# CLIMATE CROWD

Community-driven solutions to help people and nature in a changing climate

## DIANA SEASCAPE

# MADAGASCAR SUMMARY REPORT

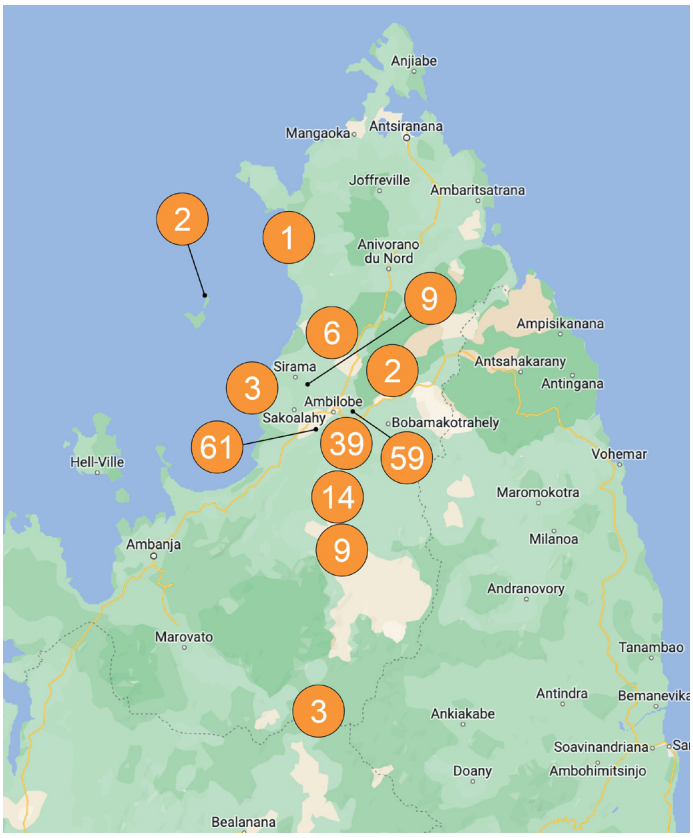
AUGUST 2023

## ABOUT

**Climate Crowd** is a bottom-up, community-driven initiative. Working with communities and local organizations in more than 30 countries, we collect data on climate impacts on 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.

## BACKGROUND

This report summarizes what was learned from 211 interviews with key informants (100 female, 111 male) in 8 communities across the Diana seascape in northern Madagascar. Interviews were conducted in October and November of 2022 by WWF Madagascar.

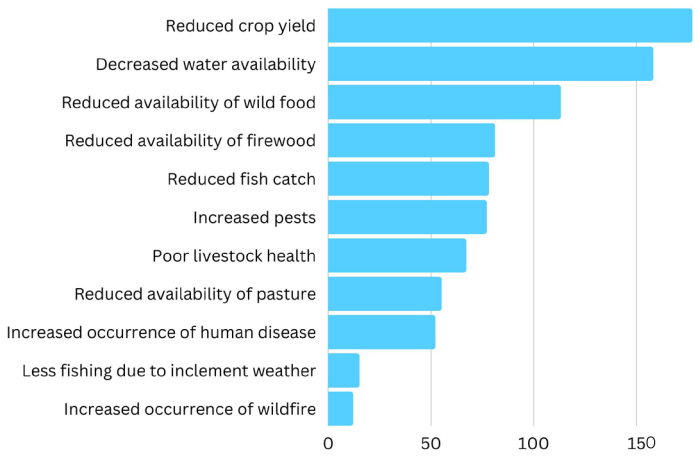



## REPORTED CHANGES IN WEATHER AND CLIMATE (n=211)

- **92%** Decreased rainfall
- **55%** Heat waves/hotter days
- **52%** Changes in timing of seasons
- **50%** Drought
- **13%** Changes in wind
- **9%** Cold spells/frost
- **8%** Erosion/landslides
- **7%** Sea level rise

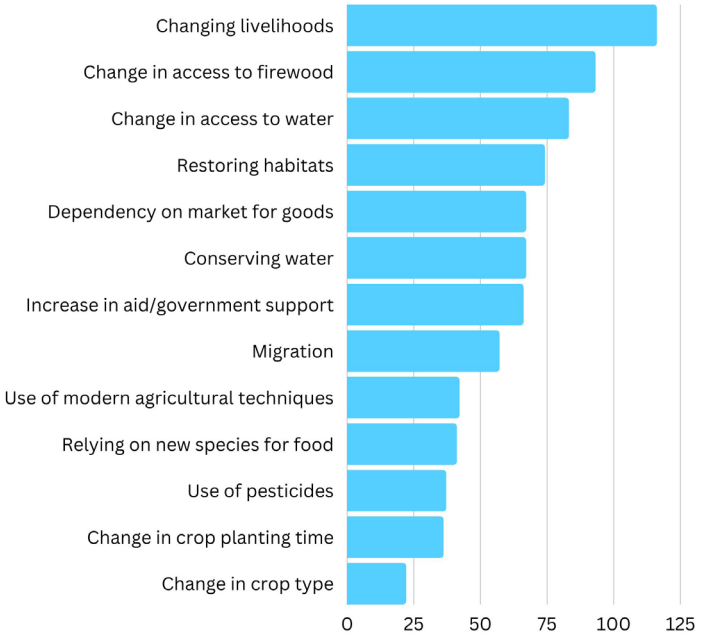
The majority of the community members who were interviewed noted a decrease in rainfall (92%), followed by an increase in heat waves and hotter days (55%), and changes in the timing of seasons (52%). Half of those interviewed (50%) reported drought which can be attributed to decreased rainfall and extreme heat. Less commonly reported changes include changes in wind patterns (13%), increased cold spells and frost (9%), increased erosion and landslides (8%), and sea level rise (7%). The most pronounced change, decreased rainfall—and other water-related issues—has begun to seriously impact these local communities in Madagascar.

## IMPACTS ON COMMUNITY LIVELIHOODS



Decreased availability of freshwater (75%) is the most pronounced impact to community livelihoods. As a result, community members who depend on agriculture for food and income have greatly suffered as 84% of respondents reported crop failure and 26% reported insufficient pasture for their livestock, contributing to the 32% of people who say their livestock are in poor health. An increase in the number of pests has also impacted agricultural outputs, as suggested by 36% of respondents. Additionally, respondents noted that there has been a vast decrease in the availability of wild fruits and animals that they previously depended on for food (54%), which many people attributed to lack of rainfall. In general, respondents noticed a decrease in several other natural resources including trees for firewood (38%) and fish, leading to reduced catches (37%). Fish catches are also reduced by inclement weather conditions like more frequent and intense storms and wind that prevent people from going out to the ocean to fish (7%). Other reported livelihood impacts include increased occurrence of human diseases and illnesses (25%) and increased occurrence of wildfires (6%).

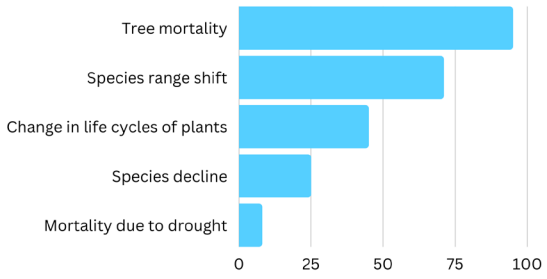
## COMMUNITY RESPONSES TO CLIMATE CHANGE




To cope with the impacts to their livelihood brought upon by climate change, these communities in Madagascar are beginning to adapt their lifestyles, as evidenced by the large number of respondents who reported having to change their livelihood (55%). Given the high rate of crop failure, many people who previously relied on agriculture have switched to fishing, resulting in a significant increase of fishermen. As the number of fishermen increases, tensions can arise over competition for fish-related resources. For those who did not change their livelihood away from agriculture, there has been an increased use of modern agricultural techniques (20%), a change in the time of season that crops are planted (17%), and a change to more climate-resilient crop types (10%). To further enhance crop productivity, 18% of respondents reported new or increased use

of pesticides on their crops due to the recent uptick in pests. Despite these efforts, 19% of respondents reported having to increasingly rely on new species of wild animals and plants to eat. Many people also described issues with obtaining firewood and water, saying they have had to travel longer distances and to new locations to find both resources (44% and 39%, respectively). To reduce the amount of time spent looking for water and to generally avoid water scarcity, 32% of those interviewed reported increased water conservation and management efforts. Community members also found themselves going to the market for resources that they previously did not have to purchase (32%). In response to declining biodiversity and natural resources, a significant number of people reported participating in habitat restoration activities, especially mangrove reforestation (35%). Other community responses include increased reliance on aid from external organizations (31%) and migration (27%).

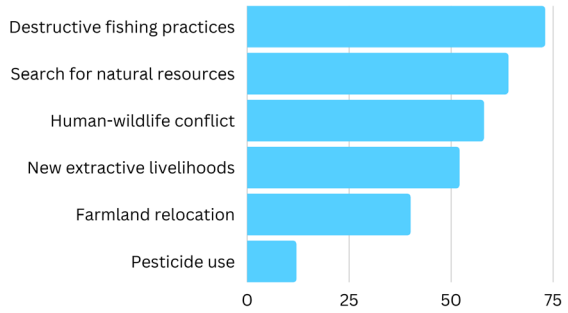
## DIRECT IMPACTS ON BIODIVERSITY




Changes in weather and climate have also been directly impacting this region's biodiversity. The most pronounced impact, according to 45% of those interviewed, has been

increased tree mortality due to lack of rainfall. Another 4% of respondents observed other wildlife species besides trees dying due to drought and 12% observed a general decline in some species without a specific known cause. 34% of respondents have noticed that some species, particularly birds, have shifted their usual ranges due to heat and drought. Also as a consequence of heat and drought, 21% of interviewees noticed that plants' life cycles were changing and that flowers and fruit trees were blooming at different times than in years prior.

## INDIRECT IMPACTS ON BIODIVERSITY




While adapting to new climatic conditions and their ensuing impacts, many community members inadvertently impact the surrounding biodiversity as well. In this region of Madagascar, respondents observed that as more people turned to fishing instead of agriculture for income and sustenance, fish resources became depleted, and people had to turn towards destructive and unregulated fishing practices to obtain a decent catch. For example, many fishermen began fishing in the "no-take" zone of the community-based natural resource management (CBNRM) area due to the lack of fish. This affects fish populations since the no-take zones act as a permanent reserve ensuring the regeneration and long-term sustainability of the fish stock. It is prohibited to enter the zone to guarantee the long-term integrity of the area's mangroves and their ecosystem services. Destructive fishing practices that place extra pressure on natural resources and biodiversity were reported by 35% of those interviewed. Similarly, there were many reports of people adopting new resource extractive livelihoods to cope with the losses incurred by low crop and fish yields (25%). Respondents specifically mentioned increased logging and harvesting of mangroves to make charcoal. 30% of respondents also described having to enter protected areas to search for resources like firewood and water that they could previously find nearer to their communities. Most respondents who reported this also mentioned increased human-wildlife conflict while searching for resources in protected areas (27%). Among those that continued their agricultural livelihood, some had to shift their farmland location due to lack of arable land, leading to the clearing of forests and vegetation (19%). Increased use of pesticides has also had negative effects on species surrounding farmlands, according to 6% of those interviewed. There have been reports that the pesticides kill bees and birds, affect the soil, and lead to irregular growth in some plants.

## 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.**

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