

BEHAVIOR CHANGE CAMPAIGNS TO REDUCE
DEMAND FOR WILDLIFE

UNDERSTANDING YOUR AUDIENCE AND THEIR BEHAVIOR

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This is version 1.0 of a living document. Please send suggestions, insights, and comments to: asanchez@provitaonline.org

Project

FLYING TOGETHER INITIATIVE - Changing behavior to reduce demand in illegal markets for threatened Venezuelan birds.

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MODULE 1

TOOLKIT 1

BEHAVIOR CHANGE CAMPAIGNS TO REDUCE
DEMAND FOR WILDLIFE

UNDERSTANDING YOUR AUDIENCE AND THEIR BEHAVIOR



Iniciativa
**VOLANOS
JUNTOS**

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The Flying Together Initiative is developed in collaboration with:



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THE FLYING TOGETHER INITIATIVE

Provita is a Venezuelan non-profit organization with more than 30 years of experience developing innovative socio-environmental solutions to preserve nature.

Provita's "Flying Together Initiative" ([Iniciativa Volando Juntos](#)) aims to promote alternative behaviors that reduce the demand for Venezuelan wildlife.

The Flying Together Initiative combines concepts and tools from the social sciences and ecology to design, implement, and evaluate behavior change campaigns focused on reducing demand for wildlife. Our case studies include two species of Venezuelan birds, threatened by illegal wildlife trade: the Red Siskin (*Spinus cucullatus*) and the Yellow-shouldered Amazon (*Amazona barbadensis*).

Through a series of toolkits, organized into three modules, the Flying Together Initiative shares both the technical knowledge to implement a behavior change campaign, as well as the experiences gained during our own campaigns.

The aim of this first toolkit is to provide an accessible reference for those people or institutions who want to compile baseline information to inform the evidence-based design of behavior change campaigns focused on reducing demand for wildlife.

WHAT DO WE BELIEVE?

1. We believe in behavior change

We believe in the potential of each person to generate behavior change, and that each individual change counts. We believe that these behavior changes can be positive for both wildlife and the communities adopting the changes.

2. We believe in evidence-based actions

We promote the use of standards and protocols based on the best and most updated scientific information. We want the design, implementation, and evaluation of behavior change campaigns to be a process that is:

- Clear.
- Reproducible.
- Supported by evidence.

3. We believe in collaborative learning

We wish to share with other Latin American and world organizations, civil society, and decision makers what we have learned. We believe that the techniques presented here can be applied in other threatened species, and that we can learn from others who apply them.

ABOUT THE TOOLS

Through a series of tools, organized in three modules, we wish to share both the technical knowledge and the experience gained after the implementation of our campaigns.

Our tools are summaries of the state of the art in behavior change campaigns and are based on the recommendations and best practices of leading institutions in the field.

Our tools are multimedia resources (documents, forms, analysis tools) designed to provide practitioners and researchers:

MODULE 1

Concepts and strategies for integrating baseline information with planning strategies to design campaigns based on the best and most up-to-date scientific information.

MODULE 2

Practical advice on how to use your resources to implement behavior change campaigns effectively and efficiently.

MODULE 3

Tools and strategies to evaluate the impact of campaigns both in terms of species conservation and society.

The tools are not intended to make definitive statements about what works or does not work. Rather, they provide high-quality information about what is likely to be beneficial based on existing evidence.

In general, the chapters of this document are made up of 3 sections:



Basic concepts



Case studies

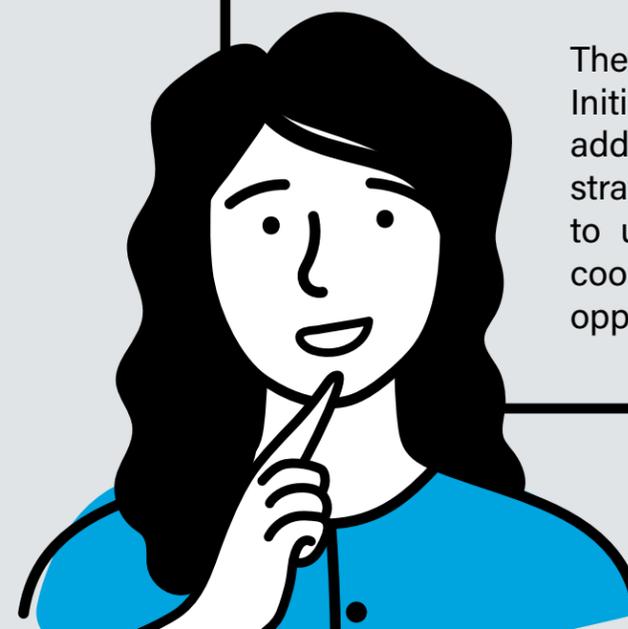


Practical recommendations

The objective of this first tool is to provide an accessible reference for those people or institutions that want to collect baseline information to design behavior change campaigns focused on reducing the demand for wildlife.

The tools are living documents that are regularly updated as new studies are published in Venezuela and internationally. Send your suggestions, ideas, and comments to: asanchez@provitaonline.org.

The technical team of the Flying Together Initiative will be more than happy to provide additional support to implement the strategies described here. You can write to us at: asanchez@provitaonline.org and coordinate a meeting to discuss collaboration opportunities.



CASE STUDIES



Lisandro Moran

The Yellow-shouldered Amazon
(*Amazona barbadensis*).

Is classified as Endangered in Venezuela (Rodríguez et al. 2015). LC VU EN CR EX

due to habitat loss and unsustainable harvest of wild individuals as pets This parrot species is included in Appendix I of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), so its international trade is only allowed under exceptional circumstances (CITES 2020).

Currently, on the Macanao Peninsula of Margarita Island, Venezuela, where one of the species' largest populations persists, three of every 10 people have parrots as pets. Fledglings are taken from their nests and given as gifts to relatives and loved ones, with trade restricted to mostly local communities within Macanao (Sánchez-Mercado et al., 2020, 2021).

Demand for parrots is motivated by affection and need for companionship, a misunderstood empathy for the safety and conservation of the parrot, and by a widespread social norm that tolerates and justifies keeping wild birds. Ownership is not perceived as part of the trade chain and has been normalized within the community (Sánchez-Mercado et al., 2020, 2021).



Leonel Ovalles

The Red Siskin
(*Spinus cucullatus*).

Is Critically Endangered in Venezuela (Rodríguez et al. 2015) LC VU EN CR EX

It is threatened mainly by unsustainable harvest for the pet trade and habitat loss and is included in Appendix I of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) Therefore, its international trade in most jurisdictions is only allowed under exceptional circumstances (CITES 2020).

Wild red siskins have been breeding in captivity by aviculturists since the 1950s, either to obtain the ancestral phenotype, to generate hybrids (red canaries) or mutations.

Currently, the Red Siskin trade in Venezuela operates in a network that mobilizes at least 70 birds/year, which represent a significant percentage of the species' remaining population. This trade network involves at least 15 different types of actors, operating in national and international markets. Among these types, the main consumers of wild birds in this study were breeders from Venezuela, Brazil, Spain/Portugal (Iberian node) and the United States (Sánchez-Mercado et al. 2019).

The demand for wild red siskins in aviculture is motivated primarily by the belief that wild birds maintain genetic diversity and as a result lower mortality in captive flocks and promote favorable reproductive behaviors (Cardozo-Urdaneta et al., unpublished data).



01

WHAT ARE BEHAVIOR CHANGE CAMPAIGNS?

Behavior Change Campaigns (BCCs) are interventions that influence the adoption of environmentally sustainable behaviors in a target audience (Veríssimo et al. 2019). BCCs combine different disciplines, including the concepts and principles of social marketing, behavioral models used in sociology, and analytical tools used in conservation biology (Bowie et al. 2020).

BCCs has been increasingly used in the last decade to reduce demand for wildlife, with interesting examples in tigers (Saypanya et al. 2013), rhino horns and ivory (Olmedo et al. 2017; Greenfield & Veríssimo 2019), consumption of bushmeat (Chaves et al. 2018), and use of wildlife for traditional medicine (Chunwang Li 2015).

BCCs are focused on promoting alternatives to current, environmentally unfavorable behaviors. In the context of illegal wildlife trade, this translates into providing alternatives to wildlife use. Essentially, this involves either reducing wildlife use, or redirecting use to another more sustainable resource (e.g. captive bred animals) (Moorhouse et al. 2020).

Unlike awareness or environmental education interventions, BCCs does not assume that behavior change will occur simply by increasing knowledge or promoting pro-environmental values or attitudes. Research in BCCs establishes that it is also necessary to overcome barriers that are psychological (such as ingrained habits, or feelings of inefficacy) and social (such as wildlife-consuming traditions and social

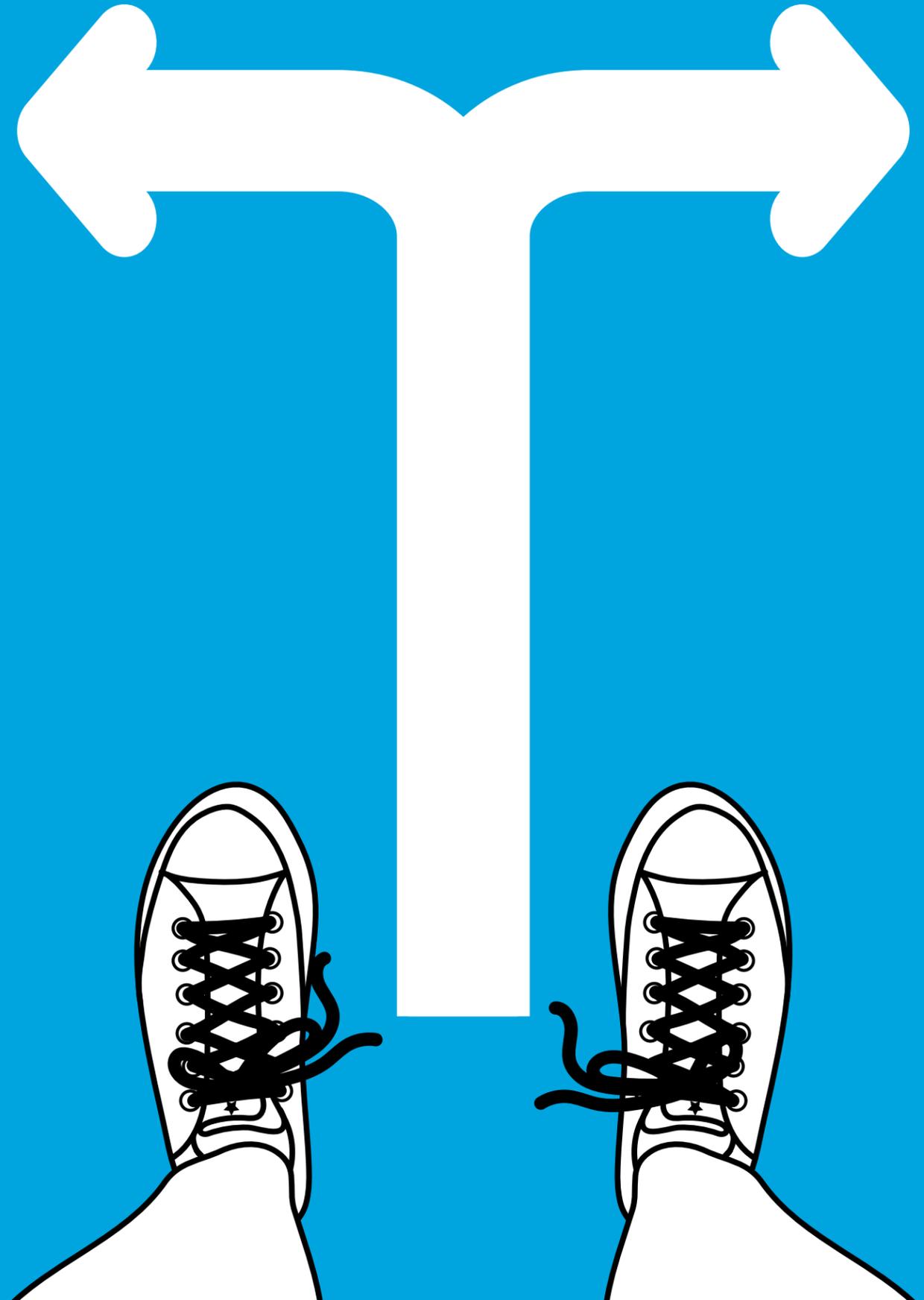




norms, or costs to change) (Heberlein 2012; Sánchez-Mercado et al 2021). A central aspect of BCCz is helping people to overcome such barriers, so that good attitudes have an unobstructed route to drive actions.

However, to promote alternative behaviors, it is necessary to understand current, existing behaviors, including why and how they occur, and what must be change (Rare and The Behavioral Insights Team 2019; Hollingworth & Barker 2020).

Thus, the first step in designing an effective BCC is to have a detailed understanding of the focal behavior(s) to be influenced, and an understanding of tools used to evaluate behaviors and their changes (Olmedo et al. 2017; Thomas Walters et al. 2020).



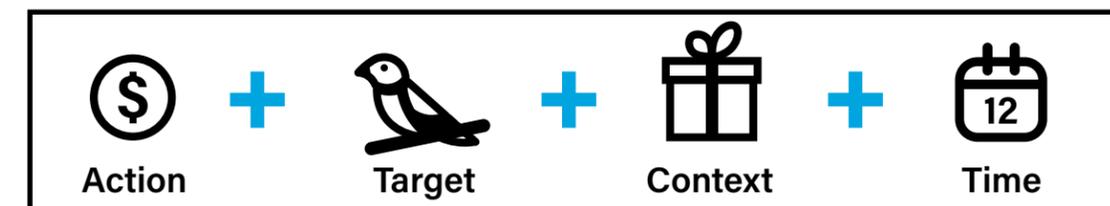
02

WHAT IS BEHAVIOR AND HOW IS IT ASSESSED?

2.1 DEFINING BEHAVIOR

Behavior is comprised of four components (Ajzen 2011):

- The performed *action*.
- The *target* toward which a given action is directed.
- The *context* in which the action is performed.
- The *time* at which the action is performed.

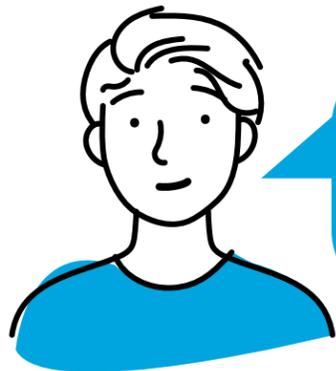


For example, the behavior of “buying (action) a wild-caught bird (target) to give to my mother (context) on her next birthday (time)” is a different behavior than “buying (action) this year (time) a wild-caught bird (target) to replace the one that I lost (context).” The change of context and time makes these two behaviors different, even though the action and the target are the same.



In general, behavioral theories propose that people’s decisions to behave in a certain way is guided by their beliefs, which originate from different sources (personal experience, formal education, media, interaction with family or friends, etc.). Additionally, the context of the person (such as demographic characteristics, religion, and ethnicity) may influence the type of information they receive and how it is interpreted (Fishbein & Ajzen, 2010).

2.2 SELECTING A BEHAVIORAL MODEL

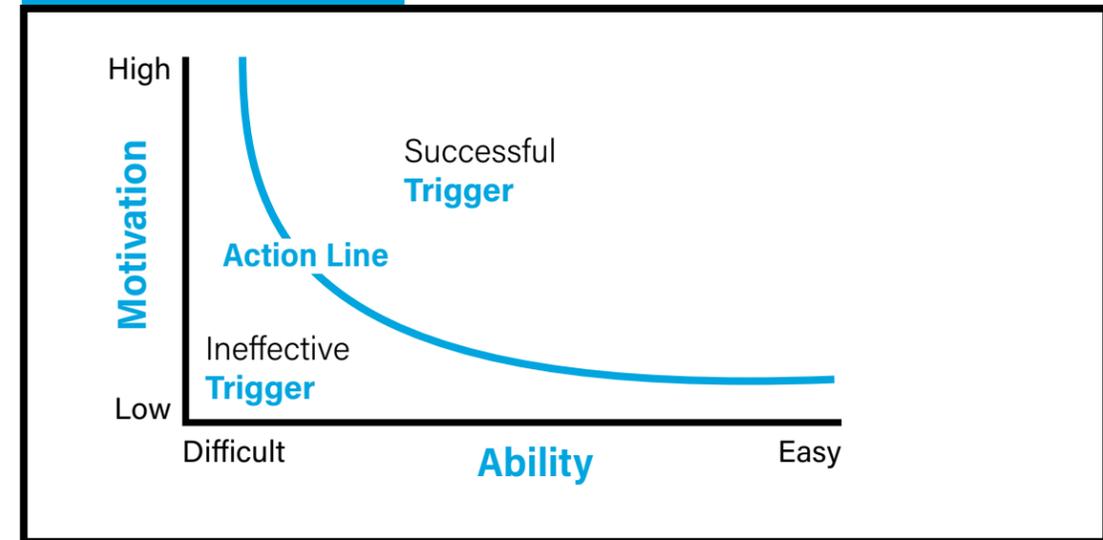


There are different models to describe which beliefs and contextual factors influence the behavior (Hollingworth & Barker 2020).

For example, the **B=MAT model** proposes that behavior is the result of three specific elements that come together at the same time: (M) for motivation, (A) for ability (barriers and capacity) and (T) for successful trigger. The model proposes that there is a tradeoff between motivation and ability. If motivation is high enough, people will overcome barriers and capacity deficits. Similarly, if ability is high enough or the behavior is simple enough, people can overcome low motivation and still perform the behavior (Hollingworth & Barker 2020).

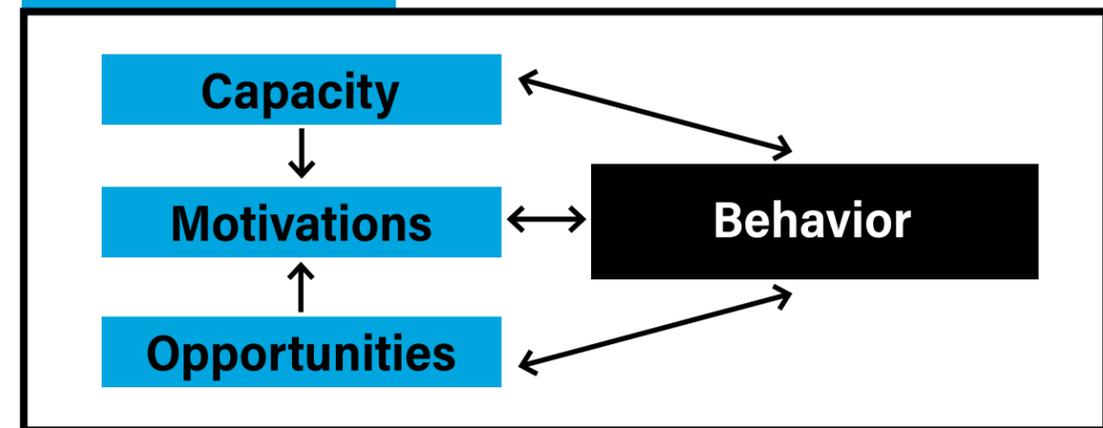
What is behavior and how is it assessed?

B=MAT Model



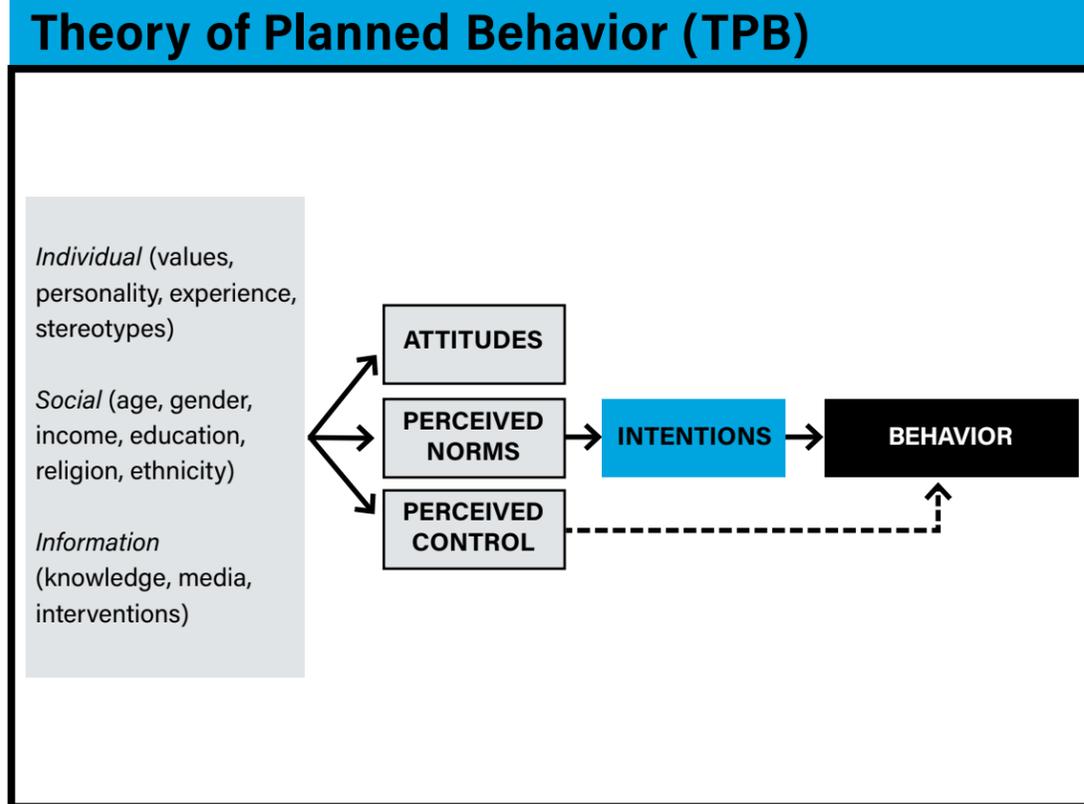
Another behavior model is **COM-B**, which proposes that for people to perform a behavior (B), three interacting elements are needed: capacity (C), opportunity (O) and motivation (M) (Thomas Walters et al. 2020). Capacity and opportunity must coincide at the same time for motivation to generate behavior. In this model, capacity and opportunity influence motivation, rather than the behavior itself. The greater the capacity and opportunity, the more likely a behavior will occur, because motivation is higher.

COM-B Model



Finally, one of the most widely used behavioral models in conservation biology is **the Theory of Planned Behavior (TPB)** (Ajzen 2011). TPB proposes that a person's intention to perform a behavior is the best indicator of actual behavior. Intention in turn is modulated by three types of beliefs. The first is the belief regarding positive and negative consequences associated with a given behavior, which determine a person's attitudes. The second belief relates to perceived norms: beliefs regarding whether other people approve of our behavior (inductive norms) or belief about what is socially accepted (inductive norms). Finally, the third belief is regarding perceived control, or the external factors helping or preventing specific behaviors. As a rule, the more favorable the perceived attitudes and norms, and the greater perceived control is, then the greater the intention to behave in a certain way – and the greater probability of performing the behavior (Fishbein & Ajzen, 2010).

What is behavior and how is it assessed?



Cada modelo tiene diferentes fortalezas:

- B=MAT** Useful for working at a strategic level, such as defining motivations or identifying barriers to change (Thomas Walters et al. 2020). Less useful for work with specific behaviors.
- COM-B** Because of the emphasis on triggers of behavior in this model, most useful when the behavior is susceptible to persuasion (adopting new technologies, organic products).
- TPB** Applicable to a wide range of behaviors. Unlike other models, this includes the influence of social norms as a key factor for both initiating and maintaining behavior.



As social norms have been identified as an important component explaining intentions to adopt pro-environmental behaviors (Harland et al. 1999; Steinmetz et al. 2016), in this guide we focus on TBP as the main model to describe behavior and design BCCs to reduce demand for wildlife.



2.3 UNDERSTANDING BEHAVIORAL MOTIVATIONS

Once the target behavior is defined and a model is selected to describe it, the next step is to define how the set of beliefs motivating behavior may be summarized into and influenced by coherent and interrelated factors. That is, the next step is to formulate hypotheses about how beliefs generate the target behavior.

A hypothesis is a description of how the world works and generates specific predictions that may be tested. In the formulation of hypotheses, specify what to compare or contrast as well as the expected pattern.

For example, actors in the illegal trade in jaguar may be motivated by a lucrative market for jaguar skins and products (a "profit" hypothesis), or because they use jaguar products for traditional medicine (a "cultural" hypothesis). Alternatively, actors may be motivated to engage in illegal trade by jaguar - rancher conflicts (a "retaliation" hypothesis).

To use the TPB model to describe and test which hypothesis best explains behavior within the target audience, alternative predictions could include:

A. Attitudes

If jaguars are perceived as resources, not as threats, then the audience is predicted to have mostly neutral attitudes towards living with jaguars, an observation which would support the profit and cultural hypotheses. In contrast, if jaguars are perceived as antagonists, then negative attitudes towards living with jaguars will be more prevalent in the focal audience, supporting the retaliation hypothesis.

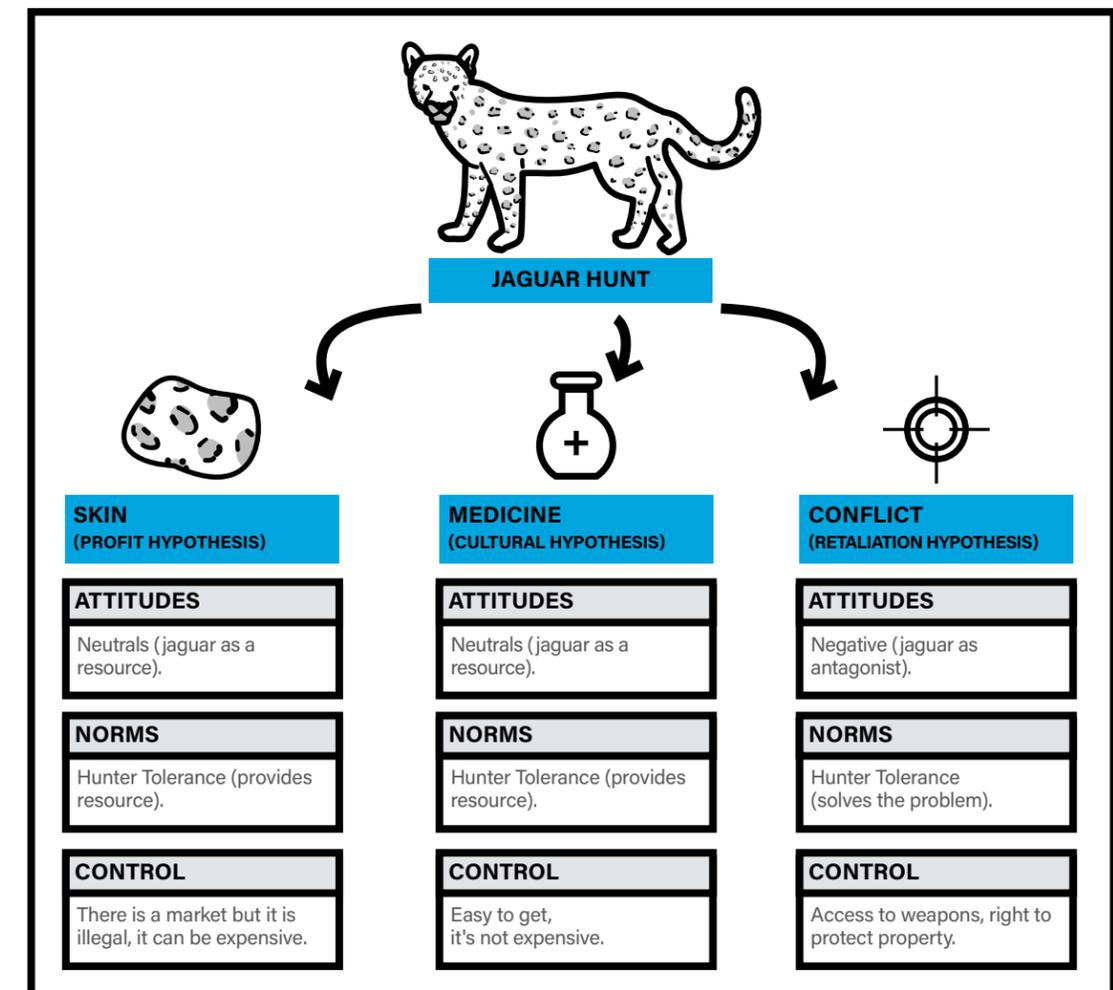
What is behavior and how is it assessed?

B. Social norms

Under the profit and cultural hypotheses, high social acceptance of and appreciation for poachers is predicted, because they provide the needed resources. Similarly, under the retaliation hypothesis, poachers are the one who solve conflicts with ranchers, also predicting in higher acceptance. Thus, in this example, investigating social norms will not be useful for discerning among hypotheses.

C. Perceived control

Under the profit hypothesis, a higher perception of risk for legal consequences is predicted within the audience, while under the other hypotheses this risk is not predicted to be a major concern.

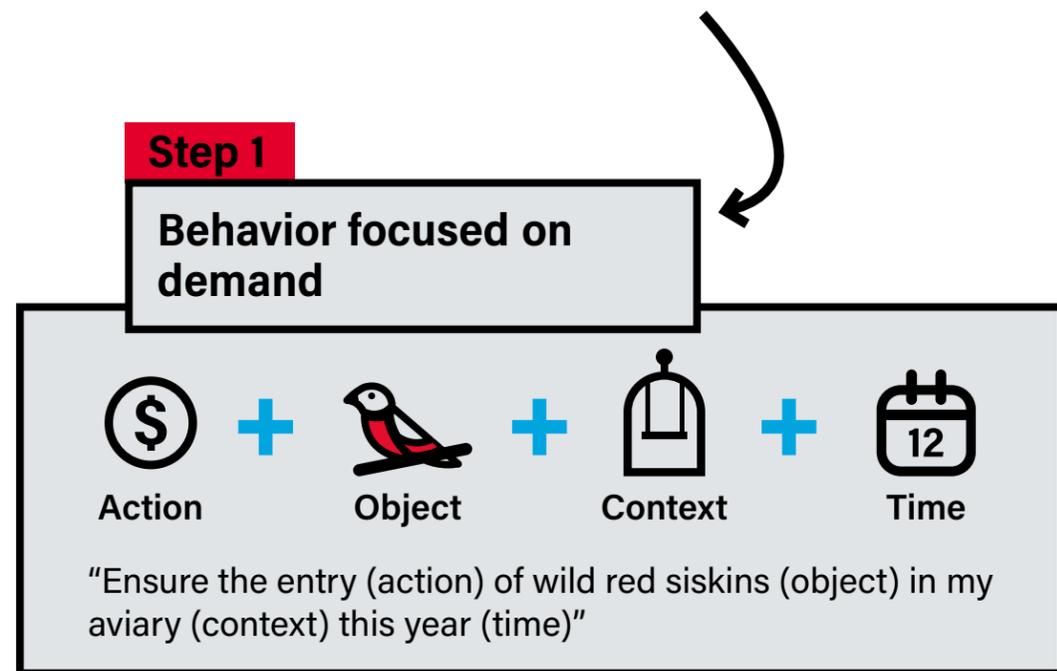
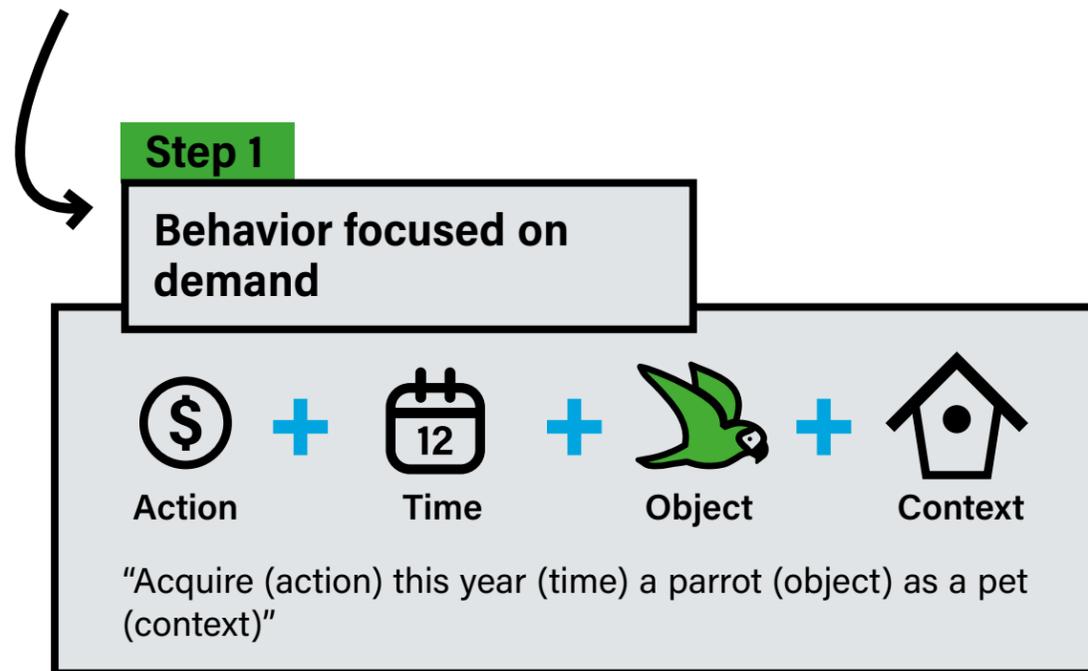


CASE STUDIES:

Defining behavior and understanding motivations

 **The Yellow-shouldered Amazon**
(Sánchez-Mercado et al. 2021).

 **The Red Siskin**
(Cardozo-Urdaneta et al. unpublished data).

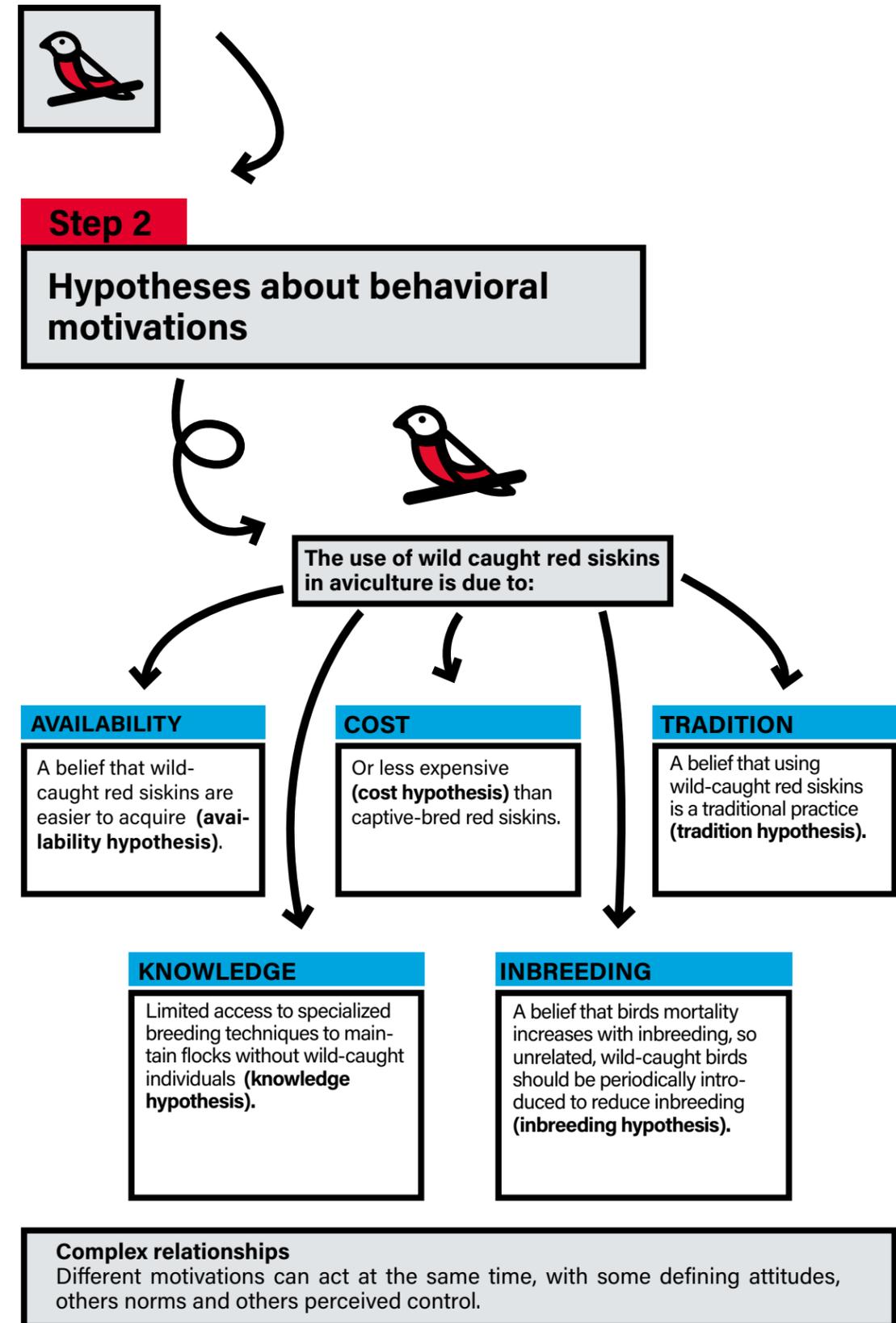
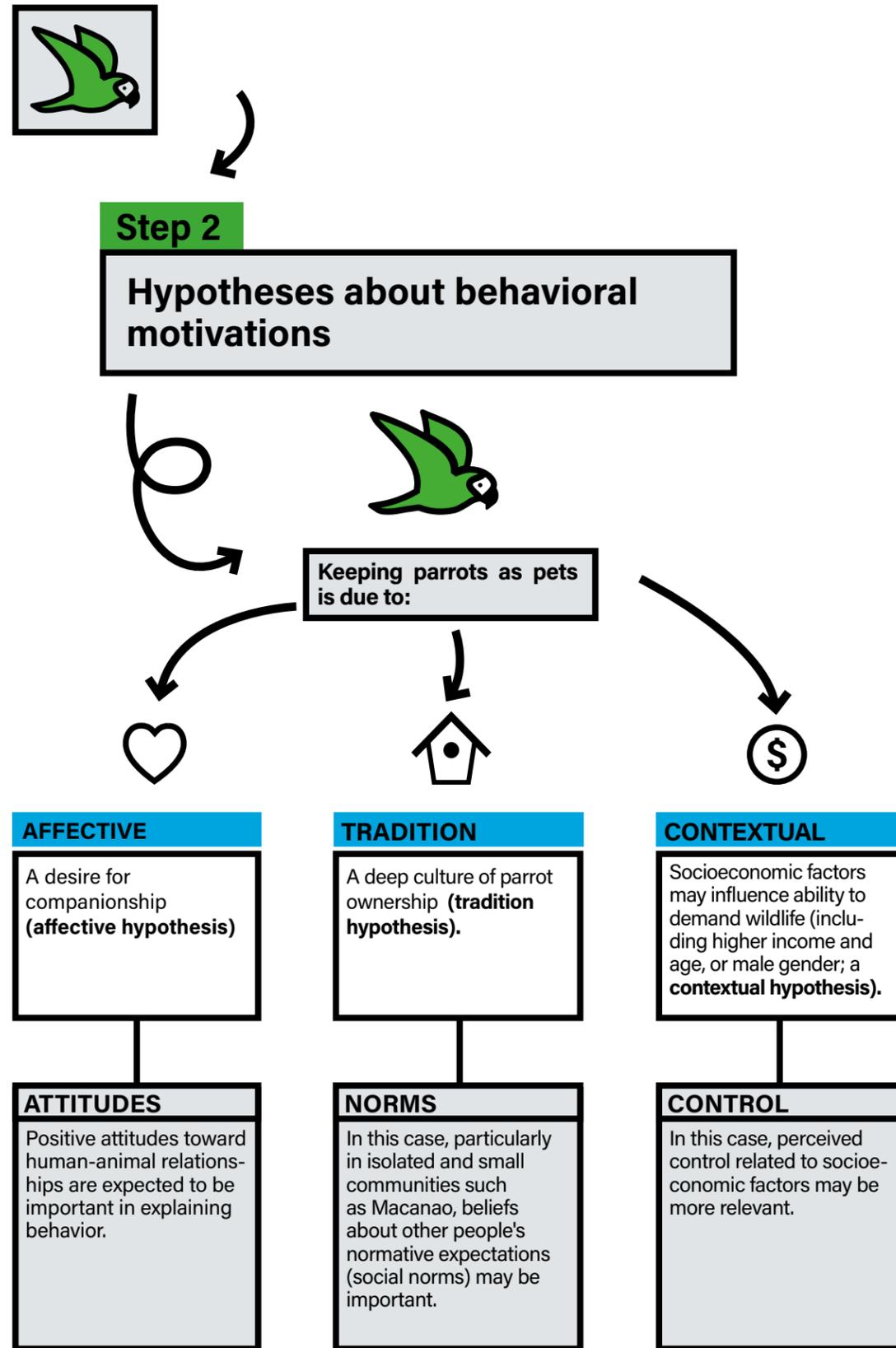


We use "acquire" and not "buy", because this includes all possible ways in which parrots may be obtained, including purchase, gift, or direct extraction from the environment.

We use "ensure the entry" and not "buy" to describe demand, because this includes all possible ways that red siskins may enter an actor's hands, whether through purchase, trade, barter, or capture.



CASE STUDIES:

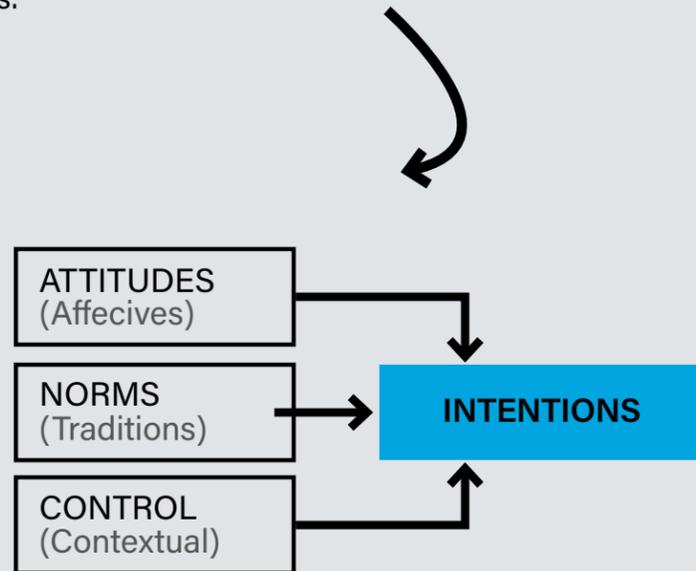


CASE STUDIES:



Step 3
Behavioral model

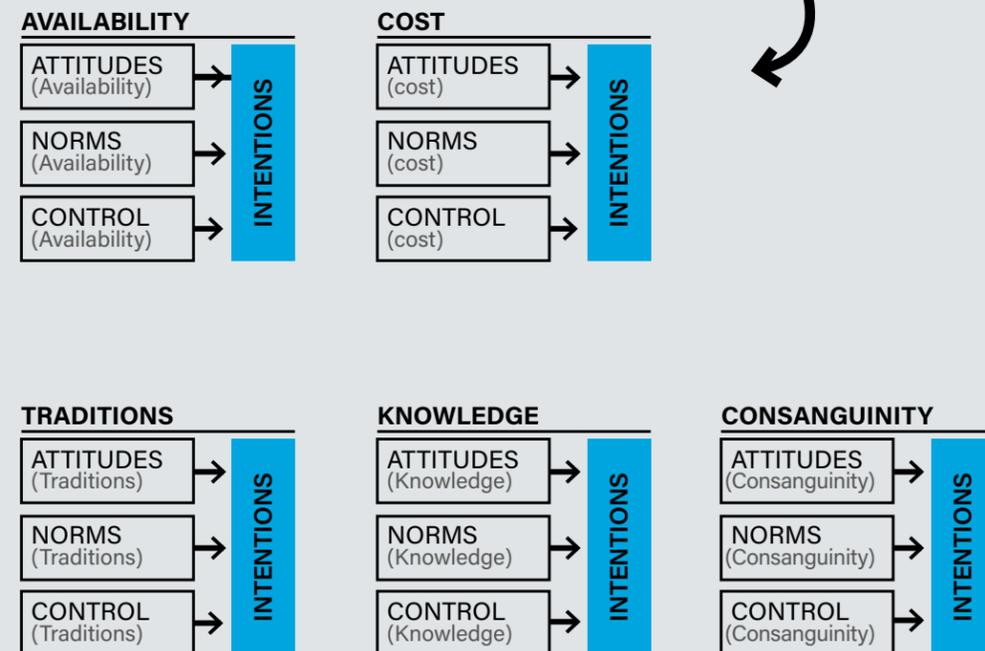
We propose that each component of the TPB is influenced by a particular motivation, which may be formulated into a hypothesis: attitudes are influenced by affection; norms by tradition; etc. Many examples in the literature use this approach to relate components within the TPB to motivations.



Step 3
Behavioral model

Quando se tienen muchas hipótesis diferentes sobre las motivaciones del
When many different hypotheses about behavioral motivations are held, it is more difficult to directly predict which motivation affects attitudes, norms, or control: different motivations would be co-occurring, with some driving attitudes, other norms, and other perceived control.

To evaluate this much more complex scenario, we should evaluate different models for each motivation (hypothesis):



IN SUMMARY

Regardless of the behavioral model selected, the important thing is to select one at the start and stick with it for design of the BCC. This will help not only to understand focal behavior, but also to support:

- **Scientific rigor:** Using models supports analysis of behavior in a structured way, defining concepts and processes (causes and predictions). This is useful and necessary when working with an interdisciplinary group, as it establishes a common language, facilitating communication. Otherwise, similar concepts may have different names in different disciplines.
- **Effectiveness and efficiency:** Identifying causes and predictions, and assessing the relative importance of driving factors, will help identify which motivation is most important for influencing the desired behavior. Focusing on this motivation should produce the most change at the minimum cost, resulting in an efficient use of resources, increasing cost/effectiveness ratio.

Because the Theory of Planned Behavior considers social norms to be an important driver explaining intention to adopt pro-environmental behaviors, we focus on this behavioral model in this toolkit, although there are others.



03

WHAT IS A BASELINE STUDY OF AUDIENCE AND BEHAVIOR?

Baseline studies results in a set of information that may allows, in the case of a BCC:

- The description and better understanding of a target behavior;
- The description and understanding of an audience for the campaign (that is, the people or “actors” targeted by the BCC);
- The definition of a starting point from which to measure the impact of the BCC.

In this toolkit, we describe how to develop exploratory baseline studies to characterize a *behavior* and the *audience*, which are essential inputs for designing a BCC. Baseline studies to measure the *impact* of a BCC are addressed in other toolkits.

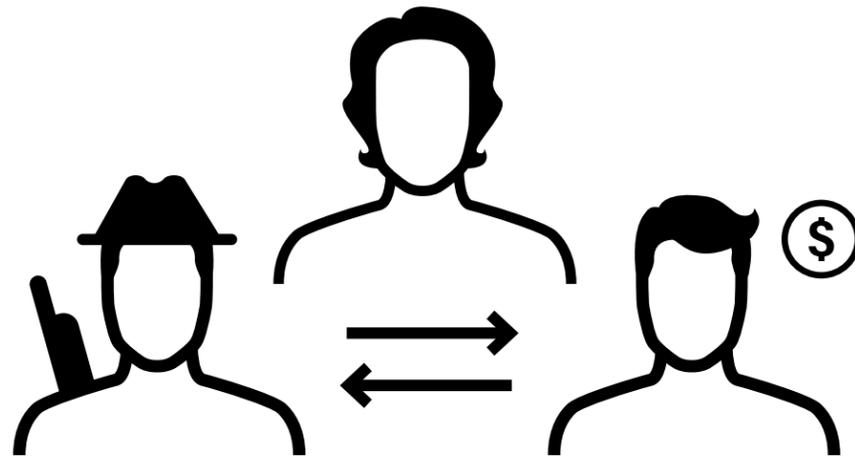
The type of information needed in a baseline study, and the strategies for obtaining it, depend on the study goal.

If the goal is to **define the audience**, then information is needed to answer questions like:

- ¿Who is involved in illegal trade of this species/product?
- How do these actors impact trade dynamics?
- What is the "profile" of key actors?
- What are the factors influencing or triggering behavior?
- What is the most effective way to reach and influence these actors?



For example, let's return to the example of the illegal trade in jaguars. Imagine you want to reduce illegal trade in jaguars among the inhabitants of Venezuela's lowlands. Evidently "the inhabitants of Venezuela's lowlands" is a large and heterogeneous group, made up of different types of actors, acting at different levels in the trade chain, either as suppliers, intermediaries, or consumers (Phelps et al. 2016). Each of these actors may have different motivations to hunt, process, sell, and buy jaguars.



If your goal is to **understand trade dynamics**, then some questions that could be useful to answer may include:

- What specific products are involved? (live individuals? pelts? organs?)
- What is the volume and frequency of items traded?
- Is there a preference for a particular product (e.g., a particular species)?
- What is the number of people (or proportion of people), who currently buy/use illegal wildlife products in your study area?

Continuing with the jaguar example, why are jaguars traded? For its skin or other parts, or live animals? Is the demand for only males, or for both sexes? How many animals are hunted, processed, sold, and bought per year? Is it always jaguars, or are people trading other big cats too?

3.1 BASELINE STUDIES TO DEFINE THE AUDIENCE

To define to who to target in your BCC (that is, who is your *audience*), you need first to understand three basic aspects of the illegal trade:

A. Are trade dynamics driven by supply or demand?

In trade driven by demand, the relationship between price and quantity of items traded will tend to maximize consumer "utility." In a demand-driven market, suppliers (poachers, extractors), will strive to maintain a product level that satisfies demand, with few variations in price and quantity year-round if demand is also constant (Mcnamara et al. 2016). In contrast, in a supply-driven trade dynamic, price and quantity are expected to vary over time in response to product constraints (e.g. the target species may be more abundant and so less expensive during its breeding season).

B. Who are the actors in the trade chain?

Within the trade chain, there are different actor types that you may characterize according to their basic role in the trade (for example, hunter, processor, intermediary or consumer) You also may also develop do a more detailed description of each actor type, based on their demographics (age, gender), socioeconomic (education, employment status), cultural traits (ethnography, religion, language) or other relevant factors.

Typology of actors

The following types of actors in the illegal wildlife trade (Phelps et al. 2016) is a comprehensive list of all possible categories of people that may be involved. Any given trade chain may involve only a few or several of these.

Traffic chain level	Type	Description
Supplier	Subsistence hunte	A person who extracts/poaches/ harvests, usually on a small scale, for domestic or local use (food, cultural).
	Commercial specialist	A person who extracts/poaches/ harvests with an explicit commercial orientation, often involving specialized skills or technologies. The commercial specialist can be both self-employed and hired harvesters, as well as by residents and non-residents.
	Opportunist	Person who extracts/poaches/ harvests in chance encounters and circumstances, in which extraction was not the main objective or livelihood strategy.
	Local guide	Residents hired to guide non-resident hunters/ extractors/harvesters.
	Offender	Person who poaches/extracts/ harvests knowing abuse of harvest rules, such as quotas (hunting bans, size limits), geographic limits (protected areas) or restrictions on technology (certain traps, nets).

Traffic chain level	Type	Description
Supplier	Bycatch	Person who unintentionally poaches/extracts/harvests species that were not the original target
	Recreational hunter	Poaching/extracting/harvesting as a hobby.
	Reactionary hunter	Person who poaches/extracts/ harvests for retaliation or conflict with fauna.
Intermediary	Logistics expert	Person involved in request, compilation, transportation, financing, and planning of wildlife trade. Their participation can be direct or remote.
	Smuggler	Person in charge of transporting wildlife that requires specialized actions to evade detection or negotiate access, usually across borders.
	Official	Person who, holding an official government position (park ranger, police, judge, prosecutor), facilitates illegal wildlife trade, whether for financial (corruption), social or personal benefit.



Traffic chain level	Type	Description
Intermediary	Third party	External services contracted to support illegal wildlife trafficking, but potentially not knowing the nature of the product (commercial land or air transport)
	Processor	Involved in product transformation (skinner, medicine preparation, husbandry).
	Launderer	Involved in introducing specimens from illegal trade into legal markets (through processing operations or captive breeding).
	Seller	Engaged in direct sales to consumers or other intermediaries.
Consumer	Medicinal user	Person who uses fauna for medicinal practices.
	Ornamental user	Person who uses wildlife for ornaments or as pets (ivory, rugs, songbirds, parrots, aquarium fish).
	Cultural user	Use associated with ancestral traditional practices (feathers, pelts, ritual harvest).

Traffic chain level	Type	Description
Consumer	Gift recipient	Use as a gift, often to gain/ demonstrate status, respect, or affection.
	Investor	Investment use, usually related to high-value species.
	Recreational user	Use associated with the act of recreational gathering (hunting, sport fishing).
	Feed user	Use as food for other animals (fodder, bait, small animals).
	Eater	Use for direct consumption, ranging from luxury consumption to basic nutritional needs.

C. What is the actor's relative importance?

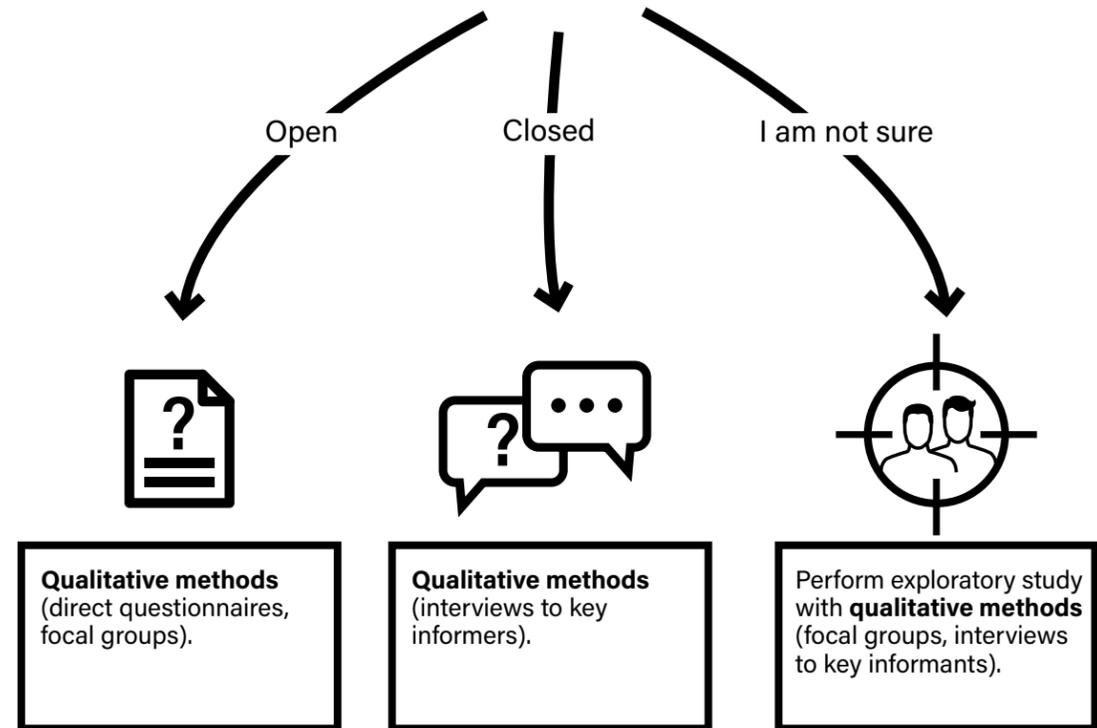
The importance of an actor type may be described in terms of impact: how does the trade chain change if this actor changes their behavior? The impact, in turn, is related to the actor's level of *social* activity (e.g., connection with other actors, number of people involved) and their level of *product* activity (e.g. number of specimens traded, frequency, number of species).



There are different strategies to answer the questions in the three categories above (A, B & C), either using qualitative or quantitative methods. Your choice of one method or another should depend on at least three different factors:

1

how specialized is the traffic structure?
 "Open" trade is understood best with different methods than "closed" trade.



Type of obtained information

Typology:
 What type of actors can be identified in each level of the trade chain?

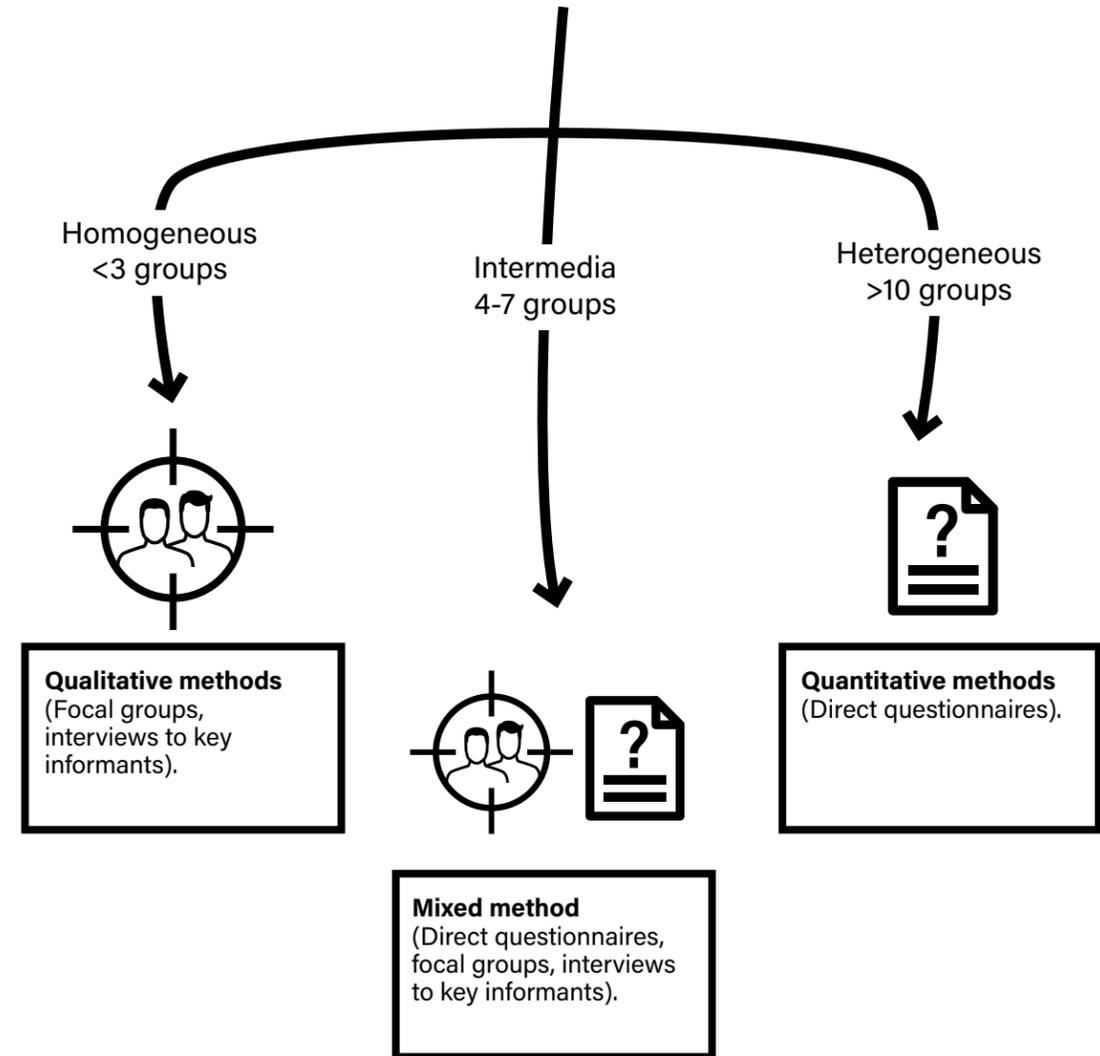
Demography:
 What characteristics (age, gender, education) define each type of actor?

Motivations:
 What is the main incentive (monetary, social, cultural, psychological) for the persons be involved?

What is a baseline study of audience and behavior?

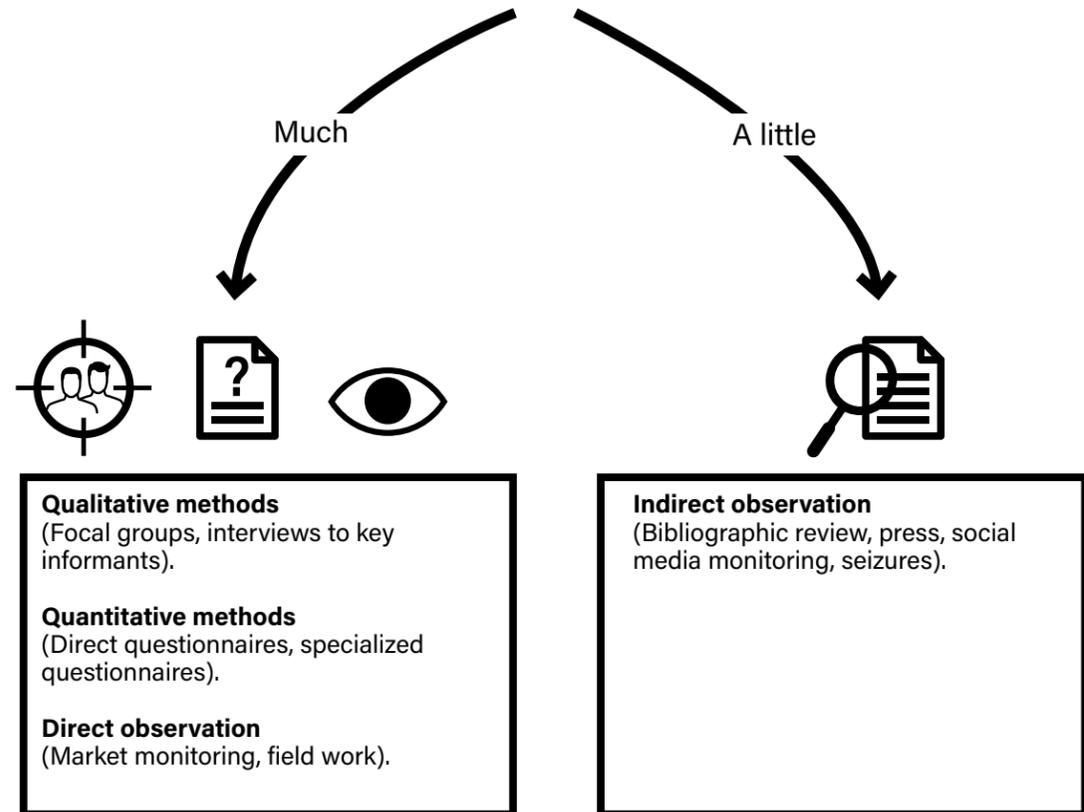
2

How many groups are there in your audience?
 How much do you know about the audience, its size, and complexity?



3

How accessible is the focal audience? How accessible is the community you work?



Qualitative methods
(Focal groups, interviews to key informants).

Quantitative methods
(Direct questionnaires, specialized questionnaires).

Direct observation
(Market monitoring, field work).

Indirect observation
(Bibliographic review, press, social media monitoring, seizures).

Type of information obtained

MAGNITUDE
Scope: What specific products are involved (living individuals, skins, feathers, etc)?
Magnitude: What is the volume of products or number of smuggled specimens?
Preferences: Is there a basic preference towards a particular product (birds in general or a particular species)?
Frequency: How often do they buy/use and how is this frequency distributed among the audience?

STRUCTURE
Interaction: How many different types of actors does a determining actor interact with?
Activity: What is the magnitude (i.e., number of specimens trafficked, frequency, number of species) and nature (purchase, sale, exchange) of this activity? Volume and direction of the relationship.



Selecting the most useful method

Qualitative methods:	
Produce descriptive rather than numerical information. Information may include motivations, activity (role), and how networks function at the actor level. This information allows you to identify actor types and their relationships (the "network structure"). Some qualitative methods include (ILGA Europe 2018):	
<p>FOCAL GROUPS Small groups (usually 6 - 8 people), who meet for 1-2 hours to discuss a topic with a group moderator.</p>	<p>ADVANTAGES</p> <ul style="list-style-type: none"> Provides detailed information about people's beliefs, offering different perspectives. Gives clues to social desirability (what people believe is okay to think and say).
	<p>DISADVANTAGES</p> <ul style="list-style-type: none"> Conversation can be affected by group dynamics (if one person dominates the conversation). Information obtained may not necessarily be representative of the overall community. Data transcription and systematization requires time and skills in specialized information synthesis.
	<p>HOW TO IMPLEMENT IT</p> <ul style="list-style-type: none"> Requires support from experienced moderators, to guide and encourage discussion. To reduce costs, you may hold meetings in public spaces (libraries, schools). Discussions should be recorded somehow; you may do this with audio or video, or by taking notes on whiteboards or paper.

What is a baseline study of audience and behavior?



SEMI-STRUCTURED INTERVIEWS Face-to-face conversations following a flexible script, allowing the exploration of the interviewee's ideas and interests.	ADVANTAGES <ul style="list-style-type: none"> Provides detailed information on interviewee attitudes and beliefs. Encourages people to share information that they may not feel safe or comfortable sharing in a group setting.
	DISADVANTAGES <ul style="list-style-type: none"> Each interview can take a long time, so you will only be able to interview a small number of people. Interview flow will heavily depend on how comfortable/confident the interviewee feels, so results may vary strongly between interviewers.
	HOW TO IMPLEMENT IT <ul style="list-style-type: none"> You will need support from experienced interviewers or to get training in this technique. To increase sample size, use "snowball" sampling: start with a few contacts and ask them if they could provide additional contacts with other people.
DIRECT QUESTIONNAIRES Questions with defined answer options, in which the answer categories are defined).	ADVANTAGES <ul style="list-style-type: none"> May require less effort per interviewee, allowing you to interview more people, and so a more representative sample Because it is easier to derive numerical analyzes from defined responses (proportions, frequencies) your resulting data may be perceived as more robust.
	DISADVANTAGES <ul style="list-style-type: none"> You have a much lower chance of coming across things you didn't know about. You don't get all the details that you gain when talking to people with open-ended questions.
	HOW TO IMPLEMENT IT <ul style="list-style-type: none"> Implementation may be face-to-face or through online platforms like SurveyMonkey or Google Forms. You may use a snowball approach (described above) to identify interviewees.

Quantitative methods: Provide numerical rather than descriptive information – for example, information about trade magnitude and scope. Quantitative methods may be "indirect", such as stakeholder questionnaires (Nuno & John 2015; Olmedo et al. 2019; Ibbett et al. 2021), analysis of seizure records or press releases, or by monitoring social media. Quantitative methods may also be "direct", such as monitoring open markets (street markets), pet stores, or roadside sales.	
DIRECT QUESTIONNAIRES Questions with defined answer options (answer categories defined).	ADVANTAGES <ul style="list-style-type: none"> Allows you to obtain information on quantities and frequency of use.
	DISADVANTAGES <ul style="list-style-type: none"> People may withhold information for fear of retaliation. People tend to underestimate amounts and frequency of wildlife use or only remember exceptional events.
	HOW TO IMPLEMENT IT <ul style="list-style-type: none"> Implementation could be face-to-face or through online platforms like SurveyMonkey or Google Forms. Use a snowball approach to identify interviewees. Alternatively, you could implement a random survey (interviewing people in public places such as markets, squares, bus stops).
SPECIALIZED QUESTIONNAIRES In addition to having defined answer options, these incorporate special ways of asking the questions, and may include the Randomized Response Technique and the Unmatched-count Technique.	ADVANTAGES <ul style="list-style-type: none"> Provide you with accurate estimates of trade volume and frequency of use. Reduce bias due to concealment by ensuring participant anonymity.
	DISADVANTAGES <ul style="list-style-type: none"> Implementation is complex, and interviewees may perceive the "rules of the game" as confusing. If the target behavior is rare among interviewees, estimates of quantity and frequency may be imprecise. Survey design and subsequent results analysis requires specialized knowledge. You will require large samples (> 200 interviewees).
	HOW TO IMPLEMENT IT <ul style="list-style-type: none"> You will need support from experienced interviewers. Implementing questionnaires in quieter spaces, where people can concentrate, will improve robustness in answers. Partnership with local institutions and community groups can help you achieve the larger required sample sizes.



ANALYSES OF CONFISCATION RECORDS Records or databases of seizures by environmental authorities or state security forces.	ADVANTAGES	<ul style="list-style-type: none"> Provide you with a detailed record of the number of items and people involved in local and international traffic. Provide you with detailed information about the species and products involved.
	DISADVANTAGES	<ul style="list-style-type: none"> Species identification may be incorrect or incomplete (e.g. it may be only at the class level such as "fish" or, "reptile"). Access to records may be restricted. Being circumstantial, and influenced both by trade volume as well as enforcement effort, seizures do not provide information on frequency of use or preferences.
	HOW TO IMPLEMENT IT	<ul style="list-style-type: none"> If a systematic and accessible record of seizures exists, then this approach could be very useful. If not, this approach may be very frustrating and difficult. Without official cooperation, you may be facing a brick wall.
MONITORING VISITS TO OPEN MARKETS	ADVANTAGES	<ul style="list-style-type: none"> Provide you with data about the magnitude of local trade (number of items traded). Relatively easy to get rapid results. Provides you with insights into how supply changes over time and between regions.
	DISADVANTAGES	<ul style="list-style-type: none"> Requires trained observers to identify species and products. You will only detect what is openly for sale. Data will tell you what is offered, not necessarily what is traded. Personal safety may be compromised in some cases.
	HOW TO IMPLEMENT IT	<ul style="list-style-type: none"> To understand trade dynamics, select fewer markets and monitor each market for a longer period. To get a snapshot of markets at a moment in time, visit as many markets as possible once, during a short period

MONITORING OF SOCIAL NETWORKS AND ONLINE MARKETS	ADVANTAGES	<ul style="list-style-type: none"> Provides data at local and international level on magnitude (number of individuals), scope (number of species), and trade routes. Fast, cheap, and practical. Gives you information about how supply and demand changes over time and geographically. May allow understanding of trade in distant locations speaking a variety of languages.
	DISADVANTAGES	<ul style="list-style-type: none"> You can only monitor groups that are open or that you have been invited into. Data systematization is time consuming. You will need a well-designed protocol to record it consistently. You may miss important aspects of trade if you don't monitor in a wide range of languages.
	HOW TO IMPLEMENT IT	<ul style="list-style-type: none"> Developing a protocol for data entry will help reduce errors and inconsistencies.
	ADVANTAGES	<ul style="list-style-type: none"> Provides data at local and international level on magnitude (number of individuals), scope (number of species), and trade routes. Fast, cheap, and practical. Gives you information about how supply and demand changes over time and geographically. May allow understanding of trade in distant locations speaking a variety of languages.



Defining the audience for a BCC

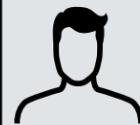
 **The Yellow-shouldered Amazon**
(Sánchez-Mercado et al. 2021).

Step 1

What methods did we use?



Qualitative:
Questionnaires with defined answers, implemented face to face.



496 people from 3 locations in Macanao, Margarita Island, Venezuela.

Step 2

Is trade supply- or mand-driven?



3 out of 10 people on Macanao have a parrot at home.

Average price that a final consumer pay is USD \$1.70 per bird, with little variation throughout the year.



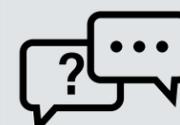
This market is demand-driven.



The Red Siskin
(Cardozo-Urdaneta et al. unpublished data).

Step 1

What methods did we use?



Qualitative:
Semi-structured interviews with open and defined questions (104 people from across Venezuela).



Quantitative:
Monitoring of Facebook & WhatsApp (16 countries, 24 groups, posts from 2013 - 2017).

Step 2

Is trade supply- or mand-driven?



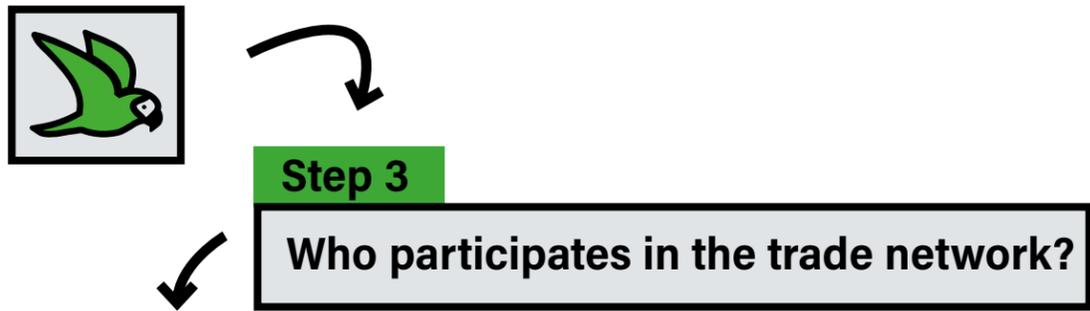
Annual extraction rate 70 ind./ year.

Average cost 40.5 ± 5 USD with little variation throughout the year.

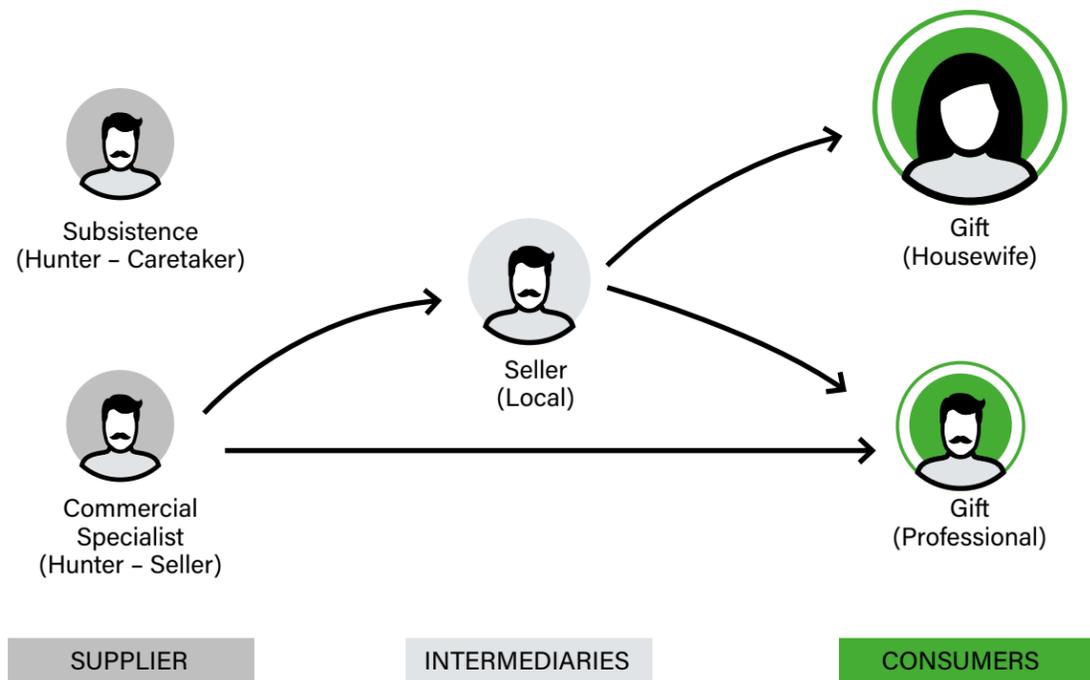


This market is demand-driven.





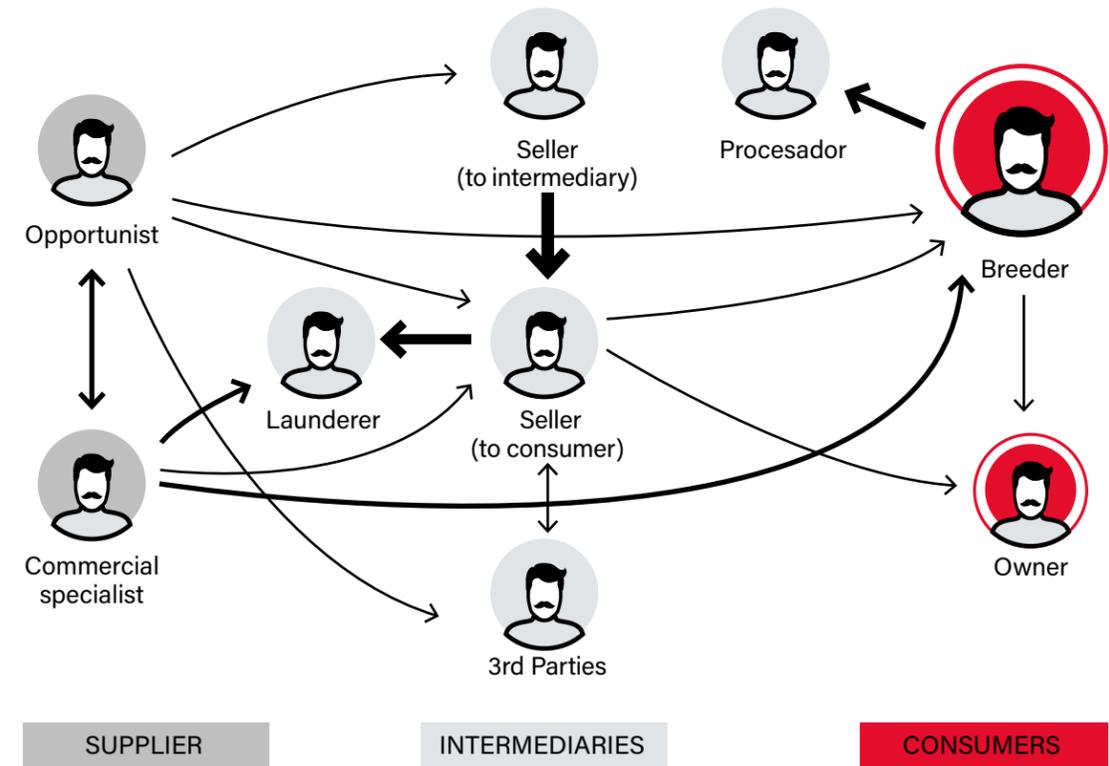
5 actor types (2 suppliers, 1 intermediary, 2 consumers).
The number of actor types identified was small, so actor interactions were easy to describe.



- Icon size is proportional to actor frequency among all participants.
- Social acceptability of each actor varies. People don't like vendors, but tolerate, protect, or justify poachers, and revere gift recipients.
- We only detected local intermediaries, and did not detect sellers to international markets



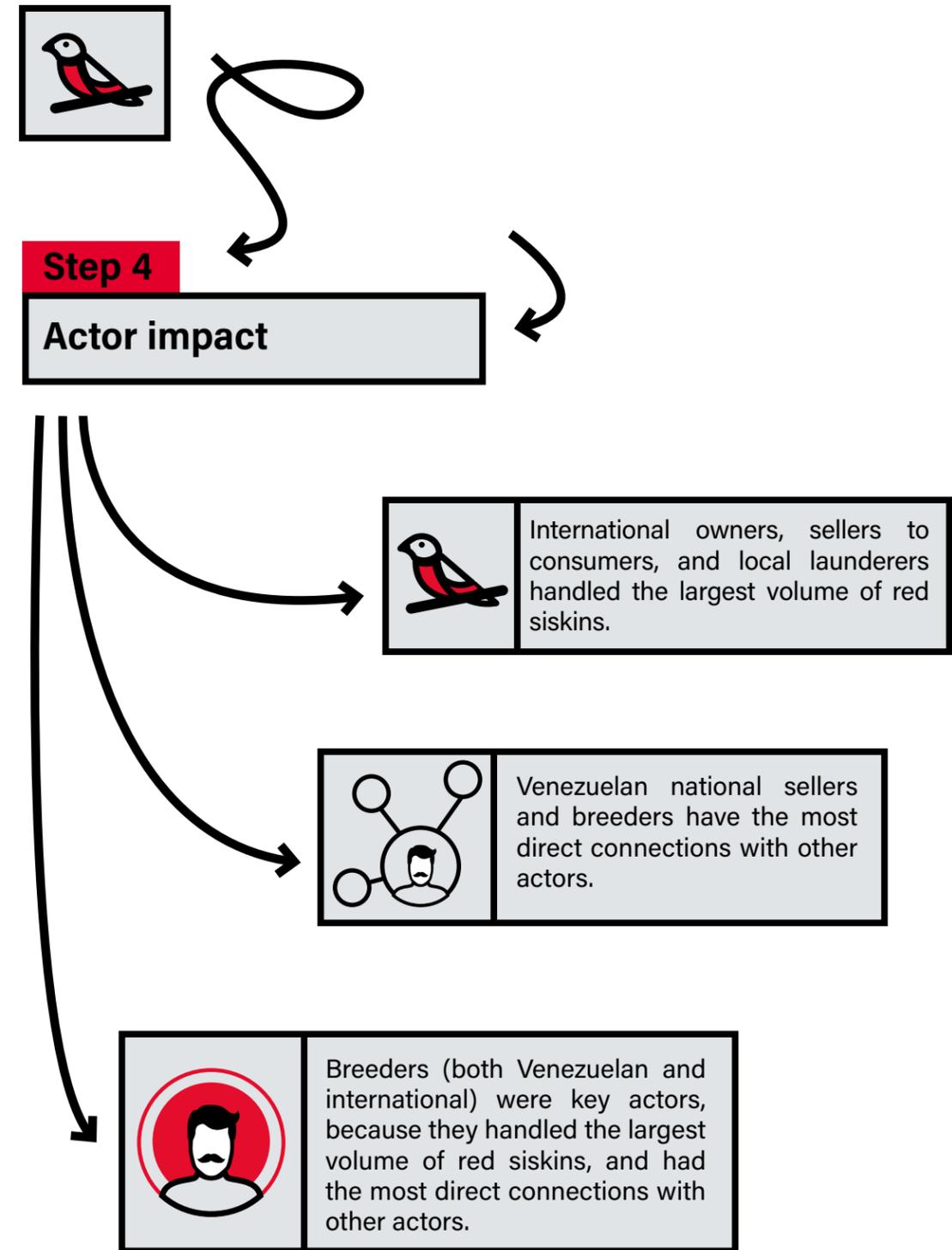
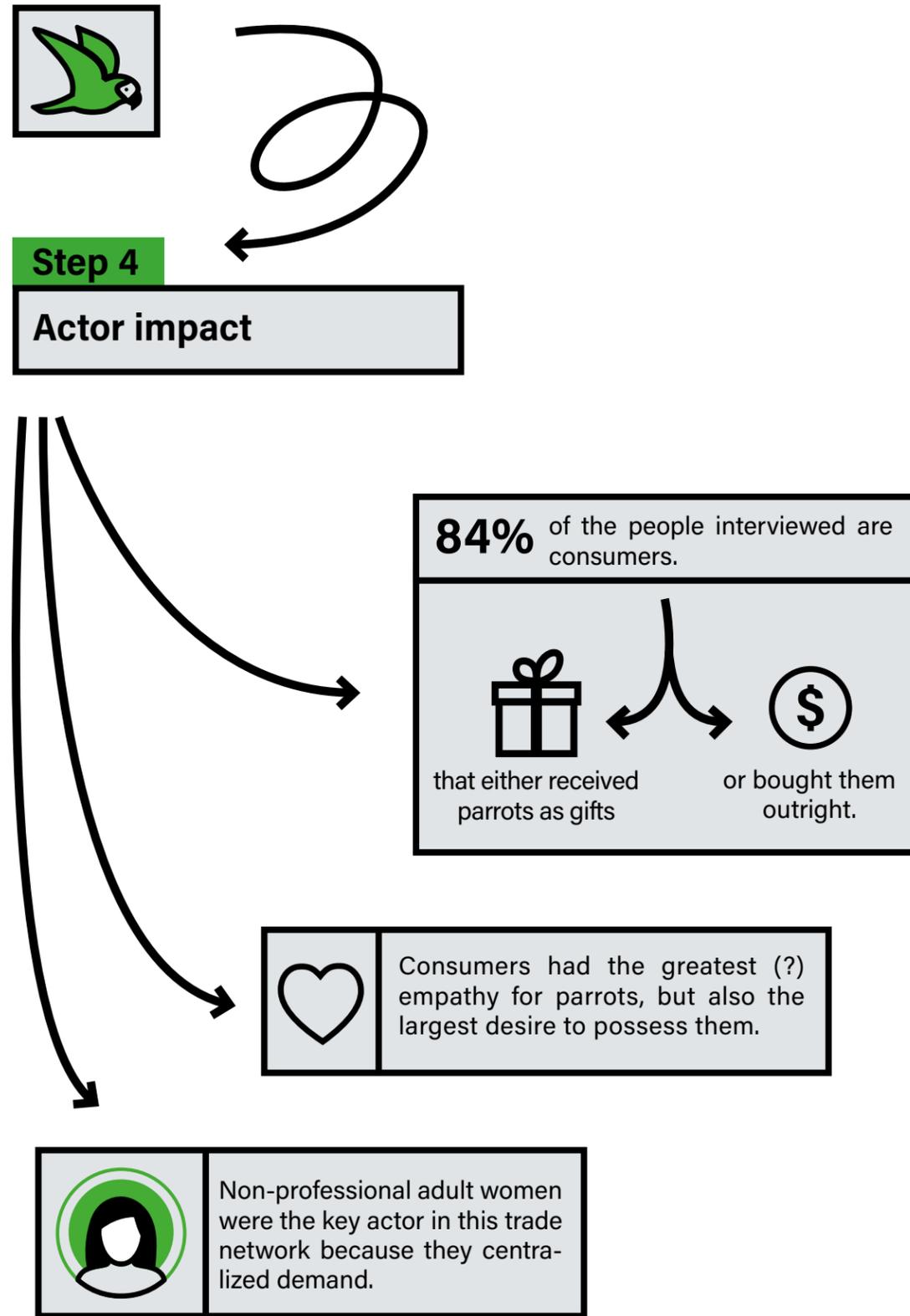
17 actor types (2 suppliers, 11 intermediaries, 4 consumers.)
We identified a large number of actor types, so we performed a formal network analysis to quantify actor interactions.



- Line thickness is proportional to trade volume (number of birds traded). Icon size is proportional to actor frequency among all participants.
- Sellers to consumers have tight connections with other sellers, suppliers, and consumers.
- Breeders are the actors with the highest number of interactions with other actors.
- International trade existed.



CASE STUDIES:



3.2 BASELINE STUDIES OF TRADING BEHAVIOR

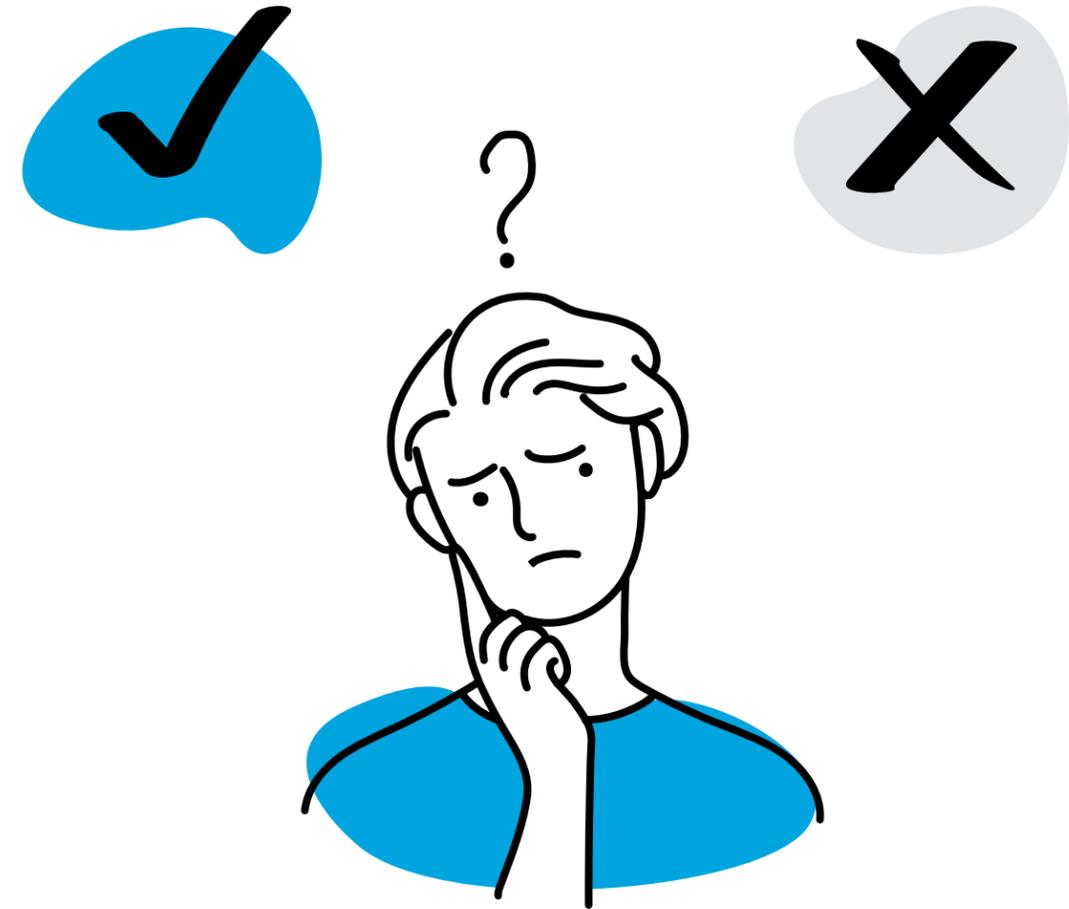
A baseline study to understand the behavior of people involved in illegal wildlife trade should answer two basic questions:

A. Which factors drive behavior?

These factors could be structural or cognitive. Structural factors may be either logistical or economic. For example, a logistical factor would be easy access to or high abundance of the target species or product. If the species or product is inexpensive, or provides low-risk source of income, then economic factors may be important drivers for trafficking. Cognitive factors may be cultural or psychological. Examples of cultural factors include traditional practices, such as medicinal use (Alves & Rosa 2010; Liu et al. 2016), hobby (de Oliveira et al. 2018), or cultural identity (Jenkins et al. 2017).

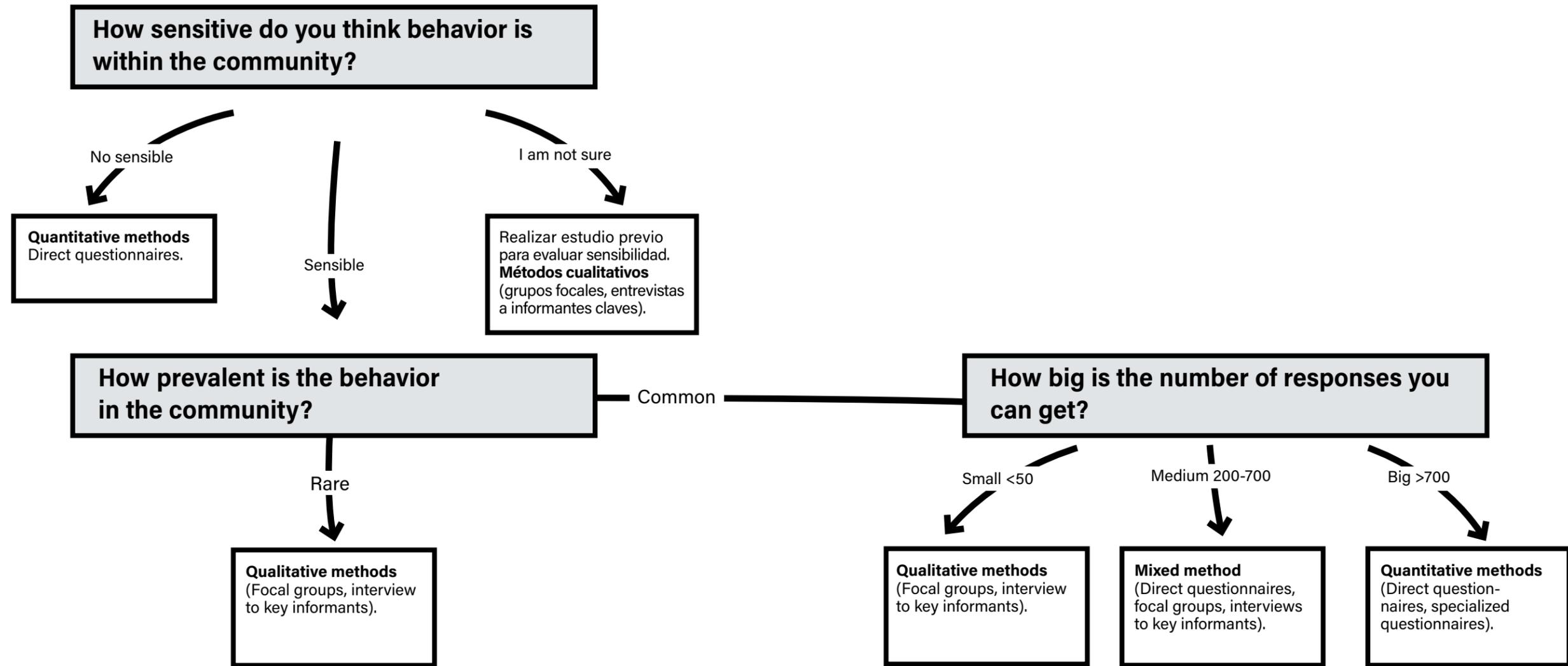
B. What is the relative importance of behavioral components?

Behaviors are actions that are the result of intentions arising from a potentially complex set of internal and external mental processes. These processes include attitudes, social norms, and perceived control over actions. The relative importance of these three processes in predicting intentions varies among behavior types and audience. For example, in behaviors related to health issues (smoking, drugs), attitudes and perceived control are usually the most important components explaining intentions (Godin & Kok 1996). However, for behaviors related to environmental issues, social norms and perceived control tend to be more relevant (Harland et al. 1999; Steinmetz et al. 2016).



Again, qualitative, and quantitative methods may be used to understand the relative importance of different behavioral components. The application of one method or another, or even the combination of both, will depend on:

- How sensitive the topic is within the audience.
- How common the behavior is.
- How many people you can gather data on.



What is a baseline study of audience and behavior?

Type of information obtained

Intention Prevalence:
Number of people (or people proportion) who have the intention of purchasing/using illegal wildlife products

Behavior Prevalence:
Number of people (or people proportion) that currently purchase/use illegal wildlife products

Attitudes:
What is the nature of attitudes (positive, negative) to the proposed behavior?

Social Norms:
What are the more relevant social norms? Subjunctives (what the others do), subjective (what others expect), moral (what is right)

Perceived control:
What are the main barriers for behavior adoption? What are the incentives?



For example, specialized sampling techniques (Randomized Response Technique, Unmatched-count Technique; Nuno & John 2015; Olmedo et al. 2019; Ibbett et al. 2021) may be useful when sensitive questions need to be asked. However, if the behavior of interest is rare within the community, these specialized techniques are not recommended, because they require large sample sizes that may not be realistic. Without large samples, they tend to generate estimates with large standard errors and little predictive power (Ibbett et al. 2021). In these cases, qualitative methods (interviews, focus groups) may be more appropriate.

Another important aspect to decide between qualitative and quantitative methods is the expected sample size. If the community is small and the expected sample size is small (<50 responses), the best option is to use qualitative methods. If the sample is larger, then quantitative strategies can be applied, including direct and specialized interviews such as those mentioned above.



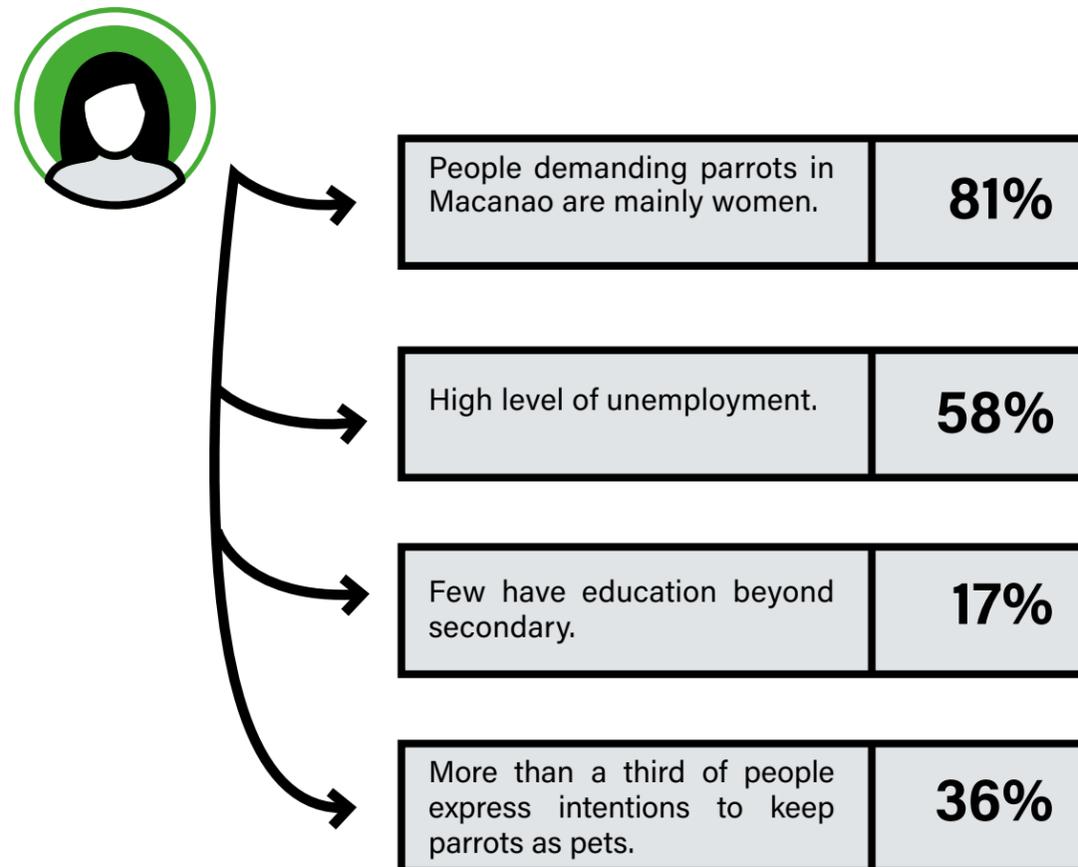
Describing behavior

The Yellow-shouldered Amazon
(Sánchez-Mercado et al. 2021).

Questionnaires with defined questions (Likert scale) 	150 people in 2 locations in Macanao, Isla de Margarita, Venezuela.
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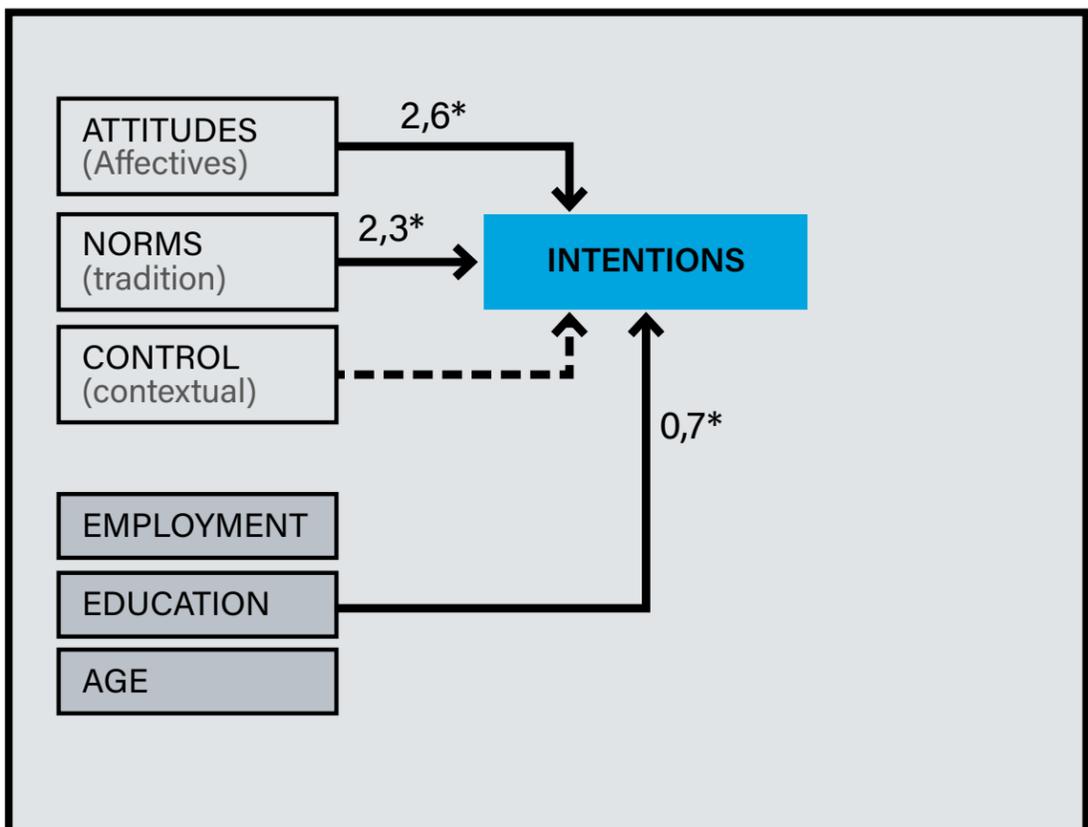
Step 1

Audience profile



Step 2

What factors motivate behavior?



Numbers indicate the standardized regression coefficients associated with each variable in the linear regression. Asterisks indicate a variable's significance level.

- Affective attitudes towards parrots (empathy and affection), is the most important factor explaining intention to keep them as pets.
- Perceived social norms was the 2nd most important factor: Knowing that others approve keeping parrots as pets, increases intentions to keep them.
- People with higher educational levels have a greater intention to have parrots. This suggests that people use their knowledge to reinforce wrong conservation behaviors. Alternatively, it could suggest that more educated people perceive more "moral license" to keep parrots.



 **The Red Siskin**
(Cardozo-Urdaneta et al. unpublished data).

Questionnaires with defined questions (Likert scale).
 **138 people**
 from 18 countries, in America, Europe, and Asia.

Step 1

Actor profile



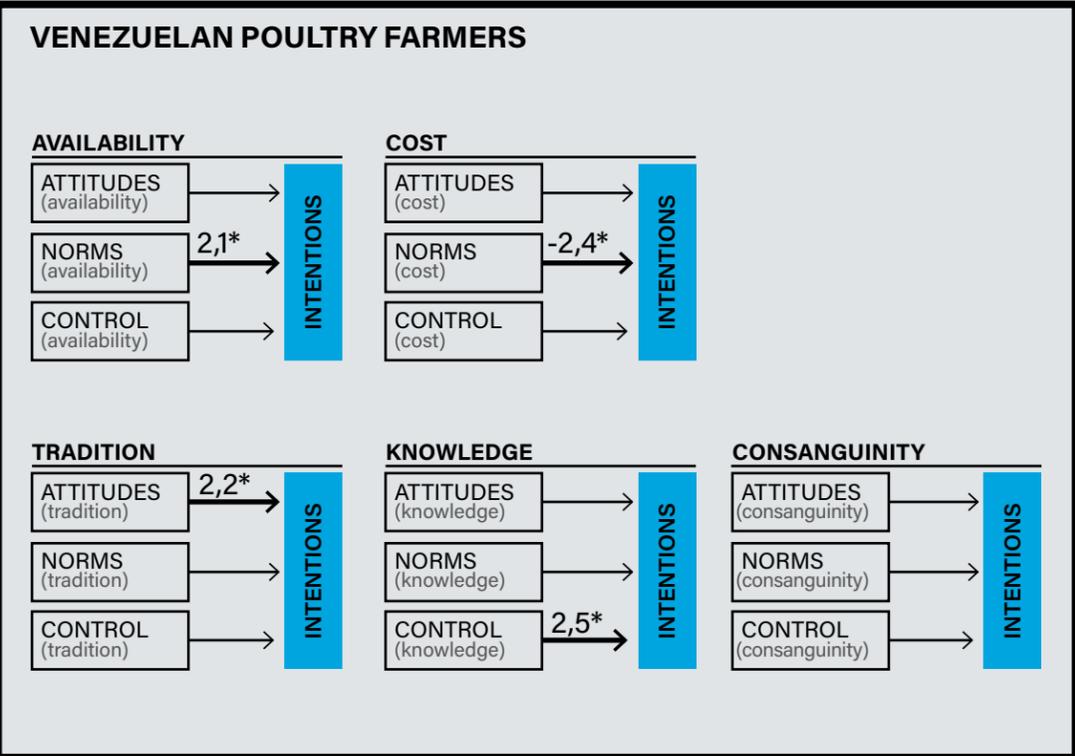
Breeders are mainly men. **90%**

International breeders are younger.
(46 ± 12.3 años)

Most breeders have completed some university studies.
68% international.
90% 90% of Venezuelans.

Paso 2

What factors motivate behavior?



Numbers indicate the standardized regression coefficients associated with each variable in the regression. Asterisks indicate a variable's significance level. Signs describe whether there is a positive or negative correlation between each independent variable and intentions.

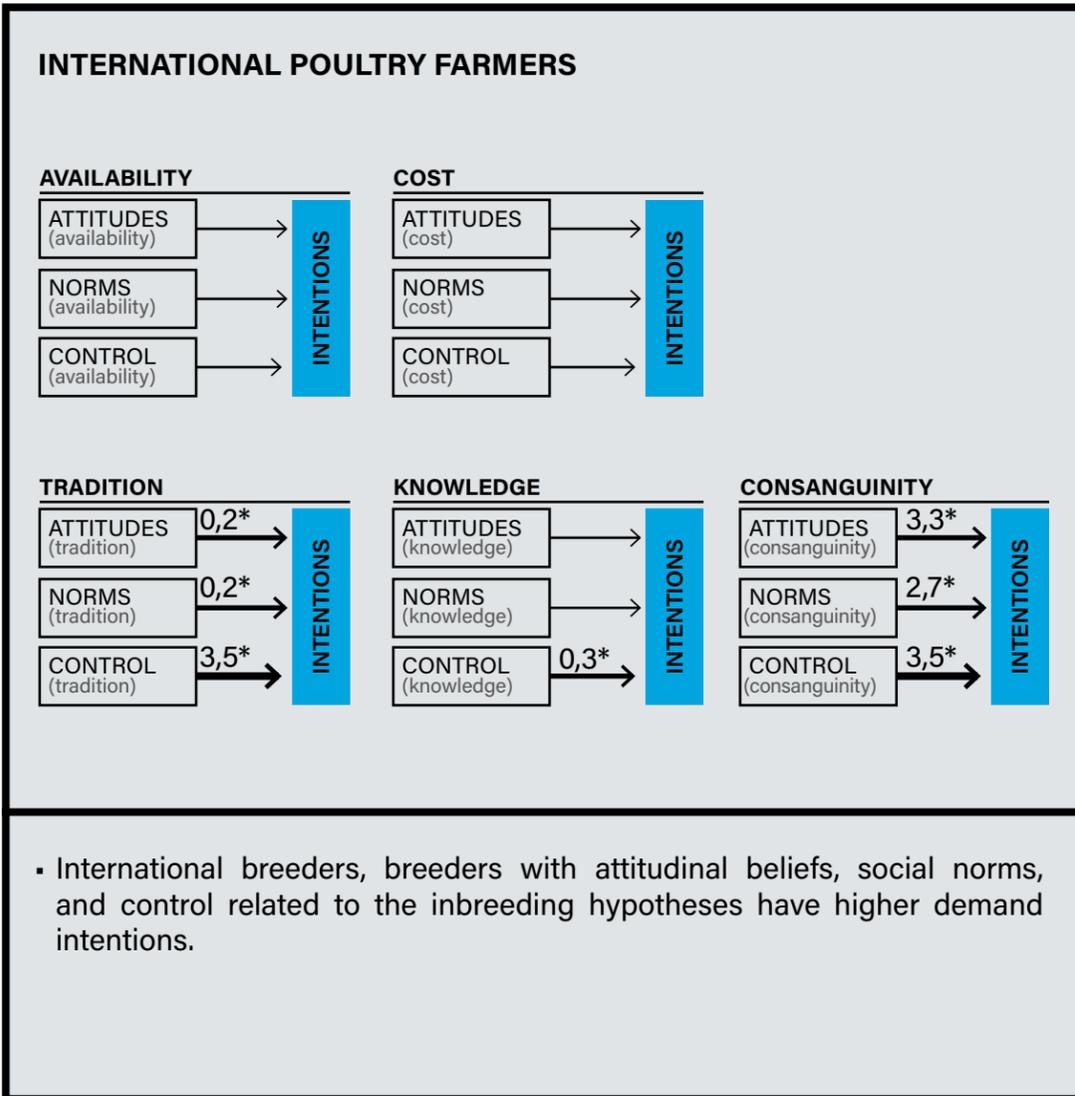
- Intentions to use wild-caught red siskins for captive breeding is more prevalent in Venezuelan breeders (37%) than in international ones (29%).
- Venezuelan breeders perceived control related to knowledge is the most important factor explaining demand intentions in Venezuelan breeders.
- Normative belief that wild-caught red siskins are more expensive is the 2nd most important factor: The higher the cost of wild-caught, the lower are demand intentions. However, this is offset by the belief that wild-caught birds are easier to obtain.
- Venezuelan breeders with positive attitudes toward tradition, have greater demand intentions.





Step 2

What factors motivate behavior?



CASE STUDIES:



IN SUMMARY

- A baseline must provide information on the focal behavior and help to define the audience on which to focus the BCC.
- The decision to use quantitative or qualitative methods to define the audience will depend on how well you know the audience, its size, complexity, and accessibility.
- The decision to use quantitative or qualitative methods to understand the behavior will depend on how sensitive the topic is within the audience, the prevalence of the behavior, and the sample size that you estimate to obtain.
- Ideally, you should combine different methods (quantitative and qualitative) to have robust estimates of magnitude, frequency, use.
- Qualitative methods do not mean that they cannot be systematic. Great deal of information obtained with qualitative methods can be systematized into categorical variables such as the Likert scale, frequency levels, and quantity or proportion of people who mention a particular category (proportion of people who mention the tradition as a demand motivation).



04

HOW TO CONDUCT A BASELINE STUDY?

4.1 QUESTIONS TO ASK TO UNDERSTAND BEHAVIOR



Do you remember the TPB model you used to describe focal behavior?

Now you must return to it, because to understand behavior you must ask questions that allow you to assess attitudes, perceived social norms, perceived control, and intentions.

At this point, it is important to differentiate between attitudes, perceptions, and intentions.

ATTITUDES

Describe a trend (favorable/unfavorable) towards an object (i.e., wildlife demand, hunting) and includes an evaluation towards the object (good/bad, entertaining/boring, important/irrelevant).



PERCEPTIONS

Is a way to consider, understand, or interpret an object, which in turn is influenced by the individual's value schemes, past experiences, expectations, motivations and needs.

INTENTIONS

Capture motivational factors that influence a behavior and indicate how hard people are willing to work to perform the behavior. Generally, the stronger the intention to perform a behavior, the more likely it should be to perform it.

To assess attitudes, perceptions, and intentions, we can use statements and assess them with the Likert scale. The Likert scale uses a 5- or 7-point scale, which encompasses a range of opinions from one extreme (strongly disagree/false) to another (strongly agree/true) and includes a moderate or neutral option (not sure).



Statements assessing attitudes should include an adjective that suggests an assessment. For example, the statement "Keeping wild birds as pets is an important tradition in my community", assesses attitudes by including the adjective "important", while "Keeping wild birds as pets is a tradition in my community", simply assesses a belief.

Statements assessing perceptions are usually stated as beliefs. An example of a statement that assesses perceptions about subjective

norms would be: "My loved ones approve of me having a wild bird as a pet." An example of a statement evaluating perceived control would be: "Parrots are easy pets to keep."

Finally, statements assessing intentions should describe the focal behavior (action, object, context, and time) and should include a word describing desire or disposition ("I would like to", "if I could"). An example of a statement that describes intention would be: "I would like to give my mom a wild bird for her next birthday."

Important aspects when formulating the statements

- Formulate statements, not questions.
- Make precise statements. For example, in the statement: "Wildlife trade is bad" the word "trade" is too general and does not specify whether you are referring to demand, extraction or marketing. Likewise, "wildlife" is a technical and very broad concept. Finally, this statement does not specify why trade is bad. A more specific statement would be: "Poaching parrot fledglings is bad because is illegal." In this case, we indicate which species or product we are referring to and why is this has a negative evaluation.

- Avoid double framing, such as the use of double negatives or affirmations in statements. For example, "Hunting jaguars is not good, because jaguars do not attack cattle." If the person agrees with this statement, it is not possible to know if agrees with the first negation "it is not good to kill jaguars" or with the second, "jaguars do not attack cattle."

- Avoid complex or overly broad statements that are difficult to answer. For example, "Traditional breeding practical are good." In this statement "breeding practical" is very vague. Does it refer to using traditional tools (cages versus aviaries) or the practice itself?

- Formulating the statements consistently, so that the largest scales indicate favorable options towards the desired behavior, will make it easier for you to analyze the results. For example, if we formulate all statements to be pro-demand for Wild Red Siskin, then values of 5 will indicate attitudes, norms, and perceptions of control that favor demand for Siskin.
- Some authors include neutral responses (values of 3 on the Likert scale, "I'm not sure") as positive. In general, there is no consensus on how to treat these neutral responses. In our case, we recommend including only responses with values equal to or greater than 4 as positive.

What questions to ask

The examples are based on the demand for wild birds to keep as pets.

Attitudes	
<p>What do they measure? Degree to which a person has a favorable or unfavorable assessment of the behavior of interest. Involves an evaluation of the results of performing the behavior.</p>	<p>Sample questions:</p> <ul style="list-style-type: none"> Keeping wild birds as pets is an important tradition in my community. Wild births are entertaining or boring pets.



Subjective Norms	
<p>What do they measure? Beliefs about whether most people approve or disapprove of the behavior (subjective norms), or about what the majority does (subjunctive norm), or what it is the person's obligation to do (moral norm).</p>	<p>Sample questions</p> <ul style="list-style-type: none"> My loved ones approve of my keeping a wild bird as a pet. Most people I know have wild birds as pets. It is my moral obligation to protect wild birds.
Control Percibido	
<p>What do they measure? A person's perception of the ease or difficulty of performing the behavior of interest.</p>	<p>Sample questions</p> <ul style="list-style-type: none"> It is very easy to get wild birds in the market. Wild birds are inexpensive. Caring for a wild bird is easy.
Behavioral Questions	
<p>What do they measure? They indicate how likely it is that the person will adopt a given behavior.</p>	<p>Sample questions</p> <ul style="list-style-type: none"> This year I would like to buy a wild bird to have it as a pet.



4.2 STRATEGIES FOR REDUCING BIASES

When you ask people directly about their behavior on illegal or sensitive topics, they may not feel comfortable answering the truth, which can lead to the following biases:

Social desirability bias

It occurs when people answer questions how they think is socially acceptable to others. To reduce this bias, we recommend:

- Emphasize confidentiality of responses.
- Make it clear that there are no right or wrong answers.
- Use an online platform to implement the instrument instead of using interviewers.
- Be very general about the purpose of the survey.

Concealment bias

If the level of mistrust towards the interviewer is high, or if there is fear of reprisals, people may refuse to participate or withhold information. This can happen more often when working in remote rural communities, which tend to have high mistrust of outsiders and authorities. In these communities, researchers may not be perceived as neutral, due to associations with non-governmental organizations or government agencies. The use of specialized interview techniques (Randomized Response Technique, Unmatched-count Technique) (Nuno & John 2015; Olmedo et al. 2019; Ibbett et al. 2021) have been suggested to reduce bias due to concealment. These specialized interview techniques ensure the anonymity of the interviewee, increase the willingness of the participants to respond and, most importantly, make it impossible to directly link incriminating data to a person (Ibbett et al. 2021).

4.3 DEFINING THE SAMPLE SIZE

Sampling size should be bigger enough, so that results can be reliable, statistically significant, and representative of the audience. To determine the sample size, you can follow any of these strategies:

1

Consider the number of statements used to measure the components of the Theory of Planned Behavior (TPB).

2

Estimate the predictive power of the sample to avoid type I (false positive) and type II (false negative) errors.

To calculate the sample size taking the number of statements in the TPB questionnaire, you can follow Crawford & Kelder (2019) recommendation, in which they estimate a minimum of 5 people and an ideal of 10 people per statement. If, for example, there are 16 statements in your TPB questionnaire, then a minimum of 80 people would be needed and ideally 160.

To calculate the sample size, considering the predictive power, you should keep in mind three key concepts:

A. Population size:

The total number of people in the group you want to study. If you want to implement a questionnaire in a town, the population size is the number of houses or the number of inhabitants in each town.



B. Error margin:

A percentage that tells you how well you can expect your survey results to reflect the opinion of the general population. The smaller the margin of error, the closer you are to having the correct answer with a given level of confidence.

C. Confidence level:

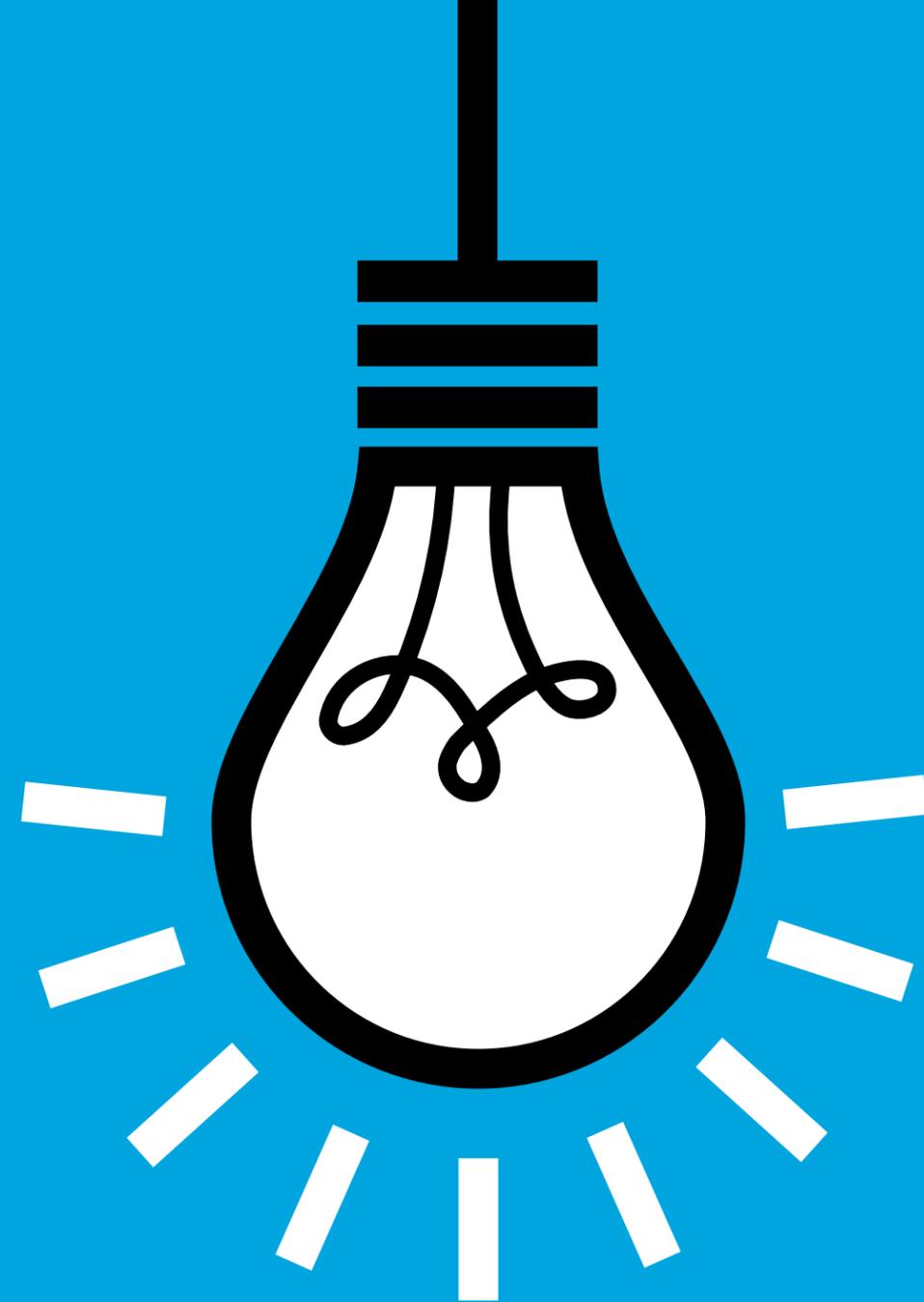
A percentage that reveals how confident you could be that your population will select an answer within a given range. For example, a 95% confidence level means that you can be 95% sure that the results will range between the numbers x and y.

With this information you can calculate the sampling size by using the following equation:

$$\text{Sampling size} = \frac{\frac{z^2 \times p(1-p)}{e^2}}{1 + \left(\frac{z^2 \times p(1-p)}{e^2 N} \right)}$$

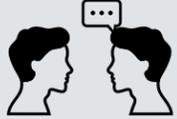
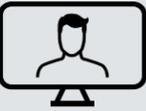
Where N is the population size, e the margin of error (percentage expressed as decimals), and z the number of standard deviations a given proportion is away from the mean. The z value depends on the confidence level and ranges from 1.28 for 80% confidence to 2.58 for 99% confidence.

You can also use online calculators like *Question pro* (<https://www.questionpro.com/es/calculadora-de-muestra.html>).

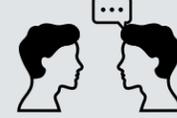


4.4 COLLECTING DATA

Once the sample size has been calculated, the second step is to define the method to implement your instrument. The instruments (questionnaires, interviews, focus groups) can be applied face to face or online:

 Face to face	 Online
<p>What does it consist of?</p> <p>The interviewer approaches the interviewee and explains the investigation objective. If the instrument is a questionnaire, the person could answer directly. If the instrument is a semi-structured interview, the interviewer proceeds to ask the open and defined questions prepared in his interview guide.</p>	<p>What does it consist of?</p> <p>No interviewer required. The researcher implements the instrument (usually a questionnaire) on an online platform such as Google Forms or SurveyMonkey. The link to the questionnaire is sent to potential interviewees via email or social networks. Answers are recorded directly on the platform.</p>
<p>Recommended when:</p> <ul style="list-style-type: none"> ▪ The sample size is manageable and geographically narrow (nearby towns). ▪ The population is not familiar with electronic tools or equipment. ▪ Internet access is difficult. 	<p>Recommended when:</p> <ul style="list-style-type: none"> ▪ If the sample size is very large and dispersed (distant locations, different countries).

How to conduct a baseline study?

 Face to face	 Online
<p>Important considerations:</p> <ul style="list-style-type: none"> ▪ Requires training a team of interviewers. ▪ The time to reach the sample size will depend on the number of interviewers 	<p>Important considerations:</p> <ul style="list-style-type: none"> ▪ The dissemination of the questionnaire will depend on the snowball strategy (the initial contact shares the questionnaire with their acquaintances and these in turn contact others). ▪ You must have an initial list of contacts (emails, social networks).

Regardless of the implementation modality selected, ideally you should implement the instrument in three phases:

A. Pre - pilot:

In this phase, the objective is to evaluate the language used in the instrument and the interviewee's reading comprehension, and whether questions are culturally appropriated. The pre-pilot should be implemented in a small number of people (20 - 30 people), ideally in a focus group session or open interviews, so participants could provide comments, suggestions and clarify doubts. In this phase you should also evaluate technical aspects of your instrument, such as the response time and the functionality of answer options in the case of instruments implemented online.

B. Pilot:

You should adapt the instrument based on the pre-pilot results. The objective of the pilot is twofold, on one hand, it will allow you to know whether strategy to apply the instrument is feasible, reducing possible



biases and errors in data collection. Secondly, it will allow you to evaluate statements' internal consistency. To do this, you need to get at least 50 responses (Crawford & Kelder 2019). Once you got the minimum sample size, you could perform the relevant analysis (Cronbrach's alpha, correlations and principal components), to assess whether the statements are grouped consistently ($\alpha > 0.7$) (Tavakol & Dennick 2011).

C. Final sampling:

In this phase, you should adjust your instrument based on results obtained from the pilot, either by modifying, combining, or eliminating statements, based on Cronbrach's alpha values, correlations, and principal components analysis. With your instrument ready, you can implement it in the audience, regularly monitoring answers and sampling effort until the established sample size is reached.

4.5 ETHICAL AND LEGAL CONSIDERATIONS

Any effort to study human behavior must assume basic principles that guarantee not only that research is carried out for the benefit of society, but also that it will not produce unacceptable harm to society in general, or to the study participants (Baard 2019).

The scientific community has considerably strengthened ethical requirements for conservation studies working with human communities in recent years (CITA). Funders and scientific journals frequently require the endorsement of an ethics committee prior to funding and publication.

Recent scientific consensus (Brittain et al. 2020) suggests that researchers following ethical principles of working with human communities must:



Guarantee confidentiality and anonymity

You must explicitly state that responses will be anonymous and confidential, to be used solely for research purposes. You must explain that answers will be compiled in private databases/repositories, where participant identity will not be recorded, and that each record will be assigned an alphanumeric code.



Identify who is responsible for the project

The contact information of those responsible for the project (name, position and means of contact) must be provided in case participants wish to know more about the project or its results.



Voluntary participation

You must state that participation in the study is voluntary, and that participants may withdraw at any time, without negative consequences.



Informed consent clause

Each participant must give their informed consent. The study instrument must therefore have an informed consent paragraph which must be accepted before starting any questionnaire or interview. Here is an example of an informed consent paragraph:

Before starting the questionnaire, you must indicate your informed consent:

I have read and understand information about the objectives of this study. I understand that my answers will be anonymous and used exclusively for research purposes. I understand that my participation is voluntary and that I will not receive compensation for participating in this study, and that I am free to stop at any time, without giving a reason. I understand that I can contact those responsible for the project if I want to know more about it, including its results.



Agree



Disagree

Working with minors? Working with indigenous or other vulnerable groups?

Finally, when formulating and implementing the study instrument:

- Briefly explain the objective of the study to the participant, emphasizing the anonymity of the answers, and that the results will be used only for research.
- Make sure to obtain informed consent from all participants prior to implementing the instrument.
 - Each section or group of questions within the instrument should have a short descriptive paragraph. Here are two examples:
 - Before a section containing questions to characterize the participant: "In this section, we will ask you about your general profile, including where you live, your level of education, etc."
 - Before a TPB section: "In this section, we provide you with a series of statements to assess your valuation [of the target species] and the motivations for [the focal behavior]. For each statement, please indicate how much you agree or disagree or how true or false it seems to you."
- Make it clear to the participant that only their opinion counts, and that the instrument should be answered individually. A questionnaire is not a test, but a measure of participant opinions. Do this with a clarifying statement, such as:
 - "It is very important that you respond to all the statements. The sincerity of your answers is very important. Remember, there are no right or wrong answers: your opinion is what counts."
- If the instrument is implemented face to face, the interviewer may clarify any participant doubts. This includes if the participant does not understand a question or the meaning of a word. However, the interviewer SHOULD NOT suggest answers.
- Do not post or take photos or videos of participants, because this violates the privacy principle of informed consent.

IN SUMMARY

- Using interview specialized techniques allows you to reduce concealment bias. However, if the behavior is rare within the community, it is not recommended to use them, because they tend to generate estimates with large standard errors and little predictive power.
- To define the sample size, you must follow a standardized criterion, and not simply "get the number of responses that you can". The sample size must be sufficient to guarantee the consistency, reliability, and precision of the estimates.
- Define from the beginning the modality of application of the instrument (face to face or online), as well as when and how you will implement the pre-pilot, pilot, and final sampling stages. This will ensure that the implementation of the final instrument is efficient and that biases and errors in data collection are minimal.
- Guarantee that your baseline study has the endorsement of an ethics committee that demonstrates that the design of the research and implementation of the instruments comply with the ethical principles of work with human communities.



5. REFERENCES

- Ajzen, I. (2011). Behavioral intervention: Design and evaluation guided by the theory of planned behavior. In: *Social Psychology and Evaluation* (eds. Mark, M.M., Donaldson, I.S. & Campbell, B.). The Guilford Press, London, pp. 74–102.
- Alves, R. & Rosa, IrecêL. (2010). Trade of animals used in Brazilian traditional medicine: Trends and implications for conservation. *Human Ecology*, 38, 691–704.
- Baard, P. (2019). Ethics in conservation. *Journal for Nature Conservation*, 52, 125737.
- Bowie, M.J., Dietrich, T., Cassey, P. & Veríssimo, D. (2020). Co-designing behavior change interventions to conserve biodiversity. *Conservation Science and Practice*, 2.
- Briceño-Linares, J.M., Rodríguez, J.P., Rodríguez-Clark, K.M., Rojas-Suárez, F. & Millán, P.A. (2011). Adapting to changing poaching intensity of yellow-shouldered parrot (*Amazona barbadensis*) nestlings in Margarita Island, Venezuela. *Biological Conservation*, 144, 1188–1193.
- Brittain, S., Ibbett, H., de Lange, E., Dorward, L., Hoyte, S., Marino, A., Milner-Gulland, E.J., Newth, J., Rakotonarivo, S., Veríssimo, D. & Lewis, J. (2020). Ethical considerations when conservation research involves people. *Conservation Biology*, 34, 925–933.
- Chaves, W.A., Valle, D.R., Monroe, M.C., Wilkie, D.S., Sieving, K.E. & Sadowsky, B. (2018). Changing wild meat consumption: An experiment in the Central Amazon, Brazil. *Conservation Letters*, 11, 1–10.
- Chunwang Li, Z.M. (2015). Consumer behavior change we believe in: Demanding reduction strategy for endangered wildlife. *Journal of Biodiversity & Endangered Species*, 3, 1–3.
- Crawford, J. & Kelder, J.-A. (2019). Do we measure leadership effectively? Articulating and evaluating scale development psychometrics for best practice. *The Leadership Quarterly*, 30(1): 133-144.
- Fishbein, M. & Ajzen, I. (2010). *Predicting changing behavior. The reasoned action approach.* Psychology Press, New York.
- Godin, G. & Kok, G. (1996). The theory of planned behavior: A review of its applications to health-related behaviors. *American Journal of Health Promotion*, 11, 87–98.
- Greenfield, S. & Veríssimo, D. (2019). To What Extent Is Social Marketing Used in Demand Reduction Campaigns for Illegal Wildlife Products? Insights From Elephant Ivory and Rhino Horn. *Social Marketing Quarterly*, 25, 40–54.
- Harland, P., Staats, H. & Wilke, H.A.M. (1999). Explaining proenvironmental intention and behavior by personal norms and the theory of planned behavior. *Journal of Applied Social Psychology*, 29, 2505–2528.
- Heberlein, T.A. (2012). Navigating environmental attitudes. *Conservation Biology*, 26, 583–585.
- Hollingworth, C. & Barker, L. (2020). *Behavioural Change Models An overview of the two best behavioural change models and how to apply them.* The Behavioural Architects, London.
- Ibbett, H., Jones, J.P.G. & St John, F.A.V. (2021). Asking sensitive questions in conservation using Randomised Response Techniques. *Biological Conservation*, 260, 109-191.
- ILGA Europe. (2018). *How to test your communications.* Public Interest Research Centre.
- Jenkins, H.M., Mammides, C. & Keane, A. (2017). Exploring differences in stakeholders' perceptions of illegal bird trapping in Cyprus. *Journal of Ethnobiology and Ethnomedicine*, 13, 67.
- Liu, Z., Jiang, Z., Fang, H., Li, C., Mi, A., Chen, J., Zhang, X., Cui, S., Chen, D., Ping, X., Li, F., Li, C., Tang, S., Luo, Z., Zeng, Y. & Meng, Z. (2016). Perception, Price and Preference: Consumption and Protection of Wild Animals Used in Traditional Medicine. *PLOS ONE*, 11, e0145901.
- Mcnamara, J., Rowcliffe, M., Cowlishaw, G., Alexander, J.S. & Brenya, A. (2016). Characterising Wildlife Trade Market Supply-Demand Dynamics. *PLoS ONE* 11(9): e0162972.
- Moorhouse, T.P., Coals, P.G.R., D'Cruze, N.C. & Macdonald, D.W. (2020). Reduce or redirect? Which social marketing interventions could influence demand for traditional medicines? *Biological Conservation*, 242, 108391.
- Nuno, A. & John, F.A.V.S. (2015). How to ask sensitive questions in conservation: A review of specialized questioning techniques. *Biological Conservation*, 189, 5–15.
- de Oliveira, W.S.L., de Faria Lopes, S. & Nóbrega Alves, R.R. (2018). Understanding the motivations for keeping wild birds in the semi-arid region of Brazil. *Journal of Ethnobiology and Ethnomedicine*, 14, <https://doi.org/10.1186/s13002-018-0243-6>.

- Olmedo, A., Davis, E. & Hinsley, A. (2019). Asking sensitive questions in conservation using the Unmatched Count Technique. *Tools and Guidance*. Oxford Martin Programme on the Illegal Wildlife Trade, University of Oxford.
- Olmedo, A., Sharif, V. & Milner-Gulland, E.J. (2017). Evaluating the design of behavior change interventions: A case study of rhino horn in Vietnam. *Conservation Letters*, 11, 1–9.
- Phelps, J., Biggs, D. & Webb, E.L. (2016). Tools and terms for understanding illegal wildlife trade. *Frontiers in Ecology and the Environment*, 14, 479–489.
- Rare and The Behavioural Insights Team. (2019). *Behavior change for nature: A behavioral science toolkit for practitioners*. Arlington, VA.
- Sánchez-Mercado, A., Blanco, O., Sucre, B., Briceño-Linares, J.M., Peláez, C. & Rodríguez, J.P. (2021). When good attitudes are not enough: understanding intentions to keep yellow shouldered Amazons as pets on Margarita Island, Venezuela. *Oryx*, 56(2), 209–217.
- Sánchez-Mercado, A., Blanco, O., Sucre-Smith, B., Briceño-Linares, J.M., Peláez, C. & Rodríguez, J.P. (2020). Using peoples' perceptions to improve conservation programs: The Yellow-shouldered Amazon in Venezuela. *Diversity*, 12(9), 342.
- Sánchez-Mercado, A., Cardozo-Urdaneta, A., Moran, L., Ovalle, L., Arvelo, M., Morales-Campo, J., Coyle, B., Braun, M.J. & Rodríguez-Clark, K.M. (2019). Social network analysis reveals specialized trade in an Endangered songbird. *Animal Conservation*, 23, 132–144.
- Saypanya, S., Hansel, T., Johnson, A., Bianchessi, A. & Sadowsky, B. (2013). Effectiveness of a social marketing strategy, coupled with law enforcement, to conserve tigers and their prey in Nam Et Phou Louey National Protected Area, Lao People's Democratic Republic. *Conservation Evidence*, 10, 57–66.
- Steinmetz, H., Knapstein, M., Ajzen, I., Schmidt, P. & Kabst, R. (2016). How effective are behavior change interventions based on the theory of planned behavior?: A three-level meta analysis. *Zeitschrift fur Psychologie / Journal of Psychology*, 224, 216–233.
- Tavakol, M. & Dennick, R. (2011). Making sense of Cronbach's alpha. *Int J Med Educ*, 2, 53–55.
- Thomas-Walters, L., Hinsley, A., Bergin, D., Burgess, G., Doughty, H., Eppel, S., MacFarlane, D., Meijer, W., Lee, T.M., Phelps, J., Smith, R.J., Wan, A.K.Y. & Veríssimo, D. (2020). Motivations for the use and consumption of wildlife products. *Conservation Biology*, 35, 483–491.
- Thomas-Walters, L., Veríssimo, D., Gadsby, E., Roberts, D. & Smith, R.J. (2020). Taking a more nuanced look at behavior change for demand reduction in the illegal wildlife trade. *Conservation Science and Practice*, 2(9), e248.
- Veríssimo, D., Tully, B. & Douglas, L.R. (2019). Conservation marketing as a tool to promote human–wildlife coexistence. *Human–Wildlife Interactions*, 335–358.



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