

# Survival Blueprint

## **Banded Ground-Cuckoo** *Neomorphus radiolosus*



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## 1. STATUS REVIEW

### 1.1 Taxonomy:

**Kingdom:** Animalia

**Class:** Aves

**Order:** Cuculiformes

**Family:** Cuculidae

**Subfamily:** Neomorphinae

**Genus:** *Neomorphus*

**Species:** *Neomorphus radiolosus*

**Common name:** Banded Ground-Cuckoo

The genus *Neomorphus* includes South American Ground-Cuckoos in the Cuculidae family and the subfamily Neomorphinae (Myers et al. 2020). Neomorphinae are Ground Cuckoos with long legs, long tail and short wings which inhabit the New World (Payne and Sorensen 2005). *Neomorphus* species are insectivorous birds often associated while foraging, with ant swarms, mixed flocks and groups of mammals, such as peccaries (Hornbuckle 1997; López-Lanús et al. 1999). This genus varies in morphology. According to Payne and Sorensen (2005), the ancestors of *N. radiolosus* and *N. geoffroyi* separated from the ancestors of *N. pucheranii* and *N. rufipennis* by a speciation event, and after these, the groups speciated once more.

*Neomorphus radiolosus* seems to be isolated from *N. geoffroyi*, and other ground-cuckoos by the northern Andean Mountains (Payne and Sorensen 2005). The species is terrestrial and looks like a forest roadrunner-like cuckoo. There is no sexual dimorphism; its plumage is mostly black with a glossy black crest, it has a large bare blue ocular area and a blackish glossed green long tail (Birdlife International 2020b; Payne and Sorensen 2005). The species differentiates from *N. geoffroyi* in the bill and colour patterns, while *N. radiolosus* has a heavy dusky colour above its bill with yellow below it; *N. geoffroyi* has a yellow bill and the latter is bronzy-brown above until the tail, the wings are glossed green and have a black chest band (Payne and Sorensen 2005).



## 1.2 Distribution and population status:

The Banded Ground-Cuckoo (*Neomorphus radiolosus*) inhabits the foothills and lower slopes of the Choco Ecoregion (500-1200 masl) in southwestern Colombia and northwestern Ecuador (Payne and Sorensen 2005; Birdlife International 2020b) (see Figure 1: Map). It depends mostly on continuous primary forest, but there are some records in secondary forest areas (BirdLife International 2020). Its home range is estimated from 42 to 50 hectares (Karubian and Carrasco 2008).

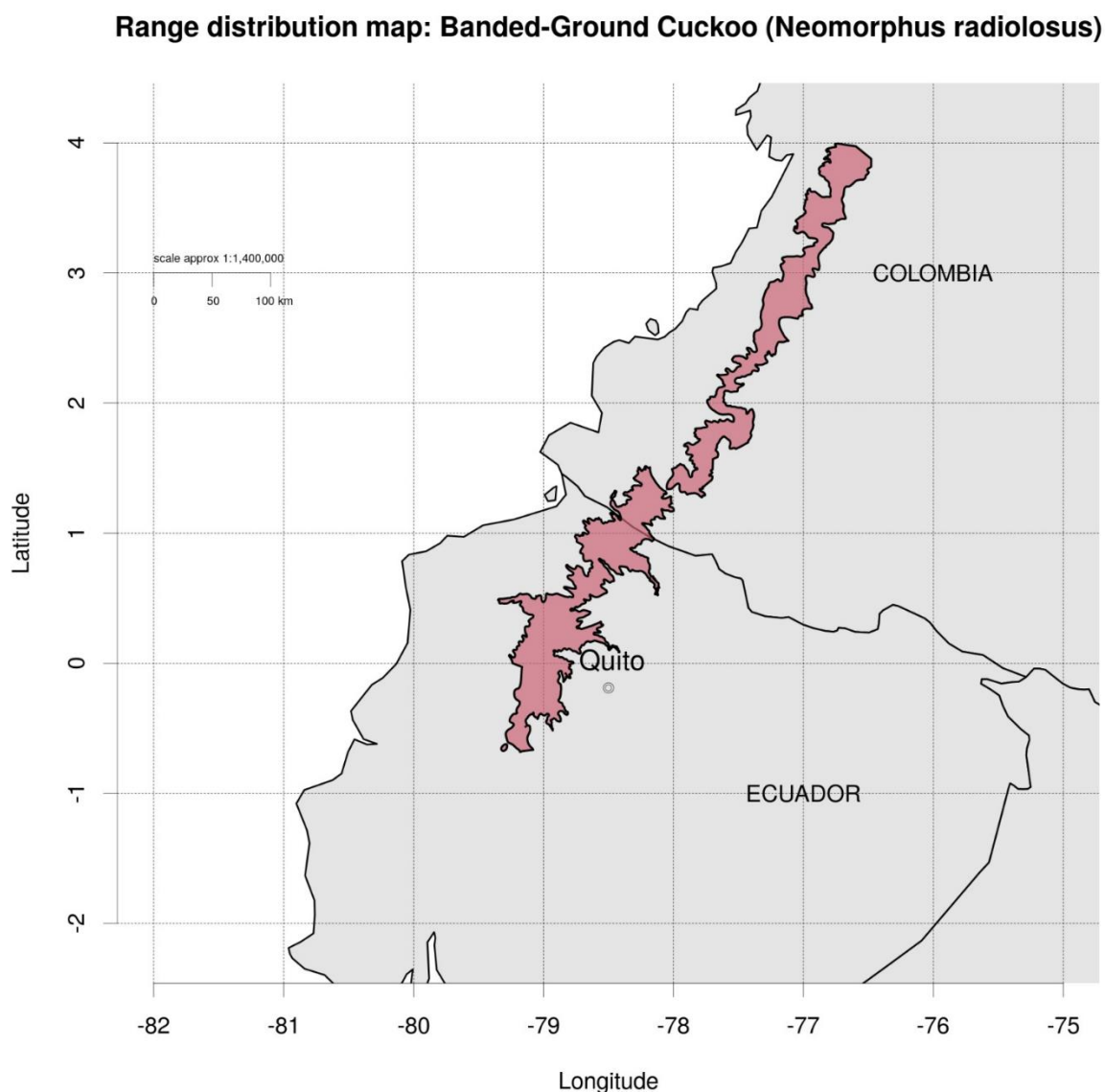


Figure 1. Banded Ground-Cuckoo Distribution Map (Source: Birdlife International 2020b)





## 1.2.1 Global distribution:

Country	Population estimate (plus references)	Distribution	Population trend (plus references)	Notes
Global	1000-2499 individuals, 600-1700 (mature individuals), according to known records, descriptions of abundance and range size (Birdlife 2020)	Pacific slope of the West Andes in southwest Colombia and northwest Ecuador.	Decreasing (Birdlife International 2020b)	Declining populations are caused mainly by habitat loss, but it is presumed hunting and low reproduction rates over three-generation are also relevant factors (Birdlife International 2020).
Ecuador	Unknown	Northwest Ecuador (Carchi, Esmeraldas, Imbabura and Pichincha provinces).	Unknown (Birdlife International 2020b)	There is no precise information about the population trend in Ecuador.
Colombia	Unknown	Southwest Colombia (Risaralda, Valle, Cauca, Nariño).	Unknown (Birdlife International 2020b)	There is no precise information about the population trend in Colombia.

## 1.2.2 Local distribution:

Country	Region / province	Site	Level of Protection	Population size	Reference(s)	Notes
Ecuador	Imbabura	Bosque Protector Los Cedros	Private protected area	Unknown	(Birdlife International 2020b)	
Ecuador	Imbabura	Cayapas-Santiago-Wimbí	Some protected areas with community lands	Unknown	(Birdlife International 2020b)	
Ecuador	Esmeraldas	Corredor Awacachi	Biological corridor managed by Fundación Awacachi	Unknown	(Birdlife International 2020b)	
Ecuador	Esmeraldas	Mache Chindul Ecological Reserve and surrounding	Public and Private protected areas, including:	Bilsa ~40 pairs	(Karubian and Carrasco 2008)	



		areas (Reserva Ecológica Mache-Chindul IBA)	- Mache Chindul Ecological Reserve Bilsa Biological Station			
Ecuador	Pichincha	Mashpi-Pachijal	Protected area	Unknown	(Birdlife International 2020b)	“Un Poco del Choco” is a private reserve located in the IBA area who has records of the species. It has conducted research activities with the species, mainly with banding techniques. Also there are several records in Mashpi area and surroundings.
Ecuador	Esmeraldas - Imbabura	Reserva Ecológica Cotacachi-Cayapas	Protected Area	Unknown	(Birdlife International 2020b)	
Ecuador	Esmeraldas	Territorio Étnico Awá y alrededores	Protected Area	Unknown	(Birdlife International 2020b)	
Ecuador	Esmeraldas	Verde-Ónzole-Cayapas-Canandé	Community lands, protected areas, agricultural and forestry	Unknown	(Birdlife International 2020b; EDGE of Existence 2018; Fundación Jocotoco 2020)	Fundación Jocotoco protects approximately 5 hectares of primary and secondary forests in this area. The EDGE of Existence (ZSL) funded Project: “Community-based research to conserve the Banded Ground-Cuckoo in northern Ecuador” was developed in this area, inside Canande and



						Tesoro Escondido Reserves.
Colombia	Cauca	Munchique Natural National Park and southern extension	Protected area	Unknown	(Birdlife International 2020b)	
Colombia	Nariño	Reserva Natural El Pangán	Protected area	Unknown	(Birdlife International 2020b)	
Colombia	Nariño	Reserva Natural Río Ñambí	Protected area	Unknown	(Birdlife International 2020b)	

### 1.3 Protection status:

The Banded Ground-Cuckoo is classified according to its global risk of extinction as Endangered according to C2a(i) IUCN Red List Criteria. Its population size is smaller than 2500 individuals, consisting of declining, fragmented and isolated subpopulations (Birdlife International 2020b). The species is endemic of the Choco ecoregion, one of the world's richest lowland biotas, it has a magnificent richness and endemism of plants, reptiles, amphibians, insects and birds (Birdlife International 2020a). According to Gómez et al. (2014) Choco ecoregion holds an extension of 17 million hectares. Very few of this extension is inside protected areas, just 18,7%, 5,1 % in Panama, 8,6 % in Colombia and 5% in Ecuador.

The major threats for the species are habitat loss and degradation that are increasing rapidly (Birdlife International 2020b). According to Birdlife International (2020a) the major threat for the Chocó ecoregion, where the species is endemic, are the massive logging concessions. Over 40% of the forests have been deforested and degraded since 1960, and the deforestation rates are increasing. By 1996, in western Ecuador, there was only 18% of evergreen lowland forests and 40% of premontane forests remaining (Sierra 1996). Esmeraldas province in Ecuador has the highest national rates of deforestation; as highlighted in the local distribution table, there are two important IBA sites in this province for the species (Sierra 2013).

### 1.4 Ecology, behaviour and habitat requirements:

The Banded Ground-Cuckoo is one of the most threatened cuckoos of the New World (Payne and Sorensen 2005; Del Hoyo et al. 1992). This endemic Chocó species inhabits the foothills and lower slopes, mainly from 500-1200 meters in



southwestern Colombia and northwestern Ecuador (Payne and Sorensen 2005). It depends mostly on continuous primary forest, but there are some records of it occurring in secondary forests (Birdlife International 2020b).

It is a large terrestrial cuckoo that follows ant swarms and eats the insects that are escaping from them. The species is also associated with mixed-species flocks of other ant-following birds such as, Ocellated Antbird, Plain-brown Woodpecker, Immaculate Antbird, among others (Payne and Sorensen 2005). Furthermore, *Neomorphus* species are associated with Collared Peccaries, according to Amaral et al. (2017), with the species not only feeding on the invertebrates that the peccaries turn up from the floor, but also sounding like them. The bill clacking of the ground-cuckoos is similar to the clacking of peccaries, deceiving predators. Ground-cuckoos and peccaries benefit mutually to alert each other of predators, apparently with the ground-cuckoos acting as sentinels in this mutualistic relation, while peccaries provide protection.

According to Payne and Sorensen (2005), *Neomorphus radiolosus* perches on fallen trunks or on the ground to examine leaves, stems and trunk bases, it moves quickly on the ground following the ant swarms. The authors described its behavior as “sprint in bursts and stops abruptly, runs forward to capture food, and when it catches prey items, it runs in a zig-zag pattern” (p. 201). Ground cuckoos can also fly to survey the area from high perches and “stay within a hop and flap of the ground” (p. 6).

There is little information about the breeding of this species, but it is known that it is a nest-building species. According to Karubian and Carrasco (2007), it breeds from March to June. The authors found two large nests, made by leaves and placed five meters above the ground in a Melastomataceae tree in Ecuador. Both adults contribute to the incubation of eggs, brooding and provisioning of food to the chick. The nestling fledged 20 days after hatching. The chick had white down except on its head; at fledging the plumage was similar to the adults



## 1.5 Threat analysis:

Threat	Description of how this threat impacts the species	Intensity of threat (low, medium, high, critical or unknown)
Habitat loss caused by extractive activities such as timber extraction, oil-palm plantations and gold-mining	Timber extraction, mining and oil palm plantations are causing several social-environmental conflicts. Not only biodiversity is affected, but vulnerable people are also facing dispossession of their territories, environmental contamination and racism (Moreno Parra 2019). These types of activities are responsible for the disappearance of more than 40% of primary forests in the region (Birdlife International 2020a). The Banded Ground-Cuckoo is a primary forest-dependent species, this threat is certainly the most important for this and other forest-dependant species.	Critical
Habitat loss caused by small and large-scale agriculture, and cattle farming	Agriculture and cattle farming negatively affect biodiversity by changing habitats and increasing contamination through the use of pollutants, an increase of food waste, and contribution to the climate crisis (Dudley and Alexander 2017). As described in the previous threat, these types of activities degrade the habitat the Banded Ground-Cuckoo needs to survive.	Critical
Habitat loss caused by the expansion of the road network	This threat is caused by the expansion of the two previously mentioned threats: extractive activities, agriculture and cattle farming. Better access to the focal areas is needed to develop these activities. Also, with road expansion, more unprotected forest patches become vulnerable to degradation and promote the intensification of anthropogenic activities that deteriorate important habitats of the Banded Ground-Cuckoo and other endangered species.	Critical
Habitat fragmentation caused by extractive activities, agriculture, cattle farming and expansion of the road network	Habitat fragmentation reduces dispersion rates between subpopulations (McCallum and Dobson 2002). It reduces genetic diversity that leads to a decline in the population fitness, high risk of diseases and local extinctions (McCallum and Dobson 2002; Dixo et al. 2009). Also it creates and intensifies edge effects, changing the environmental conditions of the patches.	High
Hunting	According to Birdlife (2020b), there is a presumed hunting pressure over the species. However there is	Unknown





	no accurate data about how this threat affects the species in Colombia or Ecuador.	
Lack of information	The species is not recognized in some areas of its distribution range in Ecuador. In some localities, it is known as the 'Choco roadrunner', but it is often confused with other terrestrial birds. This scarcity in knowledge of the species results in a poor understanding of how the threats are affecting the species, and impedes the development of effective long-term conservation plans.	High

## 1.6 Stakeholder analysis:

Country	Stakeholder	Stakeholder's interest in the species' conservation	Current activities	Impact (positive, negative or both)	Intensity of impact (low, medium, high or critical)
Ecuador	Conservation NGOs	High interest, they can be part of a conservation network for the BGC and the ecoregion	The activities depend on the kind of organization. Fundación Altrapico, for example, is a local NGO in Ecuador which works with indigenous communities in the Cayapas River, one of the most important sites of the BGC. Other important NGOs are Fundación Jocotoco Washu, FCAT, Ecominga, Fundación Futuro who own private reserves to protect primary forest patches in Esmeraldas and Province.	Positive. They could support conservation initiatives and expand them to other regions where the BGC inhabits. Also, they could establish connections with other national and international NGOs.	High
Ecuador	Environmental authorities	High interest, they are always seeking alliances with private NGOs for conservation purposes	The Environmental Ministry is in charge of controlling the natural resources, public protected areas, its use and conservation. They give permissions for	Positive and Negative. They give permissions for timber extractions and control it in the region.	Critical



			extractive activities and control them. Also, they are involved in several conservation plans for whole ecosystems in alliance with private NGOs.	Positively, they could support conservation projects for their expansion, they can create alliances and laws for the long-term conservation of the species.	
Ecuador	Local Park Guards	High interest in conservation, they are used to the fieldwork demands and have experience in conservation activities and species monitoring	Local park guards are involved in activities related to conservation in public and private reserves	Positive. They could develop fieldwork activities for conservation projects	High
Ecuador	Residents involved in conservation and ecotourism activities	High interest, some people are already involved in conservation and ecotourism initiatives, they are seeking alliances with local governments and NGOs to improve their initiatives	Residents are organized in associations. They are implementing ecotourism initiatives such as tourist trails and promoting attractions such as waterfall visits and viewing local biodiversity	Positive. They could become local researchers (e.g. citizen science) and support conservation projects.	High
Ecuador	Local farmers	The interest of this group depends on their awareness of environmental degradation. Some farmers are very aware of forest degradation and show a high interest, but people who are not aware do not show interest for	Most of the local people own lands inside the forest where they have farms and work.	Farmers who are aware of ecosystem destruction, the impact they can have is positive. They could give support to conservation initiatives and get involved in monitoring activities.	High



		conservation activities		People who are not aware of ecosystems degradation could be against the expansion of protected lands. Some of them think that protected areas are going to prohibit access to their lands or, in the case of NGOs, try to force them to sell their lands at a low cost. This generates bad perceptions of conservation.	
Ecuador	Residents not involved in conservation actions such as workers in logging companies or other type of extractive activities	Low interest, these people depend on extractive activities for their livelihoods	They work for companies involved with extractivism, mainly as daily workers.	Negative	High
Ecuador	Private land owners	Unknown	Some private landowners are not registered with local authorities this may include a lack of legal documentation for ownership of their lands.	The potential impact is likely to be negative, if they are not interested in conservation efforts.	Medium
Ecuador	Indigenous communities	Unknown	Indigenous communities are vulnerable in the Choco Ecosystem, some NGOs such as Altropico work with them in sustainable	The potential impact is likely to be positive, if they are already working in	High



			development activities, and education to empower them to support conservation and their livelihoods.	conservation activities.	
Ecuador	Forestry and extractive companies	Low interest, they have been deforesting the Choco Ecoregion for almost one century; conservation initiatives affect their business. Also they open roads to get access to extract natural resources.	They are the major responsible party for the deforestation in the region and the habitat loss of the BGC and other species	Negative	Critical
Ecuador	Universities and researchers	High interest. Universities are seeking alliances for ecological research of endangered species.	Some local, national and international universities have projects for undergraduate and postgraduate students in the region.	Positive. They could generate knowledge about the species to inform conservation action.	High





## 1.7 Context and background information that will affect the success of any conservation action for this species:

	Description	Barriers to conservation	Opportunities for conservation
<b>Socio-cultural effects and cultural attitudes</b>	<p>Social and cultural attitudes vary throughout the Ecuadorian Choco ecoregion. There are three provinces where the Banded Ground-Cuckoo persists: Esmeraldas, Pichincha and Imbabura. In Esmeraldas there are indigenous and settler communities, most of them dependant on extractivism: logging, hunting and large-scale agriculture (Quininde 2011). Local governments often neglect indigenous communities; some of them live in precarious conditions with no access to basic services (Moreno Parra 2019). In some places, NGOs are not accepted because locals think that they are invading territories and closing access to their lands, especially NGOs who are buying land for conservation. In Pichincha province, there are several local conservation initiatives that include ecotourism activities and community-based conservation.</p>	<p>Some communities have basic needs that require urgent attention. Without basic services for people, conservation is not possible. Local governments should pay more attention to neglected socio-economic regions, especially in Esmeraldas province, where there are testimonies of a low quality of life, poverty, labour exploitation and appropriation of lands.</p> <p>NGOs non-acceptance is also a barrier. There is a need to change people's perception of conservation NGOs. In addition to this, some NGOs do need to change the way they are working inside these areas. In some cases, people are right in their perception that some local NGOs just work for their interests and forget the communities and</p>	<p>Some communities are opened to conservation initiatives, they are accessible and want to support project's related to biodiversity conservation. Environmental education is essential in some places, and it could start with local government and people's support.</p> <p>Some NGOs who are working in the ecoregion could establish alliances with local communities to work in the different localities where the species is present.</p>



		their importance for successful conservation actions.	
<b>Economic implications</b>	<p>Ecuador depends highly on the primary industry sector, and the exportation of raw materials. Agriculture and extractive activities (especially oil) are the main source of income for the country (Banco Central del Ecuador 2020).</p> <p>In Esmeraldas, one of the most important places for the Banded Ground-Cuckoo, agricultural-related activities (including palm-oil plantations, other plantations and cattle farming) cover 40% of the territory, this is the main economic activity for the population, with almost 40% of the economically active population involved in agricultural-related activities, mainly as day-labourers (Quinde 2011). This economic dependence on agriculture is similar in other provinces where the Banded Ground-Cuckoo inhabits.</p>	<p>Ecuador has high rates of poverty and inequality, with 25% of the population living in poverty. Rural areas have rates of poverty of more than 40% (INEC 2020). For this reason, low economic activity is a significant barrier to conservation.</p> <p>As with much of the country, most of the region's population depend on the extraction of natural resources, either as farmers or as workers in the primary industry. Most of the time, the conditions underlying the extraction of natural resources are not sustainable in the long-term.</p>	<p>There is still opportunity for conservation and improving local community livelihoods. The tourism sector is one of the most important sections for Ecuador. The creation of alternative economic opportunities for growth is the best option to achieve conservation impact. There are some opportunities for agro-ecological practices, community-based conservation and ecotourism initiatives.</p>
<b>Existing conservation measures</b>	<p>According to Birdlife International (2020b), the Banded Ground-Cuckoo is protected inside public, private, indigenous community reserves and protected forests in Colombia and Ecuador. In Ecuador, three public protected areas protect habitat for the species: Cotacachi-Cayapas and</p>	<p>All conservation stakeholders who are working in the region must be identified. Not all of them are aware of the conservation status of this and other endangered bird species. Public environmental authorities are</p>	<p>There are several opportunities for conservation of the species, but first, all of the conservation stakeholders must be identified who can support conservation actions. There is the possibility to establish alliances</p>



	<p>Mache-Chindul Ecological Reserves and El Pambilar Wildlife Refuge. The private reserves "Los Cedros", "Bilsa" Biological Station, "Un Poco del Choco", Jevon Forest, Canande and Tesoro Escondido have several records of Banded Ground-Cuckoo. Canande and Tesoro Escondido reserves, owned by Fundación Jocotoco, protect 7,000 hectares of critical habitat for the species. Jocotoco is working to create a biosphere corridor of remnant Chocó rainforest through land purchases to connect the reserve with the 240,000 hectare Cotacachi-Cayapas National Park.</p> <p>The EDGE of Existence (ZSL) funded Project: "Community-based research to conserve the Banded Ground-Cuckoo in northern Ecuador" (EDGE of Existence 2018) built on the first attempt of community engagement and social outreach actions focused on this species and the Chocó rainforest. It engaged local communities of Esmeraldas for the long-term conservation of the Banded Ground-Cuckoo. This project supported initiatives of ecotourism and community-based conservation and trained local people and forest guards to monitor the species.</p>	<p>not engaged at all. Currently, there has only been initial contact with them, however, persistent engagement is needed to strengthen public relations with authorities and local governments to create awareness about the importance of the species and the Choco ecoregion.</p>	<p>between NGOs, researchers, and environmental authorities to develop a long-term conservation plan for the species, similar to other successful plans for other endangered conservation flagship species such as the Andean Condor and the Brown-headed Spider Monkey.</p>
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<p><b>Administrative/political set-up</b></p>	<p>Local communities in the region are hard-to-reach and distributed remotely. It can be unclear how these communities are organised politically. In Esmeraldas, for example, locals are organized into "cooperatives", which contain groups of people with similar economic activities, such as farmers.</p> <p>Local governments are in charge of the administrative matters of every province and the local communities. Furthermore, there is an environmental authority department in each province who control and give permission for environmental activities .</p>	<p>As explained previously, local governments often forgot local communities, especially those that are remote. Authorities often do not clearly understand the practical realities and relationship between communities and biodiversity.</p>	<p>There are authorities with high interest in conservation projects. Some of them could support conservation initiatives and establish alliances with other important stakeholders, even those who are not interested in biodiversity conservation.</p>
<p><b>Local expertise and interest</b></p>	<p>Research about the Banded Ground-Cuckoo home range, habitat preferences and breeding ecology have been conducted at Bilsa, Esmeraldas (Karubian and Carrasco 2007, 2008). "Un Poco del Choco", a private reserve, has a banding programme for bird-species; at least two Banded Ground-Cuckoos have been banded since 2018. The EDGE of Existence (ZSL) funded Project: "Community-based research to conserve the Banded Ground-Cuckoo in northern Ecuador" tried to estimate the occupancy of the species with playback monitoring, however, this attempt did not</p>	<p>Resources are limited to encourage a greater number of local people to engage in conservation. Unfortunately, much of the local population are not currently interested in conservation-related activities.</p>	<p>The current local expertise provides several opportunities for conservation. There is opportunity to promote local people as future conservation leaders. This is very important to establish and support long-term conservation measures. Community involvement is crucial for conservation initiatives, this involvement could develop in the future with a higher number of people interested in conservation activities.</p>





gather sufficient data. Nevertheless, the species presence was confirmed, with the species being recorded several times in camera traps located in Canande and Tesoro Escondido private reserves. It seems camera trapping is the appropriate methodology to study ground-dwelling birds such as the BGC (O'Brien and Kinnaird 2008). Camera traps can document the presence of the species and other ecological aspects, such as occupancy, density, behaviour, and interactions with other species (O'Brien and Kinnaird 2008; Suwanrat et al. 2015). Camera traps will be installed in both private reserves to increase the knowledge of the species with the support of the Rufford Foundation. The medium term plan (XX years) is to expand the project to the entire region, especially in the Esmeraldas province.

Furthermore, biodiversity research of the Ecuadorian Choco has been conducted inside private reserves where local forest guards, local people and parabiologists are involved. In Ecuador, the three provinces where the species is present have local people interested in conservation and with experience in biodiversity monitoring. Forest guards of public



	reserves are also very important actors; they are part of local communities and are already engaged in conservation initiatives and environmental awareness raising.		
<b>Resources</b>	<p>Public resources for conservation initiatives are limited in Ecuador. In 2019, the budget for environmental protection decreased by more than 30% (Diario El Comercio 2019). The negative economic environment in most Latin American countries is critical and is expected to get worst due to the impact of COVID-19.</p> <p>Private NGOs support several conservation initiatives across the entire region. Local NGOs are generally supported by international NGOs from developed countries. Among the most important local NGOs who are working in the Choco Ecoregion are Fundación Altropico, Fundación Jocotoco, Fundación de Conservación de los Andes Tropicales, Aves y Conservación. They are supported by international NGOs such as the Rainforest Trust, American Bird Conservancy, WWF, IUCN, Birdlife International, and Critical Ecosystem Partnership Fund, among others.</p> <p>For the Banded Ground-Cuckoo conservation, there are currently three active projects: the</p>	Limited resources is a significant barrier to conservation. All the conservation initiatives depend highly on funding from local and international NGOs.	There is expertise to develop competitive proposals to seek resources for conservation initiatives in the region. Furthermore, there are opportunities to establish alliances between NGOs, local authorities and universities to obtain other non-monetary resources, such as personal resources and capacity building of local people.



	<p>EDGE of Existence and Segre Foundation funded project “Community-based research to conserve the Banded Ground-Cuckoo in northern Ecuador” developed by Fundación Jocotoco, the expansion of the same project with the support of the Rufford Foundation, and lastly a project funded by National Geographic in the Bilsa Biological Station. These three projects are located in Esmeraldas province.</p> <p>Another important source of funding are the local, national and international universities. Some of these are involved in research activities in the region with undergraduate and graduate students. This kind of people-resource is very important to develop research of the species and the ecoregion.</p>		
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## 2. ACTION PROGRAMME

<b>Vision (30-50 years)</b>	
Banded-Ground Cuckoo population viable and effectively conserved throughout its entire distribution range.	
<b>Goal(s) (5-10 years)</b>	
The long-term conservation of the Banded-Ground Cuckoo secured in Ecuador and supported by active community involvement.	
<b>Objectives</b>	<b>Prioritisation</b> <i>(low, medium, high or critical)</i>
<i>Establish a monitoring programme of the Banded Ground-Cuckoo</i>	Critical
<i>Increase knowledge of the Banded Ground-Cuckoo essential for raising awareness and its conservation</i>	Critical
<i>Establish protected areas for the protection of the species through laws, private reserves or corridor creation</i>	High
<i>Quantify the threats for the species across its distribution</i>	High
<i>Raise awareness about the Banded Ground-Cuckoo in local communities living alongside critical populations of the Banded Ground-Cuckoo</i>	Medium
<i>Increase local community participation in conservation science</i>	Medium
<i>Generate alternative sources of income to support local community livelihoods</i>	Low
<i>Develop a regional conservation network of key stakeholders to conserve and monitor the species</i>	High





Activities	Country / region	Priority (low, medium, high or critical)	Associated costs (currency)	Time scale	Responsible stakeholders	Indicators	Risks	Activity type
<b>Objective 1:</b> Establish a monitoring programme of the Banded Ground-Cuckoo								
Activity 1.1 Implement monitoring programme of the species with camera traps across the species' distribution	Ecuador - Colombia	Critical	100.000 GBP (camera traps) 2.000 GBP (batteries) 30.000 GBP (Staff costs)	5-10 years	NGOs, Environmental authorities, Universities, local communities	-At least 100-200 camera traps installed across the BGC distribution area in Ecuador -Publications about occupancy, behaviour and habitat preference of the species	-Malfunction of the equipment -Theft of camera traps -Access not granted to some areas -Not enough detections of the species to enable robust data analysis	Field and research activities
Activity 1.2 Train local people, forest guards and parabiologists in camera trap methodology	Ecuador - Colombia	Critical	10.000 GBP (Staff training)	1 year	NGOs, Environmental authorities, Universities, local communities	Registration lists of local people trained from key communities involved in monitoring -Methodology for long-term community participation	-Local people might not have an interest to participate in research, or they may leave the project before its completion	Training and capacity building activities
Activity 1.3 Socialize monitoring results with other	Ecuador-Colombia	High	1,000 GBP for the design of infographs,	1 year	NGOs, Environmental	Registration list of all the people who receive the information	Not enough data to present or socialize	Engaging with stakeholders



stakeholders interested in conservation such as NGOs, local communities and local authorities			brochures, digital presentations. It will depend if the socializing is face to face or online		authorities, Universities, local communities			
<b>Objective 2:</b> Increase knowledge of the Banded Ground-Cuckoo essential for raising awareness and its conservation								
Activity 2.1  Increase ecological knowledge of the species in habitat preferences, species interactions, breeding ecology and spatial ecology	Ecuador-Colombia	High	Approx. 50.000 – 100.000 GBP (it depends on the kind of research)	3 years	NGOs, Environmental authorities, Universities	Student project proposals for the species, research project reports, papers published	-Not enough interest in the species from stakeholders such as, universities. -Not enough interested students to work with the species -Not enough resources for analysis	Research
Activity 2.2  Increase knowledge about the genetic diversity of the species in different subpopulations	Ecuador-Colombia	High	Approx. 50.000 GBP	2 years	NGOs, Environmental authorities, Universities	Student project proposals for the species, research project reports, papers published	-Not enough interest in the species from stakeholders such as universities. -Not enough interested students to work with the species -Not enough resources for genetic analysis	Research
Activity 2.3	Ecuador-Colombia	High	Approx. 50.000 – 100.000 GBP	3 years	NGOs, Environmental	Student projects for the species, research	-Not enough interest in the species from	Research



Increase knowledge about the behaviour of the species					authorities, Universities	proposals, scientific publications	stakeholders such as universities. -Not interested students to work with the species Not enough resources for data analysis	
Activity 2.4  Socialize information of the Banded Ground-Cuckoo with local communities and environmental authorities	Ecuador-Colombia	High	1,000 GBP for the design of infographs, borchures, digital presentations. It will depend if the socializing is face to face or online	1 year	NGOs, Environmental authorities, Universities, local communities	Registration list of all the people who receive the information	Not enough data to present or socialize	Engaging with stakeholders
<b>Objective 3:</b> Establish protected areas for the protection of the species through laws, private reserves or corridor creation								
Activity 3.1  Map the occupancy of the species from camera-trap data to make identify important habitat of the Banded Ground-Cuckoo	Ecuador-Colombia	High	Approx. 1000 GBP. These analysis will be achieved through the data collected in activities in Objective 1	2-3 years	NGOs, universities	At least one map identifying key habitat and occupancy for Banded Ground-Cuckoo in Ecuador	Not enough data to run the occupancy model	Research



<p>Activity 3.2</p> <p>Meetings with local authorities to raise awareness about the importance of the identified key habitats in the ecoregion for the conservation of the species</p>	Ecuador-Colombia	High	Approx. 1000 GBP to cover travel expenses	2 years	NGOs, universities, local authorities, Residents involved in conservation and ecotourism activities	Meetings arranged with at least all the local governments of the provinces in Ecuador	-Local authorities not interested in these conservation initiatives -Hard to arrange meetings with local authorities	Communication and engagement
<p>Activity 3.3</p> <p>Create public protected areas and establish biological corridors with community and private reserves support</p>	Ecuador - Colombia	High	These costs may vary across territories. And they would cover basic costs for protected areas, hire of forest guards, among other expenses	10 - 30 years	NGOs, local authorities, residents involved in conservation and ecotourism activities	Corridors established between protected areas (public, private and community lands) New protected areas created	-Not enough resources to create a protected area -Interest conflicts with extractive activities such as logging and mining -Residents not interested in the creation of protected areas -Disagreements between stakeholders involved	Protected areas creation and engaging
<p>Activity 3.4</p>	Ecuador - Colombia	High	These costs may vary across territories, for	10 - 30 years	NGOs, residents involved in	Private reserves established across the region	Lack of funding sources interested in the conservation of the BGC	Protected areas





Raise funds for the creation of private reserves			example, in Esmeraldas, a cost per hectare is between 1000-2000 pounds		conservation and ecotourism activities			creation and engaging
<b>Objective 4:</b> Quantify the threats for the species across its distribution								
Activity 4.1 Identify local researchers working across the species distribution range who support the identification of threats in their research area	Ecuador - Colombia	High	Approx. 500 GBP, depending on the territory and if travel to the places are needed	3 - 8 years	Residents involved in conservation and ecotourism activities, local researches, universities, NGOs, local authorities	A list of people interested in the conservation of the species in Ecuador and Colombia	Difficult to access all of the areas and to get all the people interested	Engaging, identification of threats
Activity 4.2 Evaluate the potential threats for the species in the different areas and analyse them for future conservation actions.	Ecuador - Colombia	High	Approx. 2.000 GBP in meetings (face-to-face and online)	3 - 8 years	Residents involved in conservation and ecotourism activities, local researches, universities, NGOs, local authorities	A list of all the threats for the species and an analysis of each threat categorizing them from the most serious to the least serious.	The threats are not all identified because of territories that are difficult to access and conduct research	Engaging, identification of threats



<b>Objective 5:</b> Raise awareness about the Banded Ground-Cuckoo in local communities living alongside critical populations of the Banded Ground-Cuckoo								
Activity 5.1  Identify the local communities living alongside populations of the Banded Ground-Cuckoo	Ecuador-Colombia	High	Approx. 300 GBP, it will increase with field visits, some communities are small, isolated or difficult-access	6 months it will depend on research activities	NGOs, universities	- A list of local communities living alongside populations of the Banded Ground-Cuckoo	- Little communities not identified just with the use of maps	Identification of stakeholders
Activity 5.2 Create promotional material for the species	Ecuador-Colombia	Medium	Create material with threat map, priority areas for conservation, brochures, infographics.  Approx. 3.000 GBP for designing costs	1-2 years	NGOs, Environmental authorities	Merchandise material printed for distribution to target audience	-Merchandise materials are not of good quality -Materials are not printed at time	Awareness-raising
Activity 5.3 Conduct environmental awareness raising activities among children 5-12 years	Ecuador-Colombia	Medium	12000 GBP (1,20 GBP per colouring book)  5.000 GBP (Staff costs)	1-5 years	NGOs, Environmental authorities	At least 10,000 colouring books delivered to all of the schools in the distribution area, number of local teachers trained and talks given	-Areas to conduct activities are difficult to access -Insufficient interest of the communities or local authorities	Awareness-raising



Activity 5.4 Conduct environmental awareness raising activities among teenagers	Ecuador-Colombia	Medium	Approx. 7.000 GBP	1-5 years	NGOs, Environmental authorities	Talks in at least one of the schools in each community	-Communities are not engaged in the activities	Awareness-raising
Activity 5.5 Conduct environmental awareness raising activities among adults	Ecuador-Colombia	Medium	Approx. 7.000 GBP	1-5 years	NGOs, Environmental authorities	At least one talk in each community in social meetings and school parent meetings	-Communities do not engage in the activities	Awareness-raising
Activity 5.6 Train local teachers	Ecuador-Colombia	Medium	Approx. 7.000 GBP	1-5 years	NGOs, Environmental authorities	At least 200 local teachers trained across the distribution area	-Communities are not engaged in the activities	Awareness-raising
<b>Objective 6:</b> Increase local community participation in conservation science								
Activity 6.1 Develop workshops in communities about biodiversity conservation, ecosystem services and umbrella species such as the Banded Ground-Cuckoo	Ecuador-Colombia	Medium	Approx. 20,000 GPB to cover all the distribution range of the BGC	3-10 years	NGOs, Environmental authorities, universities, private reserves	Workshops about ecological monitoring, camera trap use, science communication	-Communities not engaged -Low attendance of people at the workshops -Low participation and interests in the workshops	Awareness and community-based research



Activity 6.2 Involve local participants in research activities as local researchers, forest guards or local conservation leaders	Ecuador	Medium	Approx. 10,000 GBP for per diems and salaries for local people involved	3-10 years	NGOs, Environmental authorities, universities, private reserves	Number of local people involved in research activities	-Local people are not interested in the type of work proposed, or leave the project before its completion	Awareness and community-based research
<b>Objective 7:</b> Generate alternative sources of income to support local community livelihoods								
Activity 7.1 Develop plans of community-based tourism in communities that already have similar initiatives	Ecuador	Medium	Approx. 7,000 GBP	3-10 years	NGOs, Environmental authorities, local communities	Plans or programs to develop community-based ecotourism	-Community has no interest in the activity -Activity generates conflict between communities	Community-based conservation
Activity 7.2 Develop workshops to train local people in sustainable activities that can generate alternate income (chocolate, soap production, agroecological techniques)	Ecuador	Medium	Approx. 7,000 GBP	3-10 years	NGOs, local communities	Workshops about alternative economic activities	-Local people are not interested in the activities	Community-based conservation



<b>Objective 8:</b> Develop a regional conservation network of key stakeholders to conserve and monitor the species								
Activity 8.1 Hold meetings with conservation stakeholders such as NGOs, environmental authorities, residents involved in conservation actions, researchers and universities.	Ecuador, Colombia	High	Approx. 3000 GBP to organise meetings in strategic places to support attendance and conservation action	1-3 years	NGOs, Environmental authorities	Meetings with stakeholders in relevant conferences such as ornithological or conservation meetings	-Disagreements between stakeholders -Bad relations between stakeholders disrupt teamwork in the future	Communication and engagement
Activity 8.2 Create a research group to study the Banded Ground-Cuckoo across its distribution range	Ecuador, Colombia	High		1-3 years	NGOs, Environmental authorities	Meetings with all the stakeholders at relevant events such as, conferences, ornithological or conservation meetings	-Disagreements between stakeholders -Bad relations between stakeholders disrupt teamwork in the future	Communication and engagement





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