harvest | line-transect, sign surveys, camera-trapping, hunting form, collection of biological material | Mayor et al. (2017) |
| 10 - Nsombou Abalghe-Dzal Community Wildlife Project Gabon (CWP) | Africa, Gabon | Ogooué-Ivindo Province (unprotected area) | 2015-2020 | Game species and harvest | line-transect, sign surveys, camera-trapping, hunting form, ‘village transects’ | Beirne et al. (2019) |
| 11 - Monitoring faunal recovery in a former illegal logging hotspot in Amazonian Peru (FAP) | Peru, Madre de Dios | Los Amigos Conservation Concession | 2004-2008 | Game species | line-transect | Pitman et al. (2011) |
| 12 - Event Book System (EBS) | Africa, Namíbia | Namibian Conservancies and Bwabwata National Park | 2000-\* | Game species and harvest | line –transect, ‘distance’ sampling, hunting form, others that record stochastic events | Constantino et al. (2012) |
| 13 - Fogones de Fauna Project (FF) | Uruguay, Cerro Largo | Paisaje Protegido Paso Centurión and Sierra de Ríos | 2012-2017 | Game species (mammals) | sign surveys, camera-trapping, interviews, collection of biological material | Grattarola & Tricot (2020) |
| 14 - Community monitoring of the jaguar (CMJ) | Mexico, Oaxaca | Chinantla region (unprotected area) | 2015-2016 | Game specie (jaguar) | camera-trapping | Lavariega et al. (2020) |
| 15 – Crossing ecologies with the Rio Cueiras hunters: knowledge and hunting strategies in the Lower Rio Negro, Amazonas (RCH) | Brazil, Amazonas | State Park Rio Negro Setor Sul, Environmental Protection Area Left Bank of the Rio Negro and National Park Anavilhanas | 2006-2007 | Game species and harvest | memories of hunted animals, direct observation, interviews | Campos (2008) |
| 16. National Biodiversity Monitoring Program (Monitora) / terrestrial sub-program, forest component | Brazil, Brazilian states | Brazilian protected areas | 2014-\* | Game species | line –transect, camera-trapping, interviews | Roque et al. (2018) |
| 17- People versus Parks: Can indigenous peoples coexist with tropical biodiversity? (ICB) | Peru, Madre de Dios | Manu National Park | 2003-2005 | Game species and harvest | hunting form, collection of biological material | Ohl-Schacherer et al. (2007) |
| 18. Participatory monitoring in Lao People’s Democratic Republic (PDR) | Asia, Lao PDR | Xe Pian, Dong Phou Vieng, Xe Sap National Protect Areas and Phou Hin Poun National Biodiversity Conservation Area | 1999-NA | Game species | logbook records, village reports of signs/sightings and search effort, repeat surveys and sign transect surveys | Steinmetz (2000) |
| 19. Philippine biodiversity monitoring system | Asia, Philippines | Northern Sierra Madre, Bataan and Mt. Kitanglad  Range Natural Parks | 1996-1998 | Game species and harvest | Transect walk , field diary, photo documentation, focus group discussion | Danielsen et al. (2000) |
| 20 - Monitoring of species of large mammals common in the Zambezi alluvium | Africa, Zimbábue | Mana Pools National Park | 1993-NA | Game species (mammals) | line-transect | Dunham & Toit (2012) |
| 21 - Zambia’s Community-Based Wildlife Program (ADMADE) | Africa, Zambia | Game Management Areas (GMAs) | 1987-NA | Game species and harvest, illegal hunting | anti-poaching foot patrols, recorded sightings of live animals, population trends form | Marks (1999), Gibson & Marks (1995), Marks (2001) |
| 22 – Botswana CBNRM Programme | Africa, Botswana | Kalahari and Okwa Wildlife Management Areas (GMAs) | 1996-NA | Game species and harvest, illegal hunting | sign surveys, hunting forms, anti-poaching foot patrols, wildlife sighting | Twyman (2000) |
| 23 - Kaa-Iya Project | Bolivia, Gran Chaco Boliviano | Isoso Indigenous Land (IL) | 1996-2003 | Game species and harvest | hunting form, collection of biological material | Noss (2004), Noss et al. (2005), Noss et al. (2003) |
| 24 - Community-based conservation Programme | Asia, India | Namdapha National Park | 2004-NA | Game species (carnivore, prey species) | camera-trapping | Datta et al. (2008) |
| 25 - Ghana Wildlife Division (GWD) monitoring Program | Africa, Ghana | Mole National Park | 1968-2008 | Game species (mammals), illegal hunting | daytime foot anti-poaching patrols, record sightings of mammal species and hunters | Burton (2012) |
| 26 - Participatory Hunter Self-monitoring Program | Guyana, Kanashen | Konashen Community-Owned Conservation Area (KCOCA) | 2014-2015 | Game species and harvest | hunting form | Shaffer et al. (2017) |
| 27 - Biodiversity Project | Africa, Zimbabwe | Zambezi Valley (unprotected area) | 1996-NA | Game species (mammals) | daylight and night car counts, bicycle counts, foot counts, water point counts | Gaidet et al. (2006) |
| 28 - Coupled Human and Natural Systems Project | Guyana, Rupununi region | Makushi and Wapishana Indigenous Lands (IL) | 2007-2010 | Game species and harvest | line-transect, hunting form | Luzar et al. (2011) |
| 29 - Jaguar Project Monitoring Network | Argentina / Brazil / Paraguay, Atlantic Forest of Alto Paraná | [Alto Paraná Atlantic forests](https://en.wikipedia.org/wiki/Alto_Paran%C3%A1_Atlantic_forests) | 2002-2008 | Game species (pumas, jaguars) | sighting of felines, faecal samples | De Angelo et al. (2011) |
| 30 - Hunting monitoring in the BaAka village | Africa, Republic, Dzanga–Sangha region | Dzanga-Sangha Special Reserve | 1993-1994 | Game species and harvest | sighting of game species on hunts | Noss (1999) cited by Danielsen et al. (2014) |
| 31 - Hunting monitoring in the Equatorial Guinea | [Africa](https://en.wikipedia.org/wiki/Central_Africa), Equatorial Guinea | Midyobo Anvom village (unprotected area) | 2005-2006 | Game species and harvest | hunting form, interviews | Rist J et al. (2010) cited by Danielsen et al. (2014) |
| 32 - Medium-sized and large mammals of the Cazumbá-Iracema Extractivist Reserve, Acre, Brazil | Brazil, Acre | Cazumbá-Iracema Extractivist Reserve | 2011-2012 | Game species (mammals) and harvest | line -transect, opportunistic sightings, camera-trapping, hunting form, interviews | Oliveira & Calouro (2020) |
| 33 - Long‑term trends in wildlife community | Africa, Cameroon | Malen V, Doumo Pierre and Mimpala villages (unprotected area) | 2002-2016 | Game species (mammals) | line –transect | Tagg et al. (2020) |
| 34 - Medium and large-sized mammals in dry forests of the Colombian Caribbean | Colombia, Magdalena | Tayrona National Natural Park | 2012-2017 | Game species (mammals) | camera-trapping | Pineda-Cendales et al. (2020) |
| 35 - COMBIOSERVE Project | Mexico, Campeche | Once de Mayo community and Calakmul (unprotected area) | 2012-2015 | Game species | camera-trapping | Villaseñor et al. (2020) |
| 36 - Using local ecological knowledge to improve large terrestrial mammal  surveys, build local capacity and increase conservation opportunities | Argentine, Dry Chaco | Salta, Formosa and Chaco provinces (unprotected area) | 2011-2017 | Game species | line -transect, opportunistic sightings, sign surveys, camera-trapping, interviews | Camino et al. (2020) |
| 37 - Including Spatial Heterogeneity and Animal Dispersal When Evaluating Hunting: a Model Analysis and an Empirical Assessment in an Amazonian Community | Ecuador, Pastaza | Kichwa community of Sarayaku | 1999-2000 | Game species and harvest | hunting form | Siren et al. (2004) |
| 38 - Mammal hunting by the Shuar of the Ecuadorian Amazon: is it sustainable? | Ecuador, Morona-Santiago | Miasal, western margin of the Amazon basin | 2001-2003 | Game species and harvest | line -transect, direct observation, hunting form, collection of biological material, participatory mapping, interviews | Zapata-Ríos et al. (2009) |
| 39 - The impact of subsistence hunting by Tikunas on game species in Amacayacu National Park, Colombian Amazon | Colombia, Amazonas Department | Amacayacu National Park | 2005-2009 | Game species and harvest | line -transect, hunting form | Maldonado Rodriguez (2010) |
| 40 - Road Development and the Geography of Hunting by an Amazonian Indigenous Group: Consequences for Wildlife  Conservation | Ecuador, Napo and Pastaza | Yasuní Biosphere Reserve | 2008-2009 | Game species and harvest | hunting form | Espinosa et al. (2014) |
| 41 - Subsistence hunting among the Waimiri Atroari Indians in central Amazonia, Brazil | Brazil, Roraima and Amazonas | Waimiri Atroari Indigenous Reserve | 1993-1994 | Game species and harvest | hunting form | Souza-Mazurek et al. (2000) |
| 42 - Evaluación de la Sostenibilidad de la Cacería De Mamíferos en la Comunidad De Zancudo, Reserva Nacional Natural Puinawai, Guainía-Colombia | Colombia, Guainía | Puinawai Natural National Reserve | 2005-2009 | Game species and harvest | hunting form, direct observation, participatory mapping, interviews | Tafur Guarín (2010) |
| 43 - Korup Project | Africa, Cameroon | Korup National Park, Rumpi Hills, Nta Ali, and Ejagham Forests, and two logging concessions (unprotected area) | 1988- | Game species (primates) | line -transect | Waltert et al. (2002) |
| 44- Fortalecimiento de la Red de Monitoreo de Fauna Silvestre en la Reserva de la Biosfera de Tehuacán-Cuicatlán | Mexico, Oaxaca and Puebla | Tehuacán-Cuicatlán Biosphere Reserve | 2009- | Game species | camera-trapping | Botello et al. (2013) |
| 45- Community-  Based Bird Monitoring Project | Mexico, Chiapas | Tacaná Volcano Biosphere Reserve | 2010- | Game species (birds) | line -transect | Ortega‑Álvarez & Calderón‑Parra (2021) |
| 46- Impact of Hunting on Large Vertebrates in the Mbaracayu Reserve, Paraguay | Paraguay | Mbaracayú Forest Nature Reserve | 1980- | Game species | line -transect, sign surveys | Hill et al. (2003) cited by Luzar et al. (2011) |
| 47- Manejo de Fauna na Reserva Xavante Rio das Mortes: Cultura Indigena e Método Cientifico Integrados Para Conservação | Brazil, Mato Grosso | Xavante Rio das Mortes Indigenous Reserve | 1991- | Game species (mammals) and harvest | Trace sampling and hunting form | Prada & Filho (2004) and Fragoso et al. (2000) cited by Luzar et al. (2011) |
| 48- Grupo de cazadores de la comunidad negra de El Valle: hacia la construcción de una estrategia local para el manejo de la vida silvestre en la cuenca del río Valle, Chocó, Colombia | Colombia, Chocó | Lands of the Negra Community of the Valle River basin (unprotected area) | 2001- | Game species and harvest | line -transect, sign surveys, hunting form | Trespalacios-González et al. (2003) in Campos-Rozo & Ulloa (2003) |
| 49- La investigación participativa y su utilidad para el manejo de la fauna silvestre en Bolivia | Bolivia | Biosphere Reserve and Community Land of Origin Pilón Lajas | 2001-2002 | Game species and harvest | hunting form | Townsend (2003) in Campos-Rozo & Ulloa (2003) |
| 50. Community-based monitoring system of village forests in Tanzania | Africa, Tanzania | Kitapilimwa, North Nyang’oro, South Nyang’oro, New Dabaga/Ulongambi and West Kilombero Scarp Forest Reserves | 2002-2004 | Game species and harvest | patrol, interview and meetings | Topp-Jørgensen (2005) |
| 51- Citizen Science for Monitoring Primates in the Brazilian Atlantic Forest: Preliminary Results from a Critical Conservation Tool | Brazil, Minas Gerais | District of Santo Antônio  do Manhuaçu/ Caratinga (unprotected area) | 2018-2020 | Game species (primates) | Sightings form | Nery et al. (2021) |
| 52- Hunting Techniques, Wildlife  Offtake and Market Integration. A  Perspective from Individual  Variations among the Baka  (Cameroon) | Africa, Cameroon | Boumba-Bek and the Nki National  Parks and Dja Biosphere Reserve | 2012-2013 | Game species and harvest | hunting memories (register of hunted animals / week), census of hunters | Romain et al. (2017) |

NA = information was not provided in the publication.

\* The project/program remains active.

**Table S4.** Additional information (management duty of the protected area and the project, status, cause of end [interruption] or temporary suspension, origin of funding, number of communities/villages [average population], number of monitors and technical team members and origin of information) on the 17 community-based monitoring projects of terrestrial game fauna in the tropical forests, examined in terms of interruption, costs and effectiveness in our study.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Management duty of the protected area** | **Management duty** | **Status** | **Cause of end (interruption) or temporary suspension** | **Origin of funding** | **Number of villages (average population)** | **Number of monitors and technical team members** | **Origin of information** |
| SMUF | State government | NGO, CSO | inactive | lack of financial resources | Federal government | 10 (1378) | 10, 5 | Researcher |
| Pegadas | State government | NGO | inactive | lack of financial resources | State government | 5 (1000) | 30, 6 | Researcher |
| ProBUC | State government | State government | active | lack of financial resources | Federal government | 44(2170)¹ | 42², NA | Project technician, literature (Constantino et al., 2012 and Costa, 2019) |
| PROMUF | State government | NGO | inactive | lack of financial resources and conflicts between communities and the project's managers | State government | 9 (NA) | 25, 11 | Researcher, literature (Costa, 2019) |
| SiMUR | State and federal government | NGO | active | \* | International | 10 (5603) | 11, 2 | Project technician, literature (Costa, 2019) |
| URIL | Federal government | NGO, communities | inactive | lack of financial resources and change in priority of the project's managers | International | 45 (4500) | 40, 4 | Researcher |
| HXIL | Federal government | University | inactive | project deadline has finished | International | 10 (9364) | NA, 4 | Researcher |
| MPB | Federal government | Federal government, NGO | active | lack of financial resources, COVID-19 pandemic | Federal government, international | 13 (1600) | 30, 12 | Protected area manager |
| HPA | State and federal government | NGO, CSO | active | \* | International | 17 (2000) | 50, 10 | Researcher |
| CWP | - | Communities | inactive | lack of financial resources | International | 20 (2000) | 20, 3 | Researcher |
| FAP | Federal government | NGO | inactive | NA | International | 0 (NA) | 2, 6 | Researcher |
| EBS | State and federal government | Federal government, communities, donors to community based projects | active | \* | State government, international | 875 (250,000) | 650, 4 | Researcher |
| FF | Federal government | NGO, Communities, University | inactive | lack of financial resources | International | 1 (60) | 50-60, 10 | Researcher |
| CMJ | - | Federal government | inactive | project deadline has finished | Federal government | 5 (50) | 10, 8 | Researcher |
| RCH | State and federal government | Federal government | inactive | project deadline has finished | Federal government | 5(2006) | 19, 2 | Researcher |
| Monitora | State and federal government | State and federal government | active | change of responsible technician, COVID-19 pandemic | State and federal government, international | 507(NA) | NA | Project technician |
| ICB | Federal government | Communities | inactive | project deadline has finished | International | 2 (400) | NA, NA | Researcher |

NA = information was not obtained through articles and forms.

- Unprotected area

\* The project was not interrupted or temporarily suspended.

¹ Number referring to the year 2012.

² Number referring to the year 2014.

3 Approximate number representing 140 families.

4 Approximate number representing 234 families.

5 Number referring to 86 Namibian Conservancies and 1 National Park.

6Approximate number representing 50 families.

7 Number of monitored conservation units.

**Table S5.** Strategies used to provide information about the monitored resource through time related to the 17 community-based monitoring projects of terrestrial game fauna in the tropical forests, examined in terms of interruption, costs and effectiveness in our study. The spatio-temporal data analyses were scored as 1 if ‘exist’ and 0 if ‘does not exist’; and the percentages of tabulated data and data analyzed, categorized into 4 classes (0-25%, 25-50%, 50-75%, 75-100%), were scored from 1 to 4, respectively.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Project | Spatio-temporal data analyses | Tabulated data | Analyzed data | Scores |
| SMUF | 1 | 4 | 4 | 9 |
| Pegadas | 0 | 4 | 4 | 8 |
| ProBUC | 0 | 4 | NA | 4 |
| PROMUF | 0 | 4 | 4 | 8 |
| SiMUR | 1 | 4 | 4 | 9 |
| URIL | 1 | 4 | 4 | 9 |
| HXIL | 0 | 4 | 4 | 8 |
| MPB | 1 | 4 | 3 | 8 |
| HPA | 1 | 4 | 3 | 8 |
| CWP | 0 | 4 | 3 | 7 |
| FAP | 1 | 4 | 4 | 9 |
| EBS | 1 | 4 | 4 | 9 |
| FF | 0 | 2 | 3 | 5 |
| CMJ | 0 | 4 | 4 | 8 |
| RCH | 0 | 4 | 4 | 8 |
| Monitora | 1 | 4 | 1 | 6 |
| ICB | 1 | 4 | 4 | 9 |

NA = information was not obtained through articles and forms.

**Table S6.** Strategies used to promote local empowerment related to the 17 community-based monitoring projects of terrestrial game fauna in the tropical forests, examined in terms of interruption, costs and effectiveness in our study. We scored as 1 if 'it was used' and 0 if 'it was not used'.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | Local people participated in the elaboration of the project | monitored resource is a source of meat and income | Adequate training of monitors | Local people participate in data entry | Local people perform data analyses | Local people return the results | Score |
| SMUF | 1 | 0 | 1 | 0 | 0 | 0 | 2 |
| Pegadas | 1 | 0 | 1 | 0 | 0 | 0 | 2 |
| ProBUC | 1 | 0 | 1 | 0 | 0 | 1 | 3 |
| PROMUF | 1 | 0 | 1 | 0 | 0 | 0 | 2 |
| SiMUR | 1 | 0 | 1 | 0 | 0 | 1 | 3 |
| URIL | 1 | 0 | 1 | 0 | 1 | 1 | 4 |
| HXIL | 1 | 0 | 1 | 0 | 0 | 0 | 2 |
| MPB | 1 | 0 | 1 | 0 | 0 | 0 | 2 |
| HPA | 1 | 1 | 1 | 0 | 0 | 0 | 3 |
| CWP | 1 | 1 | 1 | 1 | 1 | 1 | 6 |
| FAP | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| EBS | 1 | 1 | 1 | 0 | 0 | 0 | 3 |
| FF | 1 | 0 | 1 | 0 | 0 | 0 | 2 |
| CMJ | 1 | 0 | 1 | 1 | 0 | 1 | 4 |
| RCH | 1 | 0 | 1 | 0 | 0 | 0 | 2 |
| Monitora | 1 | 0 | 1 | 0 | 0 | 0 | 2 |
| ICB | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

**Table S7.** Management actions promoted by the results of the 17 community-based monitoring projects of terrestrial game fauna in the tropical forests, examined in terms of interruption, costs and effectiveness in our study. We score as 1 if ‘exist’ and 0 if ‘does not exist’.

|  |  |  |  |
| --- | --- | --- | --- |
|  | Results promoted any resource management action | Which ones? | Score |
| SMUF | Yes | Species or resource start to be monitored and creation of hunting rules. | 1 |
| Pegadas | No | - | 0 |
| ProBUC | No | - | 0 |
| PROMUF | Yes | Species or resource start to be monitored, zoning of hunting areas and creation of hunting rules | 1 |
| SiMUR | Yes | Creation of management plans | 1 |
| URIL | Yes | Species been banned from being hunted and creation of management plans | 1 |
| HXIL | No | - | 0 |
| MPB | No | - | 0 |
| HPA | Yes | Species or resource start to be monitored, zoning of hunting areas, creation of hunting rules and fisheries management plans | 1 |
| CWP | Yes | Comply with management plan rules | 1 |
| FAP | No | - | 0 |
| EBS | Yes | Species been banned from being hunted, creation of hunting rules and support the policy on sustainable use and community based natural resource management | 1 |
| FF | Yes | Support for inclusion of region in the National System of Conservation Units | 1 |
| CMJ | No | - | 0 |
| RCH | No | - | 0 |
| Monitora | No | - | 0 |
| ICB | Yes | Avoided the creation of new human settlements | 1 |

**Table S8.** Ranking of the 17 community-based monitoring projects of terrestrial game fauna in the tropical forests, examined in our study in terms of interruption, costs and effectiveness, from the most to the least effective. To obtain the total effectiveness score, the score for each pillar (shown in tables S5, S6 and S7) received a weight of 1.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Project | first pillar score | second pillar score | third pillar score | Total score (%) |
| CWP | 0,8 | 1,0 | 1 | 2,8 |
| URIL | 1,0 | 0,7 | 1 | 2,7 |
| SiMUR | 1,0 | 0,5 | 1 | 2,5 |
| EBS | 1,0 | 0,5 | 1 | 2,5 |
| HPA | 0,9 | 0,5 | 1 | 2,4 |
| SMUF | 1,0 | 0,3 | 1 | 2,3 |
| PROMUF | 0,9 | 0,3 | 1 | 2,2 |
| ICB | 1,0 | 0,0 | 1 | 2,0 |
| FF | 0,6 | 0,3 | 1 | 1,9 |
| CMJ | 0,9 | 0,7 | 0 | 1,6 |
| Pegadas | 0,9 | 0,3 | 0 | 1,2 |
| HXIL | 0,9 | 0,3 | 0 | 1,2 |
| MPB | 0,9 | 0,3 | 0 | 1,2 |
| RCH | 0,9 | 0,3 | 0 | 1,2 |
| FAP | 1,0 | 0,0 | 0 | 1,0 |
| Monitora | 0,7 | 0,3 | 0 | 1,0 |
| ProBUC\* | 0,4 | 0,5 | 0 | 0,9 |

\* some information about first pillar was not obtained through articles and forms.