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## Using Primates as a Flagship Species in Marketing Campaigns: Effects on Proenvironmental Attitudes and Behavioral Intentions

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USING PRIMATES AS A FLAGSHIP SPECIES IN MARKETING CAMPAIGNS:  
EFFECTS ON PROENVIRONMENTAL ATTITUDES  
AND BEHAVIORAL INTENTIONS

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A Thesis

Presented to

The Graduate Faculty

Central Washington University

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In Partial Fulfillment

of the Requirements for the Degree

Master of Science

Primate Behavior

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by

Taylor N. Barber

May 2023

CENTRAL WASHINGTON UNIVERSITY

Graduate Studies

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## ABSTRACT

### USING PRIMATES AS A FLAGSHIP SPECIES IN MARKETING CAMPAIGNS: EFFECTS ON PROENVIRONMENTAL ATTITUDES AND BEHAVIORAL INTENTIONS

by

Taylor N. Barber

May 2023

Shade coffee plantations grow coffee under a canopy of trees and provide alternative habitats for many bird and primate species, known as agroecosystems, particularly in Latin America. The aim of the current project was to better educate the public about shade plantations and the positive effects they can have on conservation for primates. In addition, marketing tactics such as the presence of a shade plantation certification label and howler monkey images were assessed for their effects on consumer purchasing intentions as well as participant support for biodiversity and sustainability. Participants were recruited through the Department of Psychology's research system at Central Washington University and through Facebook and Twitter social media platforms. Subjects viewed coffee bags with variations in howler monkey images and a Smithsonian certification label prior to answering questions about their attitudes on biodiversity, sustainability, subjective norming, and behavioral intentions. For university students, an image of a single howler monkey had a significant effect on biodiversity attitudes compared to no howler monkey image but neither the howler monkey image nor

the Smithsonian certification label influenced sustainability, subjective norming, or behavioral intentions. The combined prior knowledge of primates, primate habitats, howler monkeys, biodiversity loss, sustainability standards, labels, and shade coffee plantations significantly influenced biodiversity, sustainability, subjective norming, and behavioral intentions in university students. These findings indicate that prior knowledge about a subject is more powerful than acute manipulations or marketing strategies presented to an audience.

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## CHAPTER I

### INTRODUCTION

Coffee is a global product and one of the world's most popular drinks (Jones, 2018). Although coffee is produced in over 50 countries, some smaller countries such as Honduras and Nicaragua are key coffee producers (Castellano, 2021; Jones, 2018). Coffee can be grown in two conditions, under a canopy of shade or under direct sunlight. Most coffee is grown under direct sunlight for supply and demand reasons (O'Connell, 2003). However, shade plantations have higher environmental and conservation benefits because they act as agroecosystems for a variety of different species by allowing the forests that they rely on to remain standing (Guzmán et al., 2016; McCann et al., 2003). Even though there are considerable advantages to growing coffee in a shade plantation, it is not widely used in the coffee farming industry (O'Connell, 2003).

Typically, birds benefit from the positive effects that shade growing has on biodiversity (Perfecto et al. 2014), but primates can also benefit from this method. Two studies conducted on distinct species of primates concluded that shade coffee plantations can act as refuge for the Andean night monkey and mantled howler monkey if their primary habitats were to be uninhabitable (Guzmán et al., 2016; McCann et al., 2003). Shade plantations make up a large portion of remaining forests in Nicaragua and, given the presence of howler monkeys in this landscape, McCann et al.'s (2003) finding suggests that shade plantations may be a way to maintain the howler monkey populations still left in the wild.

One way to determine if a coffee product is sustainably sourced or sourced specifically from a shade plantation is through its certification process, designated with a

label on the bag. The Smithsonian bird friendly label is one of the only certifications that ensures shade grown coffee production (Dietz et al., 2018; Jha et al., 2014). However, even though shade plantations are a more sustainable and biodiversity-friendly way to produce coffee, most people are unaware of their benefits and shade plantation labeling is rare among the plethora of labels used in the coffee business, which each highlight their own sustainable, fair-trade, or organic focus (O'Connell, 2003). The increasing number of labels may be part of the reason many mainstream coffee brands and billions of pounds of coffee are still able to be produced under the lowest ranked certification standards (Dietz et al., 2018). Some certification processes are less vigorous in standard requirements, but purchasers do not always know which label is the highest ranking or focuses on the topic(s) they care about, such as shade production, organic, or fair-trade, because of how many labels are present in the market.

The current study evaluated the effects of prior participant knowledge relating to sustainability standards, primate habitats, and shade coffee plantations as well as the presence of Smithsonian labels and howler monkey images featured on a coffee bag as part of a message to inform participants that coffee grown under a shade plantation helps protect species biodiversity. Attitudes toward biodiversity, sustainability, subjective norming, and behavioral intentions were used to assess how influential the presence of Smithsonian labels and howler monkey images could be on purchasing behavior.

## CHAPTER II

### LITERATURE REVIEW

#### **Shade Plantations**

Coffee can be grown in one of two ways, under a canopy of trees or under direct sunlight. Growing coffee under a shade canopy is a method of growing that is used minimally in the coffee industry. Most coffee is grown under direct sunlight because it results in larger yields, allowing growers to better respond to market demand for this commodity (O'Connell, 2003). However, there are many benefits of growing under a shade canopy, such as improved soil quality, pest control, and better quality of coffee beans in terms of taste (O'Connell, 2003). Under a shade canopy, growing conditions are positively influenced by the fact that leaves are more frequently wet; the temperature of the air, soil and leaves are lower; and there are fewer landslides. In addition, lower soil evaporation rates, more extractable water in the soil, higher precipitation capture, fewer solar radiation fluctuations and moister soil all help with climate regulation in shade growing (Jha et al., 2014).

Shade-grown cultivation also creates agroecosystems for primate species and other species of birds and insects (Guzmán et al., 2016; McCann et al., 2003). These coffee agroecosystems provide forest covering that many migratory bird species as well as songbirds stop at for resources during their migration (O'Connell, 2003). Perfecto et al. (1996) reported 30 species of ants and 126 species of beetles found in a single shade plantation in Heredia, Costa Rica. Thus, the shade-grown cultivation method produces higher quality coffee while enhancing biodiversity and is more sustainable with climate changes. Unfortunately, the need to meet market demand has outweighed these positive

effects. The demand for coffee has driven many farmers to grow their coffee in the conditions that create the most coffee output. In the last 26 years, there was a 67.9% growth in coffee consumption globally (Torga & Spers, 2020). As noted by Jha et al. (2014), “Between 2000 and 2009, coffee-growing regions in Costa Rica experienced a 50% loss of shade trees” (p. 419) while modernizing to sun-grown plantations. In 2003, coffee that was organic, fair trade, or shade-grown produced roughly 36 million pounds, and was valued at only \$490 million of the total \$10 billion in coffee sales that year (O’Connell, 2003).

### **Shade Plantations as Alternative Habitat**

Shade plantations provide a refuge for many migratory bird species, especially in a time of deforestation (Perfecto et al., 1996). As noted by Perfecto et al. (1996), many of the plant and tree species grown in shade plantations produce flowers that omnivorous birds favor. During the winter months, shade coffee agroecosystems attract more birds than in other seasons and birds appear to survive at comparable rates as they would in a natural forest (O’Connell, 2003; Perfecto et al., 1996). Species of birds are 94 to 97% fewer in traditional sun-grown coffee plantations which lack a canopy for migrating birds, as compared to shade plantations (O’Connell, 2003). While the research supports the contention that coffee shade canopies may help conserve migrating bird species, the research on the potential for shade plantations to serve as a secondary habitat for neotropical primate species is sparse.

The literature regarding shade plantations and primate species is limited but includes *Aotus miconax*, also known as the Andean night monkey, as well as *Alouatta palliata*, the mantled howler monkey (Guzmán et al., 2016; McCann et al, 2003).

Guzmán et al. (2016) tracked two groups of *Aotus miconax* using focal animal sampling over seven and 16 months, collecting data on the monkeys' ranging patterns, habitat use, activity budget, and diet. "Overall, both study groups preferred natural forests relative to their spatial cover, spending 70.3% and 94.4% of their time in natural forests, even though shade coffee had a yearly 10-fold total productivity advantage over natural habitats" (Guzmán et al., 2016, p. 57). Even though the night monkeys investigated by Guzmán et al. (2016) did not spend as much time in shade plantations as they did in their natural habitats, these findings indicate that agroecosystems such as shade coffee plantations could be used successfully by native species if natural habitats were to become unavailable due to logging or other natural or humanmade destruction or deterioration.

Similarly, McCann et al. (2003) focused on howler monkeys (*Alouatta palliata*) in Nicaragua living in one of Mombacho's Volcanic Nature Reserves shade coffee plantations. Prior to this research, there were very few studies conducted in Nicaragua regarding the status of primates due to political and economic instability (Rylands et al., 1995). A preliminary assessment of the area was conducted by Crockett et al. (1997) that reported that there were howlers present in this area; however, no research had been done on their behavior or daily patterns. Much like the Andean night monkeys studied by Guzman et al. (2016), the howler monkeys in Nicaragua did not disturb the coffee plantations or eat any of the coffee cherries (McCann et al., 2003). McCann et al.'s (2013) findings show that dry seasons are when the howlers could receive the most benefits from the shade plantations, much like bird species who use these agroecosystems during the winter months. During an additional check 14 months after the initial study,

McCann et al. (2013) found that howler monkeys in the area still relied heavily on the shade trees for food, travel, and rest.

Shade plantations make up a large portion of remaining forests in Nicaragua (McCann et al., 2003) and, given the presence of howler monkeys in this landscape, McCann et al.'s findings suggest that shade plantations may be a way to maintain the howler monkey populations still left in the wild. Compared with night monkeys (Guzman et al., 2016), howler monkeys in Mombacho were noted to spend much more time in the shade plantations and buffer zones near the plantations than in their natural habitats, unlike the night monkeys. While both species (Guzman et al., 2016; McCann et al., 2003) spent different amounts of time in coffee reserves, these data suggest that shade plantations can be used as an alternate food source during periods of food scarcity in species' natural habitats (McCann et al., 2003).

### **Current Standards in the Coffee Industry**

Although primate species can use shade plantations as agroecosystems, which would ultimately help to preserve a species, the coffee industry has not responded to the potential role shade plantations may have in supporting biodiversity and sustainability. Most coffee plantations continue to be sun grown and the shift to shade coverage has not been included in sustainability standards (Dietz et al., 2018). In the dialog surrounding standards for coffee production and purchasing, voluntary sustainability standards (VSS) provide businesses and growers a method of certifying that their coffee meets sustainability standards (Soler et al., 2016). The VSS can be met by many different types of certifications that all have their own standards and criteria that label their products as sustainable. For example, in the coffee literature, different certifications include



Rainforest Alliance, fair-trade, organic certification or UTZ, which is a certification launched in 2022 as Utz Kapeh means “Good Coffee” in the Mayan language Quiché.

UTZ and Fair-trade USA are the two most common VSS certifications that coffee farms and bigger individual farms turn to for certification (Dietz et al., 2018). Companies such as Nestle and Starbucks have also adopted their own models for sustainability standards. Nestle’s Nespresso's Quality, Productivity and Social and Environmental Sustainability, known as Nespresso AAA program, was created with the Rainforest Alliance in 2003. Starbucks Coffee and Farmer Equity practices or C.A.F.E. was created with Conservation International in 2004 (Soler et al., 2016). As noted by Dietz et al. (2018), each certification has its own standards and regulations; therefore, shade canopies as a growing method appear low on the list of importance when deciding on core regulations for certification. The Smithsonian bird friendly certification is one of the few certifications focused on shade trees and the certification program has the highest agroenvironmental standards, requiring an organic certification, guidelines to conserve soil and water, and the use of at least 10 species of shade trees in a plantation (Jha et al., 2014). While some coffee brands may meet certification standards, such standards do not guarantee biodiversity protection nor shade canopy as a frontrunner of the process.

Due to the diversity of sustainability certifications, a voluntary coffee standards index (VOSCI) was created as “the first assessment tool that explicitly takes into account the differences between the types of VSS by analyzing them separately” (Dietz et al., 2018, p. 74). VOSCI incorporated the 14 most common certifications as well as the common themes represented in them and divided them into different sub-indexes entitled environmental, social, economic and enforcement that each produced a separate score.

Focusing on the environmental subindex, the three Rainforest Alliance standards ranked the highest, while Starbucks C.A.F.E, USDA Organic, EU Organic, and Nespresso AAA fell to the lowest ranks in terms of the environmental sustainability results.

The most alarming of the results can be found in the 4C certification standard, which received the lowest scores in every subindex in the VOSCI test. 4C never reached above a 40 point score out of 100, averaging a 27% score for all categories, which falls below the leaders of UTZ, Fair-Trade and Rainforest Alliance. This is alarming, because in recent years, 4C has been the most promoted standard by the coffee industry and is set to be the ‘Global Coffee Platform,’ which is meant to define the sustainability standards for the entire global coffee industry. 4C accounts for 47% of the total certified coffee at 2,629,339 metric tons and, when adding the additional contributions of the low VOSCI-scoring Starbucks and Nespresso AAA, products under these certification standards make up 60% of the certified coffee sold worldwide (Dietz et al., 2018). These results suggest a need for stricter sustainability standards when certifying coffee.

### **Examples of Sustainability/Ecofriendly Campaigns and Effects**

Sustainability and ecofriendly messages are common themes promoted by businesses (Verissimo et al., 2013). With climate change and biodiversity loss continuing to escalate at an alarming rate, being aware of a company’s actions and how those actions shape the planet and the organisms that live on it has become increasingly important to consumers (Wu et al., 2018). For example, Birds and Beans Coffee, a Canadian coffee company promotes ecofriendly coffee and uses species present in their coffee plantations to engage with consumers while also educating them on the shade grown process and why it is important for conservation (Birds and Beans Inc, 2022). Each coffee bag from

Birds and Beans Coffee has a delicate watercolor painting of a species and its name above the description of the coffee roast and tasting notes. While Birds and Beans specifically focuses on shade cultivation to create agroecosystems for birds, on November 4, 2020, the company promoted their first ever primate species on their newest roast of coffee, posting a Honduras howler monkey image on their website, Instagram account, and coffee bag as an example of a species common on their bird friendly coffee farms. The company stated that “it isn’t just the shade, it’s about providing a functioning ecosystem” on their social media accounts.

### **Labeling**

The use of labels on products may appeal to consumers, especially when selling ecofriendly products. Studies have demonstrated that people are willing to pay more for products that are labeled as recycled or fair-trade (Mai, 2014; Smith, 2010). Mai (2014) reported that 51.4% of respondents in her study would pay more than base price for a product labeled as fair-trade. In that same article, the author found that products that used multiple labels such as fair-trade, organic, and recycling had higher perceived value (Mai, 2014). Knowledge and recognition of labels is even more impactful than demographic factors when consumers are making purchasing decisions. As noted by Mai (2014), respondents who had a higher recognition of the labels used in the study were willing to pay more for labeled products compared to when there were no labels or when labels were not recognized by the participant. Examples of these include the well-known recycling and fair-trade labels.

Smith (2010) investigated which aspects of marketing were most important to millennials for environmentally friendly products. Findings indicated that millennials pay

attention to the labels put on packaging. Respondents were asked to indicate three features that showed that a product was environmentally friendly. The presence of a recycling symbol was the top choice having been selected by 89.5% of respondents while labeling (i.e., 67.3%) was also popular compared to environmentally friendly product names (i.e., 39.1%), pictures of nature (i.e., 39.0%), and other attributes such as green colored packages or a simple package design. Smith (2010) also found that women were more motivated to purchase green products than men and were more influenced in their perceptions of whether a product was environmentally friendly by advertising and product packaging. In a nationwide survey in the United States, 80% of respondents showed interest in product labels whereas, in Belgium, respondents found a 'fair-trade' label more favorable (Androfer & Liebe, 2012) and that labeling resulted in a willingness to pay more for products.

Labels also influence trust and reduce skepticism for some customers (Davies & Gutsche, 2016). In interviews designed to measure individuals' motivations about purchasing fair-trade, every participant mentioned that a trade label was crucial in their purchasing decisions (Davies & Gutsche, 2016). When a label is on a product, the perception is that the product has gone through a certification process. For example, in one interview, a participant stated "I do not think I would buy fair trade products without the label. I would not believe it is actually fair-trade. It just makes the product more attractive and gives me security" (Davies & Gutsche, 2016, p.1338).

### **Imagery**

The use of imagery is useful in marketing and conservation campaigns. One of the main challenges in conservation and awareness of biodiversity loss is its lack of

visibility to the public. Pearson et al. (2014) noted that outside of a school or university setting, formal opportunities to learn about environmental impact can be scarce. To determine the most impactful methods of conveying information about biodiversity, Pearson et al. (2014) examined the effect of one-minute video clips and pocket size petition postcards on improving Australian public awareness about palm oil and habitat loss for orangutans. The pocket-sized petition cards featured an orangutan mother and her infant and zoo visitors were asked to complete and send the cards to Food Standards Australia and New Zealand if they wanted to support the change for mandatory palm-oil labeling. Through self-report surveys, Pearson et al. (2014) measured visitor satisfaction, palm-oil awareness, attitudes toward orangutans, and attitudes toward palm-oil labeling at baseline, six months, twelve months, and one last unspecified follow up. Overall, knowledge about orangutans and attitudes toward orangutans were positive at baseline and grew over time, as did support for palm oil labeling, with support increasing from 69.6% of visitors at baseline to 90% after the first six months of the study.

In a similar attempt to understand public awareness for biological conservation, Wu et al. (2018) analyzed dolphin conservation posts on WeChat, a social media platform used in China. On articles posted about conserving dolphins on WeChat and the comments following those articles, Wu et al. (2018) measured the emotional polarity of users' stated opinions and found positive emotional responses toward dolphin conservation, but negative emotional responses toward government involvement. Wu et al. (2018) also found that high-quality images of the species rather than higher word count in the post resulted in higher popularity amongst users, especially among younger adults, as indicated by the number of positive comments left on the posts.

Imagery may be very important for conservation efforts and the imagery associated with species selected to be a flagship for a conservation campaign may impact donor engagement and donations. International and local conservation campaigns have used a variety of different flagship species such as African elephants and tigers that are widely popular because they are recognizable (Smith et al., 2012). Smith et al. (2012) evaluated the traits of other species that could be favored by donors and found that larger animals with forward-facing eyes tended to be more impactful, with 183 species from all taxonomic groups identified as possessing flagship potential using those criteria. As a result, Smith et al. (2012) recommended that local conservation campaigns use easy to see and culturally significant images whereas international campaigns should focus on aesthetics. In the campaigns reviewed by Smith et al. (2012), 24 species fell below the authors' Cinderella species threshold, implying that those species were used for reasons other than aesthetics and could be used in campaigns despite their appearance to broaden conservation benefits to species who had not received any public awareness.

Verissimo et al. (2013) found that flagships are one of the most common marketing tools for biodiversity conservation but noted that the species must be fitted to suit the audience. A single species may not have the same effect on every individual who views it because of socioeconomic or geographic differences. In Verissimo et al. (2013), four groups of villages who lived adjacent to the species habitat were the target audience. Previously, conservation campaigns in this region only used endemic bird species, such as the Araripe manakin (*Antilophia bokermanni*) but not even half of the respondents found a bird species appealing, suggesting that a fleet comprised of different species could be beneficial. To appeal to the local audience, species such as the armored catfish

(*Aspidoras menezesi*), climbing mouse (*Rhipidomys cariri cariri*) and Araripe manakin (*Antilophia bokermanni*), which were all endemic to the area, were used in a flagship approach with groups responding differently to the types of animals used in the fleet. For example, individuals who viewed mammals were most supportive of conservation efforts.

Using a flagship fleet as suggested by Verissimo et al. (2013), rather than a single Cinderella species analyzed by Smith et al. (2012), may have the potential to broaden the appeal of biodiversity conservation to a wider audience. However, flagship fleets require specific context between the species and the target audience, making it difficult to apply in all conservation campaigns. For example, using an endemic species was important in Verissimo et al. (2013), and mammals were found as most appealing, but the only endemic mammal included in the study was the climbing mouse (*Rhipidomys cariri cariri*); a species that the authors noted had been found previously to be unfavorable. Thus, the choice of animal species and their presentation alone or in combination with a flagship fleet may be highly dependent upon the campaign goal and target audience.

If using a flagship fleet method, identifying species to be used depends on the conservation goal (Verissimo et al., 2013) with certain species having the potential to create conflicts between conservationists working on different projects. A common way to choose the species used in a flagship fleet is to identify a species that has recognition and visibility, as well as utilizing species endemic to the area (Verissimo et al., 2013). As previously noted by Smith et al. (2012), large-bodied mammals with forward-facing eyes have a higher appeal to the public, but such considerations may present problems if no such species exists as part of the conservation goal. Another trait humans prefer in animals are neotenic features, which can be described as juvenile in appearance (Stokes,

2007). Key components of neotenic features include a large head, flat face, and large eyes. Stokes (2007) implies this is the reason for the panda's popularity. However, there is little research on the extent to which humans prefer these features in conservation campaigns.

In an early review, Verissimo et al. (2010) emphasized the need for researchers and marketers to work together to identify the best species to be used in campaigns and to ensure marketing becomes a mainstream part of the science of conservation. Verissimo et al. (2010) outlined stages to determine which flagship species to use. The first and second stages are to identify the conservation issue and target audience, respectively. Stages three and four are understanding the relationship between the audience and the chosen conservation issue and when and where this campaign will be used. Lastly, stages five through seven all focus on implementing the chosen species into a marketing strategy as well as evaluating the marketing and overall results from the campaign (Verissimo et al., 2010).

### **Measuring the Effectiveness of Campaigns**

Much of biodiversity conservation is funded by non-governmental organizations (NGO) but are run solely from the help of fundraising (Verissimo et al., 2018). To obtain funds, it is important to know why people donate to conservation causes in the first place. Verissimo et al. (2018) investigated factors that might influence monetary donations from the public, including campaign duration, appeal and familiarity of species, species geographic distribution relative to fundraising location, level of income and education of potential donors and age and gender profile of potential donors. Some elements could be directly related to the species, such as species size and familiarity or geographical



importance but the authors also investigated issues such as seasonality of shoppers or a general obligation to donate. Purchasing behavior was influenced by a variety of elements, with larger animals and shops in poorer neighborhoods eliciting higher donation amounts per transaction, findings that the authors felt highlighted the value of assessing real-world campaigns despite their complexity compared to hypothetical campaigns (Verissimo et al., 2018).

For a positive change in environmental awareness and behavior to occur, a sense of relatedness must be present. The literature around this idea is coined nature relatedness, or the connectedness with the natural world (Nisbet et al., 2008). To raise concern and change behaviors, there must be a degree of awareness and personal concern for the issue being addressed. Nisbet et al. (2008) argued that those who feel more connected to nature will have a stronger desire to maintain or preserve the environment and utilized a nature relatedness scale to assess a variety of environmental attitudes, values and beliefs, and various personality measures. Respondents with higher nature relatedness scores also reported more environmental concern, regardless of their age or occupation. As noted by Nisbet et al. (2008), the hardest gap for conservationists to fill is between attitudes and changing behavior.

In contrast to Nisbet et al.'s (2008) focus on nature relatedness, Schultz (2000) proposed that environmental concern is more closely linked with how people define themselves: independent, interdependent with other people, or interdependent with all living things. To evaluate the impact of these elements on environmental concerns, participants in Schultz (2000) viewed images of an animal being harmed by nature, followed by instructions to place themselves in the position of that animal. Compared to

participants who were asked to remain neutral, those asked to place themselves in the position of the animals reported greater environmental concerns related to all living things. Through this approach, Schultz (2000) argued that any activity that reduces perceived separation between an individual and nature will increase environmental concern and could include activities such as a trip to the zoo or being taught about animals abstractly in a classroom. Schultz (2001) later identified three separate spheres of environmental concerns that influence behavior: egoistic, altruistic or biospheric concerns. Taken together, these studies indicate that biospheric attitudes about nature and the environment may be malleable based upon experience. Additionally, they show that even short-term manipulations appear able to change environmental attitudes.

### **Problems of Measuring Behavior by Self Report**

In behavioral research, attitudes may not always be an adequate predictor of behavior (St John et al., 2010). A person can portray their positive thoughts about conservation, yet still perform contradicting behaviors. There are also social norms and expectations that can shape an individual's behaviors that must be accounted for (St. John et al., 2010). St John et al. (2010) argued that there are multiple steps a person considers before engaging in a planned behavior with anticipated regret, descriptive norms, self-efficacy, and moral obligation all playing roles in how an individual chooses a behavior. When predicting pro-environmental behaviors, moral obligation was especially important and was defined as "a person's own perception of the moral correctness or incorrectness of performing a behavior" (St. John et al., 2010, p. 660).

Regarding motivations specifically for fair-trade purchasing behavior, Davies and Gutsche (2016) found that three predominant values motivated fair trade consumption:

health and well-being, social guilt, and self-satisfaction. In their study, 50 semi-ethnographic interviews were conducted at high street coffee shop in the United Kingdom. The interview questions progressed from specific questions about whether the individuals purchased fair-trade, onto questions about fair-trade generally, and lastly, post-consumption and social experience questions. Examples of the types of question asked included “Why did you choose to shop here today?”, “What is it about fair-trade products that you like/dislike?” and “How does that reflect your personality?” (Davies & Gutsche, 2016, p. 1329).

Many participants in Davies and Gutsche (2016) showed an inclination to purchase fair-trade products because they had a general knowledge that they were making a good decision in purchasing ethically, which made them feel better about themselves while also fulfilling a social responsibility. Approximately 70% of respondents who reported fulfilling this social responsibility phrased their actions from an individualistic perspective, such as “It makes me feel as if I fulfilled my responsibility. I am single handed saving the world one pot of coffee at a time” (Davies & Gutsche, 2016, p. 1337). However, possessing positive attitudes toward these products did not mean that participants would go out of their way to purchase fair-trade products over regular products if fair-trade products were not readily accessible, with only two respondents out of fifty choosing the coffee shop because it sold fair-trade and the other 48 selecting it out of convenience.

### **The Current Study**

The current study was designed to evaluate marketing factors that may influence attitudes and behavioral intentions related to sustainability and biodiversity. It was

hypothesized that the presence of packaging images that included howler monkeys, particularly an infant howler monkey, and a Smithsonian bird-friendly label would produce positive intentions toward spending behavior for that product. It was predicted that the presence of a howler monkey related to a coffee purchase would have a greater impact because consumers would correlate their purchasing with helping save a species (Verissimo et al., 2010). In addition, to my knowledge, the use of primate species in marketing has not been evaluated regarding its impact on individual attitudes or purchasing behavioral intentions.

Specifically, the current study focused on the potential of highlighting the positive aspects of shade plantations in combination with images of howler monkeys and birds on behavioral intentions. As modeled on Pearson et al. (2014), the current study measured attitudes and behavioral intentions focused on coffee purchasing behavior. Pearson et al.'s methods were chosen as a model for this study because Pearson et al. was primarily focused on educating participants. The current study was also aimed at educating participants on the benefits of shade plantations because all conditions included information about shade plantations. It was expected that packaging images presented to the participant that included pictures of infant howler monkeys as well as the presence of a Smithsonian bird-friendly label would cause changes in sustainability and biodiversity attitudes as well as a willingness to change future purchasing behavior.

## CHAPTER III

### METHODS

#### **Design**

An experimental 3 x 2 between-subjects design was used. A covariate was used to gauge participants' prior knowledge of both the independent and dependent variables. The independent variables that were manipulated were elements in a marketing campaign-like social media post that included: 1) an image consisting of a single howler monkey, a howler monkey with an infant, or no image (i.e., control); and 2) the presence or absence of a Smithsonian bird friendly label. The dependent variables were measures of attitudes toward sustainability and biodiversity, subjective norming, and behavioral intentions focused on purchasing coffee. The dependent measures were collected via a modified 'Don't Palm on Us' survey (Pearson et al., 2014). All groups were presented with the same surveys, which were counterbalanced in their presentation across participants, after viewing the marketing material. Participants were randomly assigned to one of the marketing conditions.

#### **Participants**

Participants were recruited through the social media platforms of Twitter and Facebook and the Department of Psychology's participant research system at Central Washington University (CWU). The study was titled "Evaluating Information about the Coffee Industry" with the following description: "You will be viewing a marketing poster containing information about the coffee industry, and then asked to complete a survey afterwards." Anyone who was 18 years old or older, who drank or purchased coffee, and had access to the internet could participate in the experiment. The use of social media in

addition to collecting data utilizing the Department of Psychology's participant research system was designed to obtain data from a non-university sample consisting of older adults. Using snowball sampling via social media, I asked two family friends in their forties if they would be willing to post a study description and Qualtrics link on their social media accounts. Demographic information was collected from each participant, including how they heard about the study, their age, gender identity, socioeconomic status, ethnicity, class standing (only for university students), and their typical coffee consumption patterns.

As displayed in Table 1, a larger proportion of the total sample ( $N = 219$ ) consisted of university students ( $N = 182, 83.1\%$ ) compared to individuals recruited through social media ( $N = 37, 16.9\%$ ). As expected, the university student sample was younger, on average ( $M = 20.1, SD = 5.0$ ), than was the social media sample ( $M = 34.6, SD = 9.4$ ). But, because the university student sample was a larger proportion of the total sample, the average age of the full sample was still close to that of traditional university students ( $M = 22.5, SD = 8.1$ ). Both samples had a majority of female participants, in university students ( $n = 129, 71.3\%$ ), and in social media ( $n = 28, 75.7\%$ ).

## **Materials**

The online survey conducted through Qualtrics included a participant knowledge survey presented before viewing the independent variables (i.e., marketing material created by myself). After participants saw the marketing material, measures of support for biodiversity and sustainability, social norming, and behavioral intentions regarding purchasing coffee were presented. The majority of the two survey sections about sustainability and biodiversity were modifications from the 'Don't Palm us Off'

**Table 1***Demographic Information for the University Student and Social Media Samples*

	University Students ( <i>N</i> = 182; 83.1%)		Social Media ( <i>N</i> = 37; 16.9%)		Full Sample ( <i>N</i> = 219)	
	<i>N</i>	%	<i>N</i>	%	<i>N</i>	%
<b>Gender Identity</b>						
Female	129	71.3	28	75.7	157	72.0
Male	48	26.5	7	18.9	55	25.2
Non-binary	4	2.2	2	5.4	6	2.8
<b>Socioeconomic Status (\$)</b>						
Less than 9,999	92	50.5	2	5.4	94	42.9
10,000-19,999	28	15.4	5	13.5	33	15.1
20,000-49,999	15	8.2	9	24.3	24	11.0
50,000-99,999	1	0.5	9	24.3	10	4.6
100,000-149,999	0	0	2	5.4	2	0.9
150,000+	0	0	5	13.5	5	2.3
Don't know/Prefer not to answer	46	25.3	5	13.5	51	23.3
<b>Country of Residence</b>						
United States	181	99.5	33	89.2	214	97.8
Other	1	0.5	4	10.8	5	2.2
<b>Ethnicity</b>						
White	98	53.8	33	89.2	131	59.8
Hispanic, Latinx or Spanish	35	19.2	1	2.7	36	16.4
Multiethnic	18	9.9	1	2.7	19	8.7
Asian	11	6.0	2	5.4	13	5.9
Black or African American	11	6.0	0	0	11	5.0
Native Hawaiian or Pacific Islander	3	1.6	0	0	3	1.4
American Indian/Indigenous	2	1.1	0	0	2	0.9
Other	4	1.8	0	0	4	1.8
<b>Weekly Coffee Spending (\$)</b>						
0-9	52	28.6	15	40.5	67	30.6
10-20	86	47.3	15	40.5	101	46.1
21-30	24	13.2	5	13.5	29	13.2
31-40	15	8.2	2	5.4	17	7.8
41-50	5	2.7	0	0	5	2.3

Orangutan initiative (Pearson et al., 2014). Pearson et al. (2014) did not report interitem reliability measures for their scales.

### **Prior Participant Knowledge (Mediating Factor or Covariate)**

Prior to viewing the marketing material, participants were asked seven items to assess their knowledge of the subject of the marketing campaign materials. These questions all included the prompt “How familiar are you...” and asked about familiarity with 1) primate habitats; 2) primates; 3) howler monkeys; 4) biodiversity loss; 5) sustainability standards; 6) labels used to indicate ethical sourced products; and 7) shade coffee plantations. Participants responded on a 5-point scale from 1 (*not familiar*) to 5 (*very familiar*). Higher scores were interpreted as reflecting greater knowledge of the topics under study. Cronbach’s alpha for the participant knowledge items was .87.

### **Marketing Material (Independent Variables)**

In the current study, the marketing material differed with regard to howler monkey imagery and label presence. Participants were presented with an image of a coffee bag with 1) an image of a single adult howler monkey; 2) an image of a howler monkey mother and her infant; or 3) no howler monkey present. The species scientific and common name were included on the bags that had a howler monkey image. My second independent variable was a Smithsonian bird friendly label that was either present or not on the product packaging. Every bag of coffee included an image of a shade coffee plantation as the background along with a short message to educate participants about shade plantations. This message acted as a control variable across all versions and read “Coffee grown under a shade plantation helps preserve species biodiversity by providing



protection and resources, also known as an agroecosystem.” See Figure 1 for examples of the marketing materials.

## Figure 1

### *Example Marketing Material*



*Note.* The image to the left is one of the coffee bag variations participants viewed in the current study. The image to the right was inspiration for the study materials (Birds and Beans Coffee, 2020). All versions are visible in Appendix A.

### **Sustainability, Biodiversity and Subjective Norming (Dependent Variables)**

After both the prior knowledge check and viewing one of the six possible howler image x Smithsonian label marketing conditions, participants responded to eight statements modified from Pearson et al. (2014) regarding their attitudes toward biodiversity and eight statements regarding sustainability using Likert scales, ranging from 1 (*strongly disagree*) to 6 (*strongly agree*). For example, two statements from the

biodiversity survey were “Conserving species is very important,” and “If there are methods that can help preserve biodiversity, we should allocate resources to these methods”. See Appendix B for a list of all eight items. In the current study, the biodiversity items had a Cronbach’s alpha of .51 for the full sample.

Examples of sustainability questions were “Sustainability is something I think about as I live my daily life” and “I prefer to buy products that are sustainably sourced.” Sustainability items had a Cronbach’s alpha of .65. Participants also answered four questions related to subjective norming in which they indicated how important they thought sustainable sourcing and purchasing sustainable were to their friends and family because these groups are thought to hold the highest social influence; possible responses ranged from 1 (*highly unimportant*) to 6 (*highly important*; Pearson et al., 2014). See Appendix A for a list of all eight items. Subjective norming questions had a Cronbach’s alpha of .71.

### **Behavioral Intentions**

Participants were asked four Likert-rated questions which directly assessed their willingness to support sustainability standards in the coffee industry. The first question was “It is not mandated by law that coffee businesses label their products as sustainably sourced. How much would you prefer the government to mandate sustainability labels?” The second question was “If all coffee was required to be labelled as sustainable or not, would this influence your decisions as a shopper?” The last two questions were aimed at measuring the likelihood a consumer would purchase ethically sourced coffee if it was easily available, given that accessibility is a major component to purchasing ethically (Davies & Gutsche, 2016). Those questions were “How likely are you to go out of your

way to find ethically sourced coffee?” and “If ethically sourced coffee was available at your regular shopping location, would you choose it over other brands that are not?”

Each question was answered by Likert scale, the first two questions with an item scale from 1 (*highly unpreferred*) to 6 (*highly preferred*) and the last two questions 1 (*highly unlikely*) to 6 (*highly likely*; Pearson et al., 2014). In the current study, the behavioral intention items had a Cronbach’s alpha of .70 for the full sample.

### **Procedure**

The survey took approximately 20-30 minutes to complete. After consenting to participate, participants were asked to indicate if they met the age requirements of 18 or older, and the coffee consumption/purchasing questions. If a participant did not meet the age or coffee consumption/purchasing requirement, the survey closed, and they were not able to participate. Once a participant indicated they met the requirements, they began the survey with the demographic questions.

Each section of the questionnaire was on its own page through the Qualtrics site. Participants first answered the demographic information and the knowledge questions, then they viewed one of six different marketing campaign conditions, each version being visible for a minimum of one minute. Following the marketing material, participants were presented with eight questions about biodiversity, eight questions about sustainability, and four questions about norming with all three surveys presented in counterbalanced order. Once these three were completed, participants completed the behavioral intentions items. A debriefing statement was presented at the conclusion of the study.

## **Statistical Analyses**

Participants in this experiment provided 1) basic demographic information such as age, socioeconomic status, ethnicity, class standing (for university students), and gender identity; 2) an average participant knowledge score with higher scores indicating more knowledge about sustainability, biodiversity, and primates prior to viewing the independent variables; 3) average attitudes regarding biodiversity and sustainability with higher scores indicating more support for biodiversity and sustainability; 4) average subjective norm scores with higher scores indicating more influence by friends and family; and 5) an average behavioral intentions score with higher scores reflecting a greater intention to purchase ethically sourced coffee in the future.

Four separate analyses of covariance (ANCOVA) were performed to assess the effects of the different marketing images (i.e., primate image and label presence) on attitudes towards sustainability and biodiversity, social norming, and behavioral intentions. Scores on the knowledge questionnaire served as a covariate. It was hypothesized that the presence of an infant in the marketing material would have greater positive effects on sustainability and biodiversity attitudes than would the image of the single howler monkey alone or packaging with no howler monkey images. It was also hypothesized that participants presented with a Smithsonian bird friendly label would have higher scores on the biodiversity, sustainability, and behavioral intention surveys than those not presented with a label. I also expected that responses to the behavioral intentions would correlate with biodiversity, sustainability, and subjective norming scores.

## CHAPTER IV

### RESULTS

#### **Prior Participant Knowledge (Covariate)**

On average, university students scored on the lower end of familiarity with each of the knowledge questions, whereas the social media participants had higher results than the university student participants; see Table 2 for details.

**Table 2**

*Participant Self-Reported Familiarity with Study-Relevant Issues*

Question	University Students ( <i>N</i> = 182)		Social Media ( <i>N</i> = 37)	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
What is your familiarity with? . . .				
Biodiversity loss	2.2	1.3	3.7	1.3
Primates	2.5	1.1	3.6	1.3
Labels	2.5	1.3	3.0	1.0
Sustainability Standards	2.4	1.1	2.9	1.1
Primate habitats	2.2	1.1	3.3	1.1
Howler monkeys	1.9	1.1	2.9	1.3
Shade coffee plantations	1.6	1.0	2.1	1.2
Total Average	2.2	1.1	3.1	1.2

#### **Two Separate Samples**

As previously noted, recruitment occurred through social media (*N* = 37) and through the Department of Psychology's research system (*N* = 182). Initial analyses via *t* tests revealed that these samples were not equivalent, differing significantly on age,  $t(217) = 13.5, p < .001$ , and on prior knowledge scores,  $t(217) = 5.65, p < .001$ . The two distinct samples' information are provided in Tables 1 and 2. Due to these differences

between the samples, the effects of the marketing materials were evaluated separately for each sample. Additionally, an error in the presentation of the behavioral intention scale resulted in the loss of data for some initial participants, resulting in behavioral intention scores for only 130 of 219 total participants and many of the social media participants were among the initial participants of the study.

### **Effects of Marketing Materials in the University Students**

#### ***Testing the Significance of Covariate and Manipulated Measures of Howler Image and Label on Dependent Variables***

It was hypothesized that the scores on the participant knowledge questionnaire would serve as a covariate and influence scores of the biodiversity, sustainability, subjective norming, and behavioral intent questionnaires. Data from the biodiversity, subjective norming, and behavioral intentions variable of the university student participants met the assumptions of normality and homogeneity of variance, while the dependent variable of sustainability only met the assumption of homogeneity of variance.

Separate, multiple two-way ANCOVAs for the factors of label (label, no label) and image (howler and infant, single howler, and no howler) and the covariate of prior knowledge on the four dependent variables revealed effects of the covariate on biodiversity, sustainability, and subjective norming,  $F(1, 175) \geq 13.90, p < .005$ , as well as on behavioral intentions,  $F(1, 119) = 16.33, p < .001$ . There was a significant main effect of howler image on biodiversity measures,  $F(2, 175) = 3.17, p < .05$ , but not on any other dependent measure. A Tukey's post-hoc test revealed a significant difference between the single howler image and the no howler image, as visible by biodiversity mean totals in Table 3. There were no significant main effects of howler monkey image

on sustainability, subjective norming, or on behavioral intentions nor were there significant effects or interactions involving the presence of the label on any of the dependent measures.

**Table 3**

*Means (SD) for the Marketing Material Conditions in University Students*

University Student Sample				
	Biodiversity	Sustainability	Norming	Behavioral Intentions
	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>
<b>Howler with Infant</b>				
Label	4.3 (.4)	4.0 (.6)	4.1 (.9)	4.2 (.6)
No label	4.3 (.5)	3.9 (.6)	4.2 (.9)	4.2 (.8)
Total	4.3 (.5)	4.0 (.6)	4.2 (.9)	4.1 (.7)
<b>Single Howler</b>				
Label	4.5 (.5)	4.0 (.6)	4.4 (.9)	4.3 (.6)
No label	4.4 (.5)	3.9 (.5)	4.2 (.8)	4.1 (.8)
Total	4.4 (.5)	4.0 (.5)	4.3 (.8)	4.2 (.7)
<b>No Howler</b>				
Label	4.1 (.5)	3.7 (.7)	4.3 (.6)	4.1 (.8)
No label	4.4 (.6)	4.1 (.8)	4.3 (.9)	3.9 (1.0)
Total	4.2 (.6)	3.9 (.7)	4.3 (.7)	4.0 (.9)

***Correlations Between Dependent Measures in University Students***

It was expected that the dependent measures of behavioral intentions, subjective norming, biodiversity, and sustainability scores would positively correlate. As displayed in Table 4, all the dependent measures were positively correlated with one another, indicating that concepts such as biodiversity, sustainability, subjective norming, and behavioral intentions were all related to one another in the university student sample. Age was also positively correlated with sustainability scores.

**Table 4***Pearson Correlations Among Age and Dependent Measures*

University Students <sup>a</sup>	<i>M</i>	<i>SD</i>	1	2	3	4
1. Age	20.1	5.0	—			
2. Biodiversity	4.3	.5	.14	—		
3. Sustainability	3.9	.6	.21*	.52**	—	
4. Subjective Norming	4.3	.8	.19	.55**	.51**	—
5. Behavioral Intentions	4.1	.8	.15	.47**	.60**	.55**
Social Media <sup>b</sup>	<i>M</i>	<i>SD</i>	1	2	3	4
1. Age	34.6	9.4	—			
2. Biodiversity	4.7	.4	-.30	—		
3. Sustainability	4.5	.5	-.23	.32*	—	
4. Subjective Norming	4.6	.7	.12	.22	.41*	—
5. Behavioral Intentions	5.4	.7	.19	-.76	.95*	.43

\* $p < .05$ . \*\* $p < .001$ . <sup>a</sup> $df = 180$  for all correlations except those with behavioral intentions where  $df = 124$ . <sup>b</sup> $df = 35$  for all correlations except those with behavioral intentions where  $df = 2$ .

**Effects of Marketing Materials in the Social Media Sample***Testing the Significance of Covariate and Manipulated Measures of Howler Image and**Label on Dependent Variables*

Data from the biodiversity, sustainability and subjective variables of the social media participants met the assumptions of normality and homogeneity of variance. The behavioral intentions variable met the assumption of homogeneity but not normality. Separate, multiple two-way ANCOVAs for the factors of label (label, no label) and howler monkey image (howler and infant, single howler, and no howler) as well as the covariate of prior knowledge on the four dependent variables revealed effects of the covariate on biodiversity and subjective norming,  $F(1, 30)s \geq 4.18$ ,  $ps < .05$ . There were no significant main effects or interactions involving the presence of the howler image or



Smithsonian label on any of the dependent measures. Data for the dependent measures for the social media sample are presented in Table 5.

**Table 5**

*Means (SD) for the Marketing Material Conditions in the Social Media Sample*

Social Media				
	Biodiversity	Sustainability	Norming	Behavioral Intentions
	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>
<b>Howler with Infant</b>				
Label	4.8 (.5)	4.4 (.3)	4.6 (.9)	--
No label	4.8 (.5)	4.4 (.7)	4.3 (.8)	5.0 --
Total	4.8 (.5)	4.4 (.5)	4.5 (.8)	5.0 --
<b>Single Howler</b>				
Label	4.7(.6)	4.9 (.3)	4.7 (.7)	6.0 --
No label	4.4 (.2)	4.3 (.5)	4.7 (.5)	--
Total	4.6 (.5)	4.6 (.5)	4.7 (.6)	6.0 --
<b>No Howler</b>				
Label	4.8 (.4)	4.7 (.6)	5.2 (.5)	--
No label	4.7 (.3)	4.6 (.4)	4.5 (.3)	5.4 (.9)
Total	4.7 (.3)	4.6 (.5)	4.8 (.5)	5.4 (.9)

*Note.* Numeric values for behavioral intentions in the social media sample were impacted by an error in presentation resulting in a sample size of  $df = 2$ .

***Correlation Between Dependent Measures in Social Media Sample***

Consistent with the university student sample, it was expected that responses to the behavioral intentions would correlate with biodiversity and sustainability scores. As visible in Table 4, sustainability was positively corrected with biodiversity, subjective norming, and behavioral intentions for the social media sample.

## CHAPTER V

### DISCUSSION

The current study examined the effects of different images of howler monkeys as well as the presence or absence of a Smithsonian bird friendly label on a coffee bag on attitudes about biodiversity, sustainability, and subjective norming, as well as on behavioral intentions for future coffee purchases. The participants' self-reported prior knowledge on eight topics related to the study had the largest effect on the measures of biodiversity, sustainability, subjective norming, and behavioral intentions. The presence of a single howler monkey image on the coffee bag improved biodiversity attitudes compared to a coffee bag with no howler monkey image. The Smithsonian bird friendly label did not influence biodiversity, sustainability, subjective norming, or behavioral intentions.

Importantly, the two different samples of university students and social media respondents in the current study varied in age and prior knowledge, representing two very distinct populations. Although both samples showed correlations among the biodiversity, sustainability, subjective norming, and behavioral intentions measures, age was also positively associated with sustainability attitudes in the university sample. These findings suggest that different recruitment strategies can result in distinct populations with different prior knowledge backgrounds.

#### **Effect of Howler Monkey Image on Biodiversity Attitudes**

It had been initially expected that the howler monkey image with an infant and an adult would be most impactful; however, only the single howler monkey image had an effect on attitudes about biodiversity compared to the lack of such an image. One

possible reason that only biodiversity attitudes were altered by the howler monkey image may be that the coffee bag imagery included coffee trees and a message about agroecosystems, which may have caused participants to focus on biodiversity rather than sustainability. Furthermore, sustainability is often used as an umbrella term and has a variety of different meanings that differ among individuals (Figueiró & Raufflet, 2015). For example, Figueiró and Raufflet (2015) discussed the difficulties of fully integrating sustainability into higher education curriculum, resulting in gaps in knowledge about the topic of sustainability in higher education. Thus, the lack of sustainability-focused messaging on the coffee bag combined with semantic variations in the topic of sustainability might have contributed to the lack of effect of the howler monkey image or the Smithsonian labeling on sustainability attitudes.

A howler monkey was used in the current study because of their large body size and forward-facing eyes. Research on the use of flagship species found that animals who had the traits of larger bodies and forward-facing eyes tended to be more impactful as well as those who had cultural or spatial significance to the target audience (Smith et al., 2012; Verissimo et al., 2013). Previous research has also found that humans prefer neotenic features, which can be described as juvenile in appearance (Stokes, 2007); however, as noted, only the image of a single howler monkey produced significant changes in biodiversity attitudes in the current study perhaps because the infant and mother howler monkey image made participants feel guilty about their consumption choices. For example, Acuti et al. (2022) noted that the decision-making process in consumer behavior involves factors such as social norms, expectations, ethics, guilt, and knowledge about the product. If a consumer feels they are making an unethical decision,

they are more likely to distance themselves from the topic or product to avoid feeling guilt or discomfort. Acuti et al. (2022) provides examples of consumers who avoid thinking of animals while eating meat. Therefore, the presentation of an infant primate on coffee bags in the current study (prior to questionnaires about attitudes and future behavioral intentions in ethical shopping) may have caused participants to emotionally distance themselves from the topic.

Alternatively, participants may have been overwhelmed by the multiple components to the imagery presented on the coffee bags. Cotte et al. (2005) found that when consumers felt that someone was trying to manipulate them, they responded with anger and felt the presented material became less credible. Conversely, those same authors reported that consumers were more favorable toward material if the consumers found that material to be credible and they felt less manipulated. Thus, in the current study, the presence of an adult and infant howler monkey along with the Smithsonian label and agroecosystem message could have appeared as an obvious manipulation to the participants, whereas a single howler monkey, either with or without a label, appeared less like a manipulation.

Some species of primates such as the howler monkey rely on shade coffee plantations as agroecosystems but have never been used in market research to measure the effects that their image can have on sustainability or conservation causes (Guzmán et al., 2016; McCann et al, 2003). Birds and Beans, a Canadian coffee company, was the first to add a primate to their coffee bags because they also utilize the shade plantations, like the birds they usually use to educate the public (Birds and Beans Inc, 2022). While the inspiration to use howler images on a coffee bag came from this company, the current

project is the first to assess the use of a primate species and education about their potential ability to live in agroecosystems on consumer attitudes and intentions to purchase sustainably.

### **Lack of Smithsonian Bird Friendly Label Effects**

The Smithsonian bird friendly label did not influence attitudes toward biodiversity, sustainability, and subjective norming, or on behavior intentions in future coffee purchasing. This label was used in the current study because agroecosystems are the highest priority in the Smithsonian sustainability certification, requiring at least 10 species of shade trees in a plantation (Jha et al., 2014). Previous studies have shown that labels appeal to consumers, especially recycled and fair-trade labels. Mai et al. (2014) reported that 51% of participants would even pay more for products labeled as fair-trade. A major factor in Mai's study was recognition of the labels and, unfortunately, the labels used in the current study may not have been well known. Alternatively, a survey-based study revealed that participants preferred organic and pesticide-free labels over bird friendly or shade grown labels (Gatti et al., 2022), suggesting that people may care more about health-related benefits of labeling than about biodiversity or sustainability causes.

As noted above, the Smithsonian label used in the current study may not have influenced biodiversity, sustainability, subjective norming, or behavioral intentions because the Smithsonian label is not widely visible or understood. A study conducted in Italy with participants between the ages of 18-26 years old revealed that labels are often not recognizable or understood by youths (Annunziata et al., 2018). Even though studies have suggested that buyers care about products that are labeled as sustainable or eco-friendly, having a label present might not be enough to change behavior if the purchaser

is not confident in what each label means. Annunziata et al. (2018) confirmed that the participants in their study did recognize a few of the labels present. Similarly, Sirieix et al. (2012) found that having an abundance of labels does not have a positive effect on consumers if they do not understand each label, as they will not read lengthy text about the specifics of the labels. Thus, the current study's findings add to a growing literature indicating that, for labels to be effective, they must be easily recognizable and understood.

There is a plethora of green labels in the market today, which makes it impossibly hard for consumers to fully understand the focus of each label (Dietz et al., 2018; O'Connell, 2003). For example, the Smithsonian bird friendly label focuses on shade plantations while others may specifically indicate organic status, pesticide free, recycled ingredients, or fair-trade. Future studies or branding officials should focus on the importance of educating the consumer about the meaning of a label prior to investigating their impacts on sustainable choices. Additionally, limiting the labels available for use in the marketplace may aid consumers in decision-making. If participants in the current study did not recognize the label on the presented coffee bag, it is understandable that it did not have an impact on their attitudes about the presented topics.

### **State and Trait Behaviors in Behavioral Research**

The most important finding of the current study was that prior knowledge of the relevant topic areas had the most significant influence on biodiversity, sustainability, subjective norming, and behavioral intention measures. Interestingly, this indicates that one-time, state-based manipulations may matter less than stable or trait-based personality or knowledge with regard to biodiversity, sustainability, subjective norming or behavioral

intentions. Davies and Gutsche (2016) argued that social norms and guilt play a large factor in ethical purchasing. Bamberg and Möser (2006) expanded upon this finding to conclude that prior awareness and knowledge about environmental subjects intensifies social norms, guilt, and responsibility, which is reflected in increased ethical purchasing decisions. The current study adds to the literature, indicating the importance prior knowledge has on attitudes and purchasing behaviors.

Unfortunately, the brief intervention used in the current study, consisting of a coffee bag with information on shade coffee plantations, as well as imagery that includes howler monkeys and a Smithsonian bird-friendly label, had no impacts on measures of sustainability, social norming, and behavioral intentions and minimal impact on attitudes toward biodiversity. Studies have shown that state manipulations can result in attitude change. For example, Shultz (2000) found that short-term manipulations altered environmental attitudes. Alternatively, other studies have argued that, for a change in behavior related to sustainability to occur, the individual must feel a connectedness with nature (Nisbet et al., 2008). This is a concept supported by the current findings that biodiversity, sustainability, subjective norming, and behavioral intentions were all associated.

Green skepticism is a growing factor in consumer behavior now that many companies have started to implement green marketing to appeal to consumers (Goh & Balaji., 2016). Green skepticism is defined as “the phenomenon in which consumers doubt or disbelieve environmental claims made by the firms” (Goh & Balaji 2016, p. 629). While consumers who have knowledge about the topic are more likely to purchase sustainably over consumers who have little knowledge about the topic, consumers who

lack knowledge are also less willing to seek out new information and fall into the green skepticism, which then reflects in their purchasing decisions (Goh & Balaji, 2016). The behaviors of both types of consumers indicate that preexisting behavioral patterns and traits contribute extensively to future behavior and attitudes, making it difficult for short-term messages to change behavior. Those who are skeptical as their base state will not seek out information to change their opinions, while those who hold more knowledge on the subject will either purchase green regardless or do research to ensure they are making the right decision.

### **Associations Among the Dependent Measures**

Measures of biodiversity, sustainability, subjective norming, and behavioral intentions were related to one another in the current study. The topics of biodiversity and sustainability were measures to assess attitudes toward those topics, while subjective norming and behavioral intentions measured self-reported drivers of behavior in participants. Biodiversity and sustainability are often linked in research. Englund and Berndes (2014) and Dietz et al. (2018) both noted that biodiversity issues are extensively considered when creating sustainability certifications and standards. Thus, the current study adds to the literature by reinforcing that attitudes toward biodiversity and sustainability are related.

The interrelatedness of these measures is an important finding because it indicates that attitudes toward biodiversity and sustainability are influential forces on consumer behaviors. Subjective norming was positively correlated to each measure, indicating that consumers are motivated by perceptions of others, usually close friends and family, when making purchasing decisions related to biodiversity and sustainability.



Similarly, the current findings suggest that consumers are more likely to change their purchasing behavior in a positive way if sustainability and biodiversity are presented as factors. Sparkman and Walton (2017) confirmed a similar finding, indicating that social norms can change attitudes and viewpoints on a subject. While social norming was initially considered a form of obligation, the current study indicates that norming could be used to improve biodiversity or sustainability attitudes or to alter behavioral intentions toward future purchasing.

### **Sample Characteristics**

There were two main sample groups in this study that were recruited separately, one from social media and one from a university. There were more university students recruited than social media participants but these groups differed in their preexisting knowledge of the relevant topic areas and their age, as well as having visible differences in their self-reported socioeconomic status and coffee spending habits. In particular, the high preexisting knowledge scores of the social media group may have limited the impact of my manipulations due to potential ceiling effects. Chyung et al. (2020) explains that the ceiling effect occurs when an independent variable can no longer alter a dependent variable because measures are already close to their upper limits. In the current study, the howler monkey imagery may have only had an effect on biodiversity attitudes in university students and not the social media sample because the social media group already possessed strong positive attitudes toward biodiversity. Furthermore, because the howler monkey imagery was also intended to be informative, it may have had less of an impact on participants recruited from social media because they were already well-versed in the study material.

Interestingly, age did not influence attitudes on biodiversity, subjective norming, or behavioral intentions in either group but was associated with higher sustainability scores in university students. The current study mostly aligns with the findings of Wiernik et al. (2016) and Liu et al. (2014) that age does not influence environmental concern in the workplace or in public surveys. However, Liu et al. (2014) suggests that political ideology is a major factor that contributes to environmental attitudes, especially when combined with age. Furthermore, in their analysis of sustainability practices in cities across the United States, Saha (2009) found that cities with younger populations that were more highly educated and had more nontraditional family households as well as higher female labor force participation were doing well in promoting sustainability. Thus, these prior findings suggest that political ideology may be an important mediating factor when assessing how demographic variables influence environmental concern and, given that the current study did not evaluate political ideology and that the age range for my university student sample was narrow, it is difficult to generalize the relationship observed with between sustainability scores and age in the current study.

### **Limitations**

One limitation in the current study was the lack of social media participants in comparison to the size of the university student sample. In particular, a wider demographic may have mitigated the potential impact of a ceiling effect in the social media sample. The current study's participants were also primarily recruited from the United States, where there are not endemic primate species. Verissimo et al. (2013) found that using endemic species that are recognized or culturally significant can have positive

effects on the target audience. Thus, there could be benefits of repeating this study in a location where participants would be more familiar with the presented species.

Another limitation of the current study was the lower number of responses for the behavioral intentions measure compared to the other dependent measures. This difference was due to an error in the presentation of the Likert scales used in the behavioral intentions scale which resulted in a lack of data from both sample populations, especially from the social media sample. It is possible that the limited size of the samples' behavioral intention scores limited my ability to detect effects from the images and labels. If this study is to be repeated in the future, the impact on behavioral intentions has the potential of being more significant than it is in the current study, which can shed light on consumer intention.

## **Conclusion**

Prior knowledge about primates, shade coffee plantations, labeling, biodiversity, sustainability, and other relevant topics influenced biodiversity, sustainability, subjective norming, and behavioral intention scores in the current study while imagery of howler monkeys and labelling had less or no effect. These findings underscore that education about these topics is the best way to create consumers who intend to engage in sustainable purchasing behaviors. Pearson et al. (2014) noted that outside of a school or university setting, formal opportunities to learn about environmental impact can be scarce but that their one-minute educational video clips had lasting effects on biodiversity and sustainability attitudes up to six months later. If this tactic were to be used in elements in everyday life such as in advertisements or commercials, topics that are not well known could become understood on a deeper level and people may be more willing to change

their behaviors and purchase more ethically than they would have without knowing about these topics.

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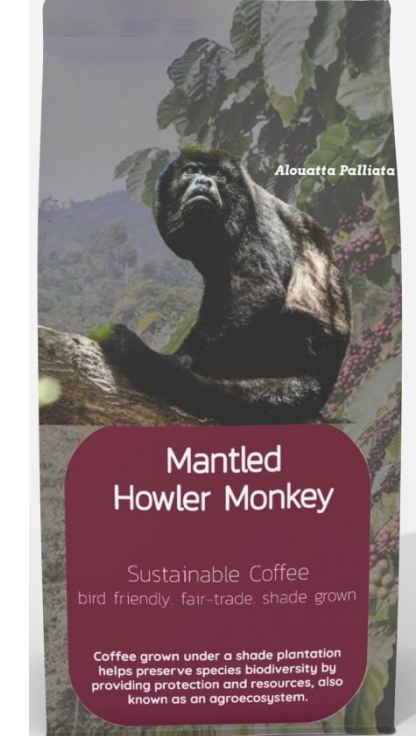
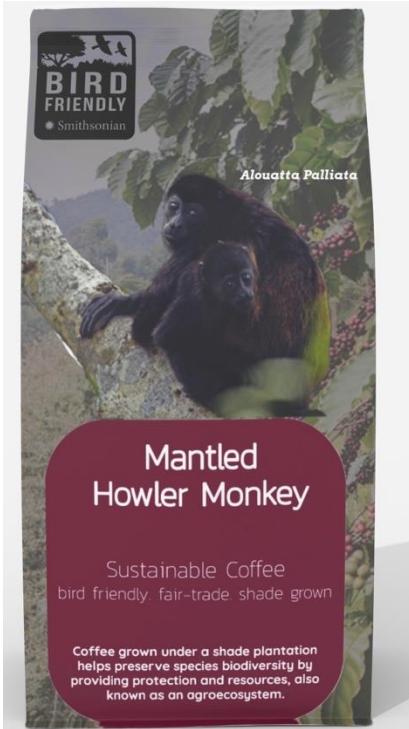
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# APPENDIX A

## COFFEE BAG VERSIONS

All six coffee bag versions presented in the current study.



## APPENDIX B

### BIODIVERSITY AND SUSTAINABILITY ITEMS

Biodiversity and sustainability survey items adapted from Pearson et al. (2014). Possible responses ranged from 1 (*highly unimportant*) to 6 (*highly important*). Participants were asked to “*Please select the level to which you agree or disagree with each of the following statements.*”

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#### Biodiversity Items

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1. Conserving species is very important.
  2. It is important to conserve species even if it means I spend more money on products.
  3. I am more likely to help biodiversity causes if the animal is cute.
  4. If I am not shown biodiversity information, I am unwilling to seek it out.
  5. Biodiversity loss is already happening, there is nothing I can do to change it.
  6. If there are methods that can help preserve biodiversity, we should allocate resources to these methods.
  7. Because shade coffee plantations can help preserve primate biodiversity, I think they should be protected and used more in the industry.
  8. I have seen information about biodiversity in advertisements before.
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#### Sustainability Items

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1. Sustainability is very important.
  2. Sustainability is something I think about as I live my daily life.
  3. I am more likely to act sustainably if it is tied with animals.
  4. I purchase coffee that is sustainably sourced from shade plantations.
  5. I prefer to buy products that are sustainably sourced.
  6. Sustainability is important for businesses to follow when sourcing their products.
  7. If a business doesn't have sustainability standards, I will still purchase from them.
  8. I have seen sustainability information in advertisements before.
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