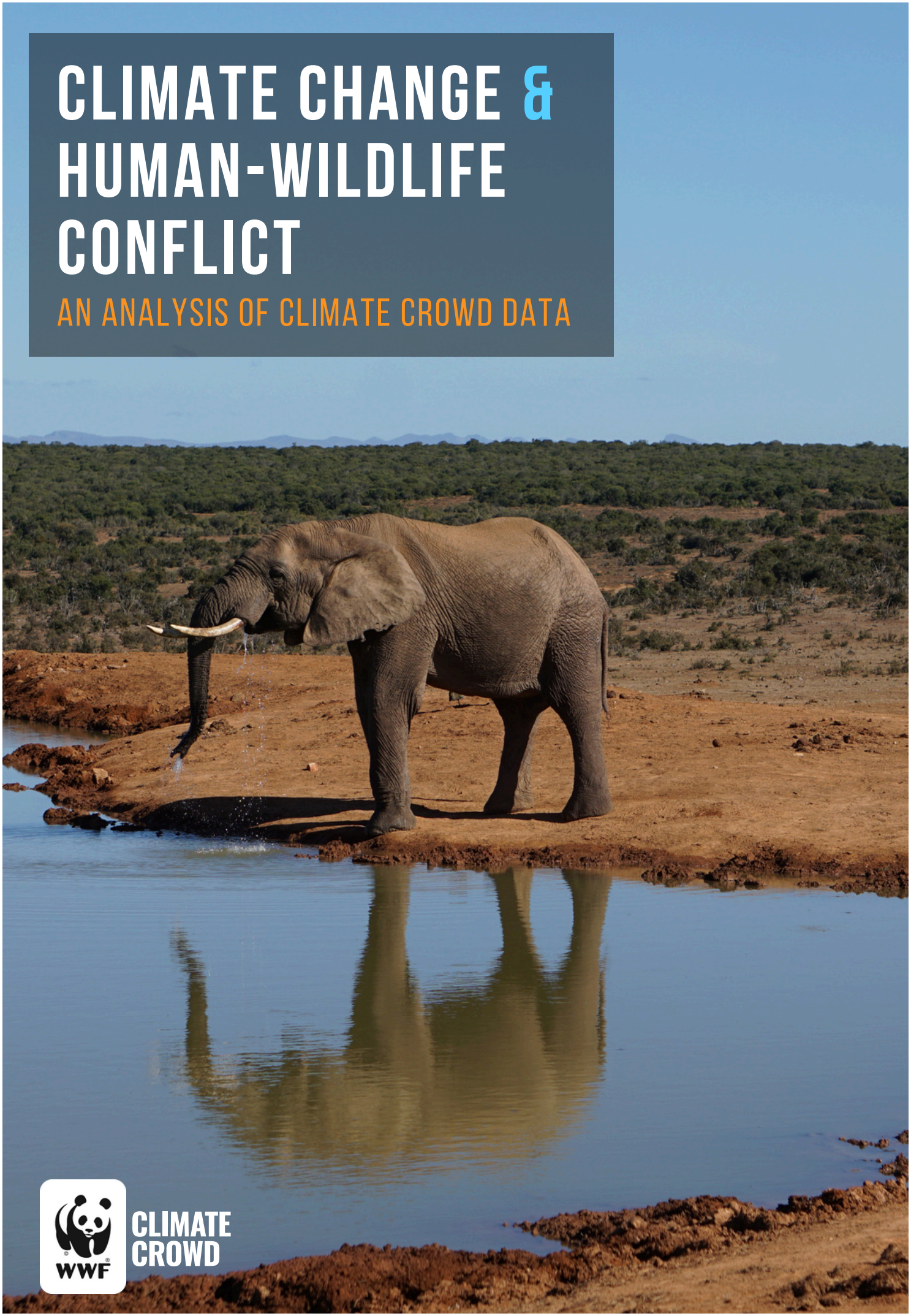
CLIMATE CHANGE & HUMAN-WILDLIFE CONFLICT

AN ANALYSIS OF CLIMATE CROWD DATA



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CLIMATE CROWD

Research and Text

Lily Lustig/WWF-US

Design and Layout

Lily Lustig/WWF-US

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A town bordering a protected area near Mt. Kenya.

EXECUTIVE SUMMARY

As we experience intensifying environmental changes and resource scarcity, humans and wildlife are altering their behaviors, leading to increased competition for food and water and escalating human-wildlife conflict. The findings of this report highlight the interconnectedness of human and wildlife responses to climate stressors and the complex dynamics that drive conflict, based on data from key-informant interviews—conducted by the Climate Crowd initiative—about how communities on the ground are experiencing and coping with climate change. The data shows that 25% of all interviews (out of a total of 3,911 interviews from over 40 countries) in the Climate Crowd database mention increased instances of human-wildlife conflict alongside other reports of climate change impacts. These findings add to the growing body of evidence that climate change, and how people and wildlife are coping with it, is leading to increased human-wildlife conflict.

KEY MESSAGES

Extreme weather is causing communities to alter their natural resource use.

The effects of climate change—like drought, decreased rainfall, and shifting seasonal patterns—have resulted in impacts on communities like reductions in crop yields and decreased water availability. To cope with these impacts, communities have altered their use of natural resources, such as sourcing water from new locations and relocating farms to areas with more fertile soil.

Some community responses to changing environmental conditions are impacting wildlife and putting people and wildlife into closer contact.

The ways people are responding to climate change impacts, like needing to seek natural resources in new areas, are affecting wildlife by increasing habitat encroachment and resource degradation. As people turn to ecosystems that wildlife depend on, shared reliance can lead to resource degradation and increase the frequency of human-wildlife interactions.

Wildlife is extending its range into community areas due to decreased resource availability as environmental conditions change , causing increased conflict.

Similarly to human communities, wildlife is experiencing shortages of once-available resources like food and water due to shifts in the climate. In response, wildlife has been increasingly entering community areas in search of food and water, leading to more frequent interactions, competition, and conflicts—especially when wildlife damages crops.

The data in this report underscores the growing issue of human-wildlife conflict, and how climate stressors are putting people and wildlife at odds with each other, ultimately contributing to instances of human-wildlife conflict. Climate Crowd has already implemented solutions like nature-friendly fences in Bhutan to prevent crop raiding from wildlife. By helping communities adapt to the impacts of climate change, wildlife can also benefit.

BACKGROUND

Human-wildlife conflict is defined as "struggles that emerge when the presence or behavior of wildlife poses an actual or perceived, direct and recurring threat to human interests or needs, leading to disagreements between groups of people and negative impacts on people and/or wildlife" (IUCN 2022). As climate change intensifies, its effects are being felt most acutely by rural communities living near wildlife areas. Scientists predict that human-wildlife conflict will become more frequent, as both people and animals are forced to move and compete for increasingly scarce natural resources and suitable habitats (Abrahms et al. 2023).

Preliminary data from Climate Crowd, based on key informant interviews conducted in over 40 countries, already points to this emerging trend. The aim of these interviews is to understand how changes in weather and climate are impacting both communities and wildlife, how people are responding, and how those responses may, in turn, affect wildlife.[1]

Climate Crowd is a bottom-up community-driven approach. Working with communities and local NGOs, we collect data on climate impacts to communities, analyze the data, present the data back to the communities, and work with them to develop, fund and implement on-the-ground solutions that help people and nature adapt to a changing climate. The Climate Crowd model provides a rapid way to gather data, pilot projects, and mobilize financial resources for the most vulnerable communities through a participatory method.

Notably, many informants have reported a rise in human-wildlife conflict, often linked to climate-driven factors like resource scarcity, which push people and wildlife into closer contact. In fact, 25% of all Climate Crowd interviews reference increased conflict alongside other climate-related challenges. The driving forces and chain of events that lead to this escalating conflict are presented in this report.

Communities bordering Mgahinga Gorilla National Park in Uganda.

[1] Click here or see the References section for the full list of interview questions.

METHODOLOGY & SCOPE OF ANALYSIS

This report examines incidents of human-wildlife conflict identified through an analysis of Climate Crowd interviews conducted around the world. Specifically, we focus on how key informants have reported these conflicts and their potential links to changing weather and climate conditions.

Climate Crowd uses key informant interviews —a social science tool designed to gather in-depth insights from individuals with extensive knowledge or unique perspectives. These informants speak on behalf of their communities, offering anecdotal reflections on shared experiences rather than individual opinions. Because the interviews are open-ended (see Figure 1), they cover a wide range of topics beyond climate change and human-wildlife conflict, allowing for nuanced, community-driven narratives.

1 **CHANGES IN WEATHER AND CLIMATE**
Respondents are asked about the biggest changes in weather and climate they have faced in recent years.

2 **IMPACTS ON LIVELIHOODS**
Respondents are asked how the reported changes have impacted their livelihoods and natural resources.

3 **COMMUNITY RESPONSES**
Respondents are asked how community members have responded to the reported impacts. For example, changing agricultural areas.

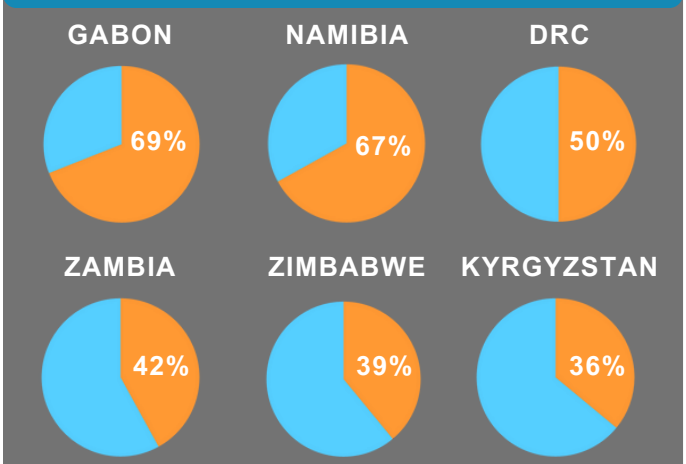
4 **IMPACTS ON WILDLIFE**
Respondents are asked about any observed climate change impacts to wildlife, and if any of the community's coping responses to climate change are impacting wildlife.

Figure 1: An overview of the Climate Crowd interview structure.

From 2017 to 2024, a total of 3,911 interviews were conducted, 973 (25%) of which mentioned human-wildlife conflict. Relevant interviews were identified using 40 key terms and manually validated to ensure they contained meaningful references to conflict. For each, we recorded associated climate change impacts and community responses, using axial coding to extract statistics and identify patterns from qualitative data.

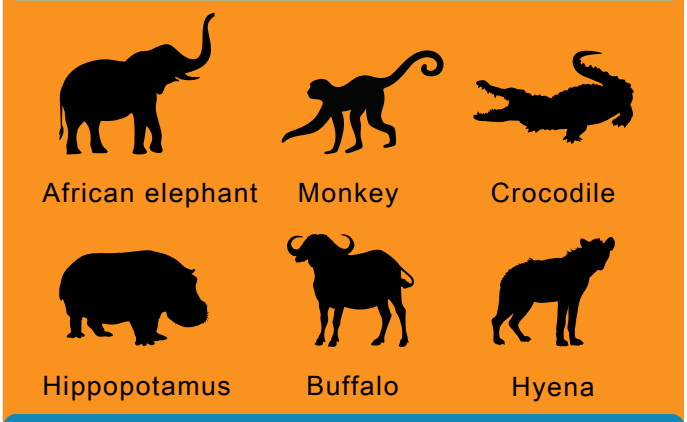
While this report centers on climate change as a contributor to human-wildlife conflict, other environmental and socio-economic stressors—some not explicitly captured in the interviews—also play a role, often in combination. Below is a geographic breakdown of the interviews included in this analysis, as well as the wildlife species most frequently reported to be involved in conflict incidents.

TOP COUNTRIES REPORTING HUMAN-WILDLIFE CONFLICT*



*most Climate Crowd interviews are from Africa, so the results of this analysis are not geographically comprehensive or representative of global trends.

TOP SPECIES MENTIONED*



*the species represented in this graphic are biased by the geographies where the surveys were conducted.

CHANGES IN WEATHER AND CLIMATE

Rural communities are increasingly experiencing droughts, heat waves, floods, landslides, and more (Figure 2). To adapt, communities have begun adjusting their actions to cope with the shifts in weather and climate patterns. For example, prolonged droughts that reduce crop yields may push farmers to collect and sell firewood from protected areas to replace lost wages from selling crops, or enter protected areas to collect water, increasing their contact with wildlife.

Similarly, intense droughts can dry up wildlife's water sources, leading them to venture outside their usual range in search of water and food, potentially into a nearby community. In this scenario, drought is driving people and wildlife closer together from both ends, increasing the odds of conflict. Climate Crowd data shows that similar scenarios are becoming reality.

"Due to drought, elephants are moving from the park into community land for water to drink, thus increasing human-wildlife conflict." - Unidentified farmer in Zambia

In the following sections, we present Climate Crowd data that adds to the growing evidence that climate change is contributing to increased conflict between people and wildlife.

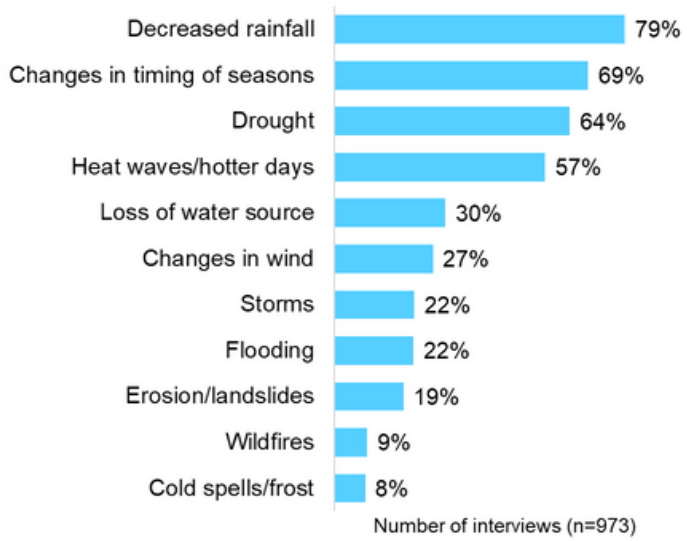


Figure 2: Climate Crowd interviews begin by exploring the most significant changes in weather and climate the communities have experienced within the past several years. All 973 interviews reported at least one change in weather and climate—there were zero answers for the category "None."

Communities on the outskirts of Lake Manyara National Park in Tanzania.

IMPACTS OF CLIMATE CHANGE ON COMMUNITIES

Since Climate Crowd interviews focus on the impacts of climate change and community responses, we gathered valuable insights from community members within the interview subset that help explain the drivers behind the rise in human-wildlife conflict. We found that the impacts and responses related to shifting resource availability were most relevant to reported cases of human-wildlife conflict. The following section provides an overview of these impacts and responses.

Community members transporting water in Siana Conservancy, Kenya.

From the interview subset, **76% of respondents reported reduced crop yields, typically as a result of drought, heat waves, and flooding.** Additionally, 37% of respondents reported reduced pasture availability, and 36% reported increased livestock mortality. Without the ability to produce crops or sustain livestock, community members are often left without food and income. People have responded to these impacts by changing farm locations (reported by 26% of respondents), changing livestock grazing areas (reported by 25% of respondents), and switching livelihoods (reported by 26% of respondents). Of those who reported switching livelihoods, 14% noted that their new livelihoods involved unsustainable natural resource use, including overharvesting resources, logging in protected areas, poaching, and hunting.

These practices can further exacerbate already significant resource scarcity caused by climate change like decreased water availability (reported by 72% of respondents) and decreased abundances of wild food (reported by 33% of respondents). **To cope with these impacts, communities are having to change where they get these resources from**: 38% of respondents reported changing where they get water from and 5% reported changing where they forage for wild food.

IMPACTS OF CLIMATE CHANGE ON WILDLIFE

Direct impacts of climate change like resource scarcity affect wildlife as much as human communities, and many respondents observed these impacts and reported on how wildlife is responding.

Elephants re-entering the park boundary in the early morning hours, Tarangire National Park, Tanzania.

From the interview subset, 13% of respondents specifically noted a decline in wildlife food sources. Based on the frequency in which respondents reported decreased water, pasture, and wild food availability, it is likely these shortages are affecting the wildlife that depend on them as well. Respondents have also observed an increased mortality of plants and vegetation (reported by 30% of respondents), further reducing food sources and habitat for wildlife. **As a result of these factors and changing climatic conditions, 25% of respondents have noticed that wildlife is increasingly expanding and shifting their ranges**, venturing into areas they previously were not seen in.

IMPACTS OF COMMUNITY RESPONSES TO CLIMATE CHANGE ON WILDLIFE

The actions that people take to cope with the impacts of climate change can affect the environment and wildlife. In the Climate Crowd interview form, one question explores how these coping strategies are affecting biodiversity and wildlife.[2] The impacts presented in Figure 3 are outcomes of coping responses to climate change which had adverse effects on wildlife and contributed to the reported cases of human-wildlife conflict.

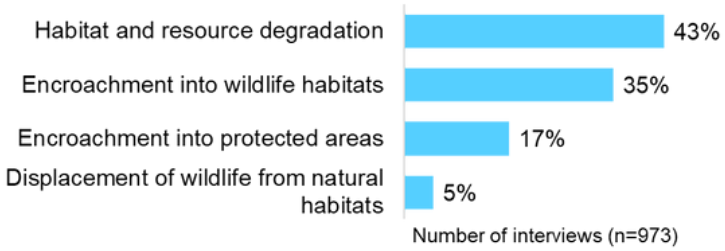


Figure 3: How wildlife is affected by communities' responses to climate change impacts.

As climate change progresses and reduces agricultural productivity and natural resources in the study areas, rural communities are increasingly entering wildlife areas to sustain themselves and their livestock, raising the risk of human-wildlife encounters (Abrahms et al. 2023; Kuiper et al. 2015). Climate Crowd data verifies this trend, as seen in Figure 3 where 35% of respondents reported increased encroachment into wildlife areas and 17% reported increased encroachment specifically into protected areas. Respondents often noted that this encroachment was a result of declining natural resources and the need to seek them in new areas.[3]

Park rangers escort a pastoralist out of Maasai Mara National Reserve, Kenya.

A farmer with mules in Ehi Rovipuka Conservancy, Namibia

Encroachment into these areas brings people and wildlife into closer proximity and increases the risk of habitat and resource degradation, as reported by 43% of respondents in Figure 3. Mekonen (2020) confirms that this encroachment and degradation are often linked to human actions, such as shifts in livestock grazing areas, agricultural expansion, and new resource-dependent livelihoods—actions that Climate Crowd data shows are frequently driven by changes in weather and climate.[4] This environmental degradation can intensify human-wildlife conflict by displacing wildlife (reported by 5% of respondents) and further depleting their food sources (Mekonen 2020).

"Due to the decline in rainfall, people now plough close to the river as it is more fertile, however their crops are often destroyed by hippos. As water points dry up, cattle tend to drink from the river where they are attacked by crocodiles." – Unidentified farmer and village headman in Namibia

[2] See section D, question D2 in the Climate Crowd interview form.

[3] As discussed earlier, 38% and 5% of respondents reported seeking water and wild food in different locations as before, respectively.

[4] In response to climate change impacts, 25% of respondents reported changing livestock grazing areas, 26% reported expanding farm areas, and 14% reported new resource-dependent livelihoods, as previously mentioned.

IMPACTS OF WILDLIFE RESPONSES TO CLIMATE CHANGE ON COMMUNITIES

Respondents observed that wildlife responses to climate change impacts are similarly impacting surrounding communities. The responses in Figure 4 reflect respondents' observations of wildlife behavior resulting from changes in weather and climate, serving as either drivers or direct examples of human-wildlife conflict.

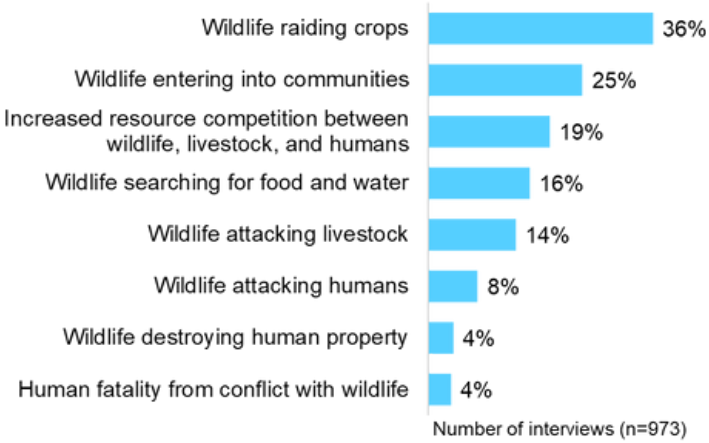


Figure 4: How communities are affected by wildlife's responses to climate change impacts.

As climate change depletes water, pasture, and food sources, and human coping strategies alter land and resource use, wildlife faces increased difficulty in finding sustenance (Tiller et al. 2014). Resource scarcity, combined with habitat loss, can cause wildlife to extend their typical range in search of sustenance (reported by 16% of respondents in Figure 4), often into human settlements where crops and livestock can be found. According to respondents, 36% reported increased crop raiding, 25% observed wildlife entering communities more frequently, and 14% reported increased livestock attacks. These behaviors, as noted by Tiller et al. (2021), Mukeka et al. (2019), and Mekonen (2020), can, in part, be attributed to the impacts of climate change, which reduce natural forage and prey for wildlife.[5]

Elephants and hippos near a fishing village on the Kazinga channel, Queen Elizabeth National Park, Uganda.

A monkey eats fruit in Amboseli National Park, Kenya.

Competition for dwindling resources—reported by 19% of respondents in Figure 4—can also fuel human-wildlife conflict as both people and wildlife interact more in search of food and water (Abrahms et al. 2023). This conflict can escalate, sometimes resulting in human fatalities (Abrahms et al. 2023); 8% of respondents reported negative encounters with wildlife, and 4% noted that these interactions led to human deaths. While not always directly caused by climate change, these conflicts are often exacerbated by climate-driven changes in land use and resource availability, which bring people and wildlife into closer, more frequent contact (Abrahms et al. 2023).

> *"Climate change leads to new conflict between man and nature—the impoverishment of the food base makes snow leopards descend closer to people and attack livestock." – Unidentified farmer in Kyrgyzstan*

[5] Climate change is not the only cause of decreased food and resource availability for wildlife. Causes unrelated to climate change include industrial land development and natural resource exploitation and processing, to name a few.

COMMUNITY RESPONSES TO HUMAN-WILDLIFE CONFLICT

To deal with the challenge of human-wildlife conflict, communities have begun responding in various ways. While not many respondents from the interview subset reported on these responses, those that did provided valuable insight into how communities are coping.

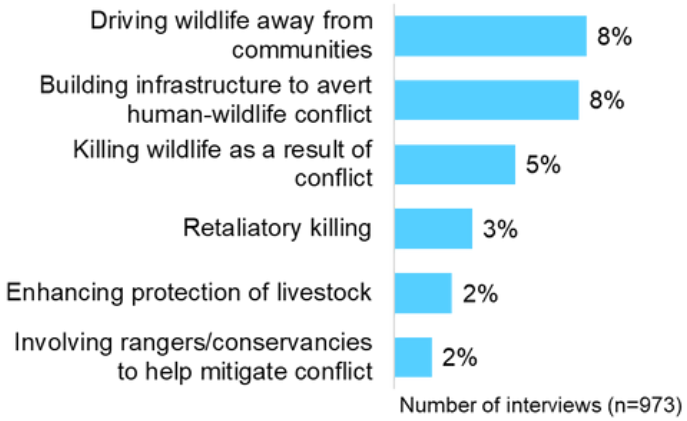


Figure 5: How communities have responded so far to human-wildlife conflict.

The most commonly reported responses, according to 8% of respondents in Figure 5, were driving wildlife away from community areas and building infrastructure to avert conflict, such as constructing improved fences around crops and digging trenches along farm boundaries. Similarly, 2% of respondents reported enhancing the protection of livestock to prevent attacks.

Increased economic and personal damage caused by crop raiding and livestock attacks have resulted in low tolerance for wildlife, causing people to kill problematic species, according to 5% of respondents. A few respondents specifically reported an increase in retaliatory killing, meaning that people have sought out specific individual animals that have caused them harm. Additionally, 2% of respondents reported that they have had to involve park rangers and conservancies to help them deal with repeated wildlife conflict.

A water tank surrounded by an elephant-proof wall in Hobatere Concession, Namibia.

A boma (an enclosure for livestock) in Siana Conservancy, Kenya.

A spotted hyena in Amboseli National Park, Kenya.

CONCLUSION

Through its grassroots, community-driven approach, Climate Crowd not only collects and analyzes data on climate impacts but also actively engages with local communities to develop and implement practical solutions. The comprehensive review of interviews conducted as part of this initiative sheds light on the escalating issue of human-wildlife conflict for communities living in biodiverse regions. The data underscores the urgency of addressing this challenge, as evidenced by the increasing prevalence of human-wildlife conflict reported by respondents. As climate changes intensifies, we expect to see this trend continue.

Our findings confirm that human and wildlife responses to climate stressors are interconnected and affecting each other, highlighting the need for holistic approaches to climate adaptation and conflict management. In our work, we are already helping to alleviate human-wildlife conflict through interventions that also help communities adapt to climate change. **In Kenya**, in a community that has been experiencing drought and competition with wildlife for water, we built rainwater harvesting systems in the village and rehabilitated a water pan for wildlife and livestock to use further away from the community. **In Bhutan**, where agriculture-dependent communities were facing high incidences of crop losses from wildlife raiding fields for food, we built nature-friendly fences made from living trees around agricultural areas to prevent wildlife from entering.

As Climate Crowd continues to mobilize resources and empower communities on the frontlines of climate change, we strive to be a leader in localized adaptation and conservation, ultimately working to build community resilience and foster sustainable coexistence between people and wildlife.

WANT TO LEARN MORE?

Visit the Climate Crowd **website** to explore and download interview data, view **project pages**, and read more summary reports like this on our publications page.

wwfclimatecrowd.org

climatecrowd@wwfus.org

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Black and white colobus monkeys on water tanks in Kibale National Park, Uganda.