2026 ACA Annual Cashew Conference & Expo

ACA
AFRICAN CASHEW ALLIANCE

SUSTAINABLE CASHEW SUPPLY THROUGH POLICY, INVESTMENT AND PARTNERSHIP

**Ghana**
*La Palm Royal Beach Hotel, Accra*
***15 - 18 September 2026***

Alliance Bioversity & CIAT

CGIAR

# Cashew, Climate Change & Ecological Conflict


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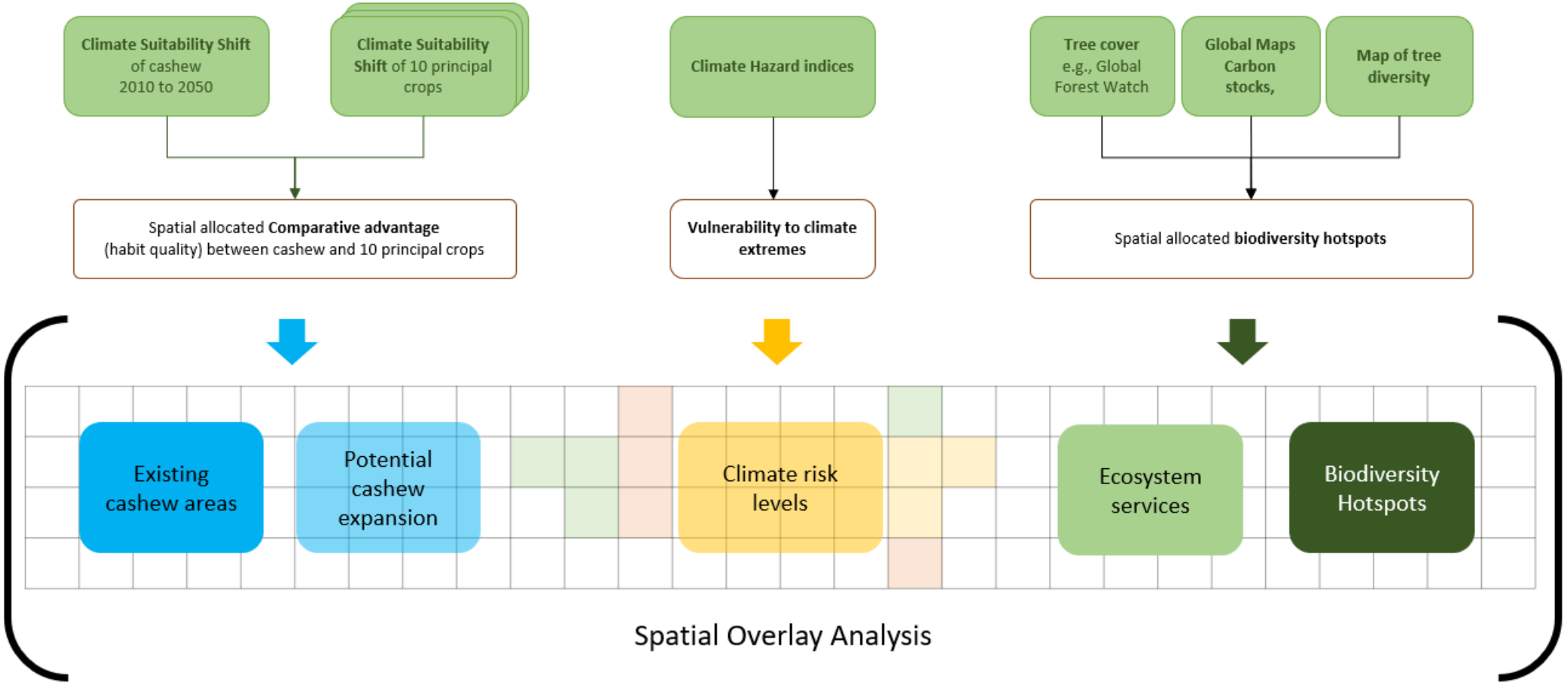
17. Sept 2026

# Preliminary results from ongoing project: Spatial Overlay Analysis



# From model outputs to transparent spatial decisions: 4 steps

## 1 Crop Suitability

*Climate-driven crop shifts*

- MaxEnt climatic suitability for cashew + 17 alternative crops
- Historical climate baseline
- Future scenarios SSP1-2.6 / 2-4.5 / 5-8.5 for 2030 & 2050
- Crop-specific suitability thresholds make cross-crop comparisons interpretable
- Future Change Direction

## 2 Climate hazards

*Pressure from Climate*

- Drought: Consecutive Dry Days
- Heavy rainfall: P95
- Flood susceptibility: rainfall + slope + soils + land cover
- Multi-hazard pressure combines several simultaneous stresses.

## 3 Ecology & landscape

*Biodiversity hotspots*

- Current biodiversity hotspots
- Natural Lands NL50 primary eligibility
- Forest loss and degradation
- Protected Areas
- JRC 2020 forest for EUDR screening
- Future climate exposure of 696 tree species

## 4 Action Priorities

*Land-cover transitions*

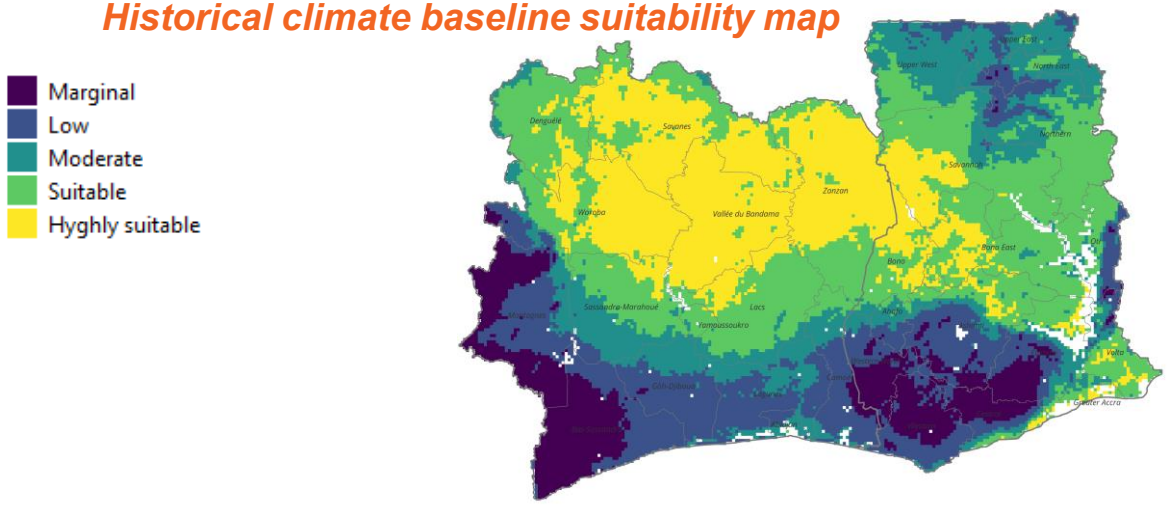
**Rule-based overlay**

- Adaptation
- Resilient cashew
- Diversification/agroforestry
- Restoration/buffer
- Conservation/avoid expansion

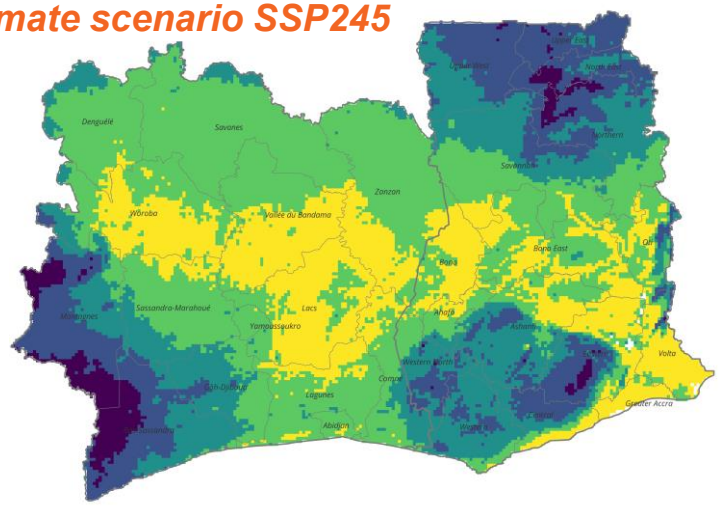
# **Key message 1:** Cashew climate suitability is shifting differently

- **Climate-driven cashew shifts**
- **Ghana:** stronger loss, **24%** of current suitable areas.
- **Côte d'Ivoire:** comparatively little threshold-crossing loss (2.5%), but a much larger new-suitability signal.

***Historical climate baseline suitability map***



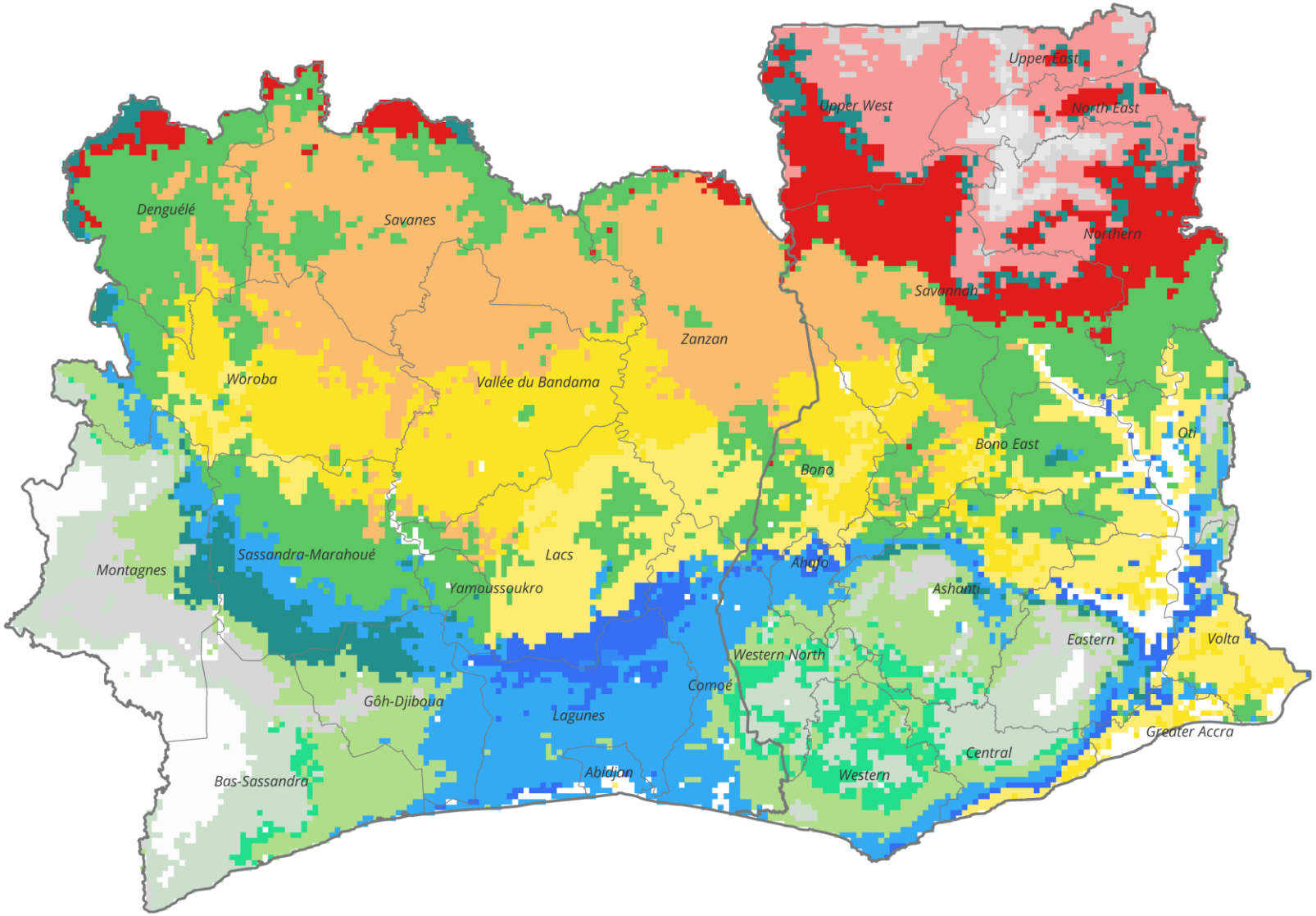

***2050s climate scenario SSP245***



**How we identify change**

- Continuous Suitability change (from MaxEnt modelling) within cashew
- Crop-specific *1 (Marginal) to 5 (highly suitable)* suitability classes
- Threshold crossing distinguishes important gains and losses
- 2030 and 2050 futures across three SSPs

# Cashew suitability transition




- Stable marginal
- Marginal gain
- Strong gain to moderate
- Decline
- Stable low
- Gain to moderate
- Strong gain to above threshold
- Strong gain to above threshold
- Strong gain to above threshold
- Moderate decline to low
- Stable Moderate
- Gains above threshold
- Decline below threshold
- Stable Suitable
- Gains to High
- Moderate decline from High
- Stable High

# Alternative crops: diversification where cashew becomes vulnerable

**Climate resilience may require more than one crop**

We compared cashew with 17 food and cash crops using crop-specific suitability classes.

**We defined a diversification opportunity as:**

- cashew declines
- alternative remains suitable
- alternative performs better than future cashew

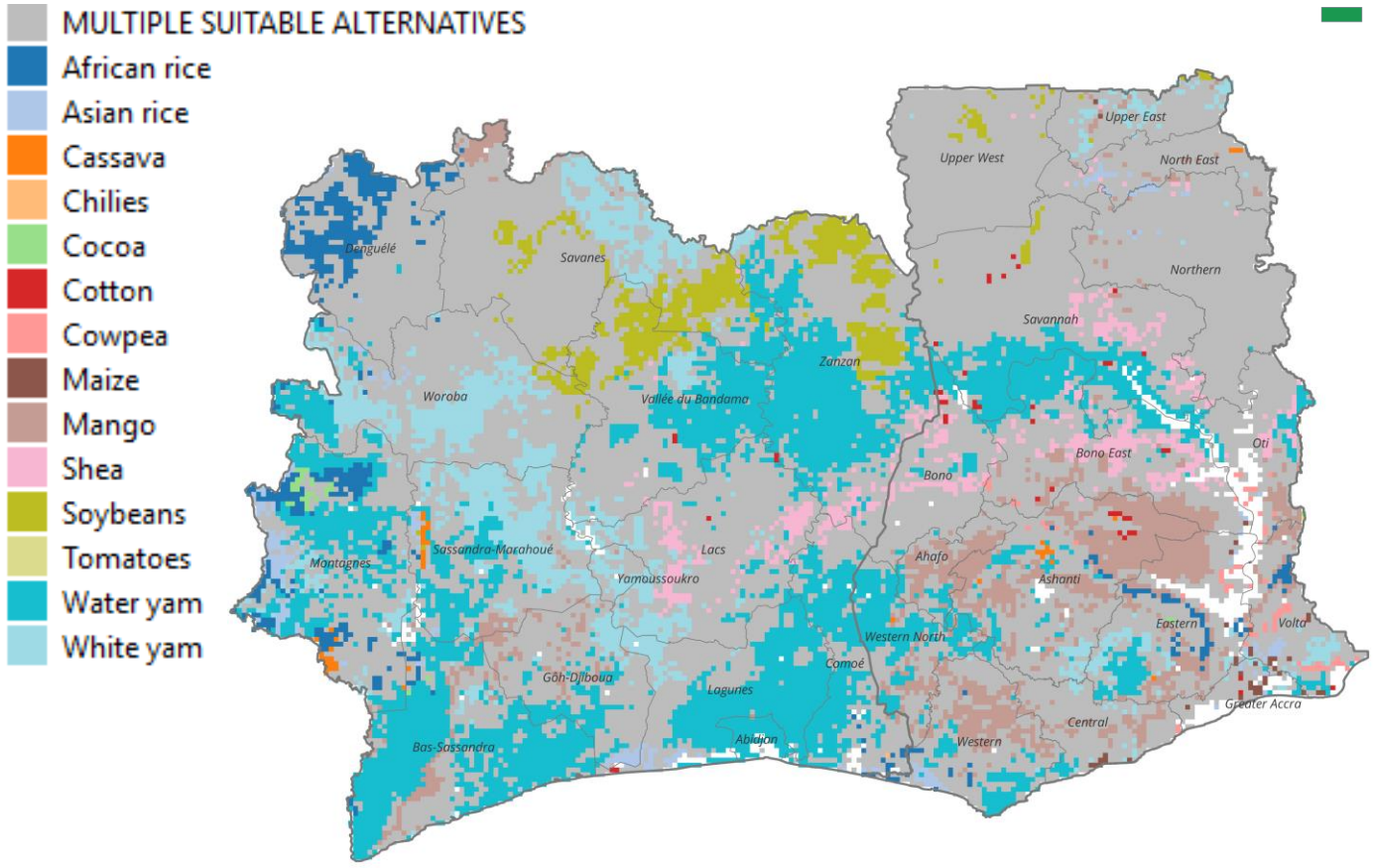
**Key interpretation:**

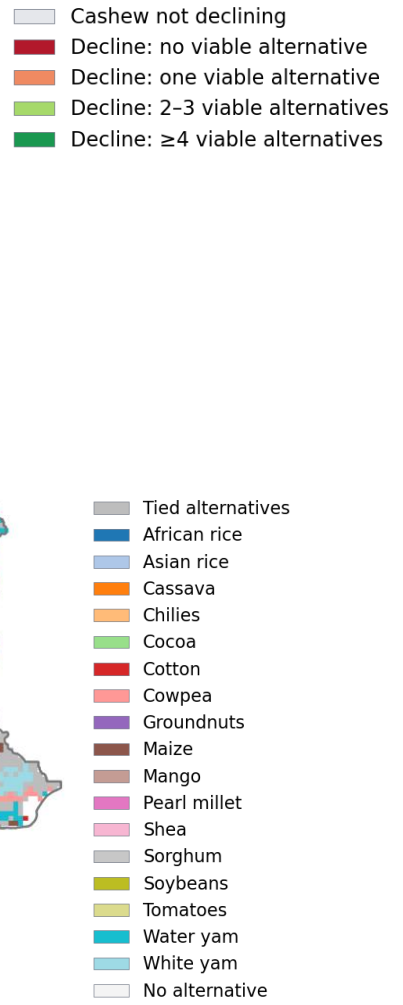
Climate modelling identifies the **option space**. Farmers and value-chain actors determine which options are feasible.

**Outputs identify**

- number of climatically viable alternatives
- strongest relative alternatives
- areas where diversification becomes increasingly relevant

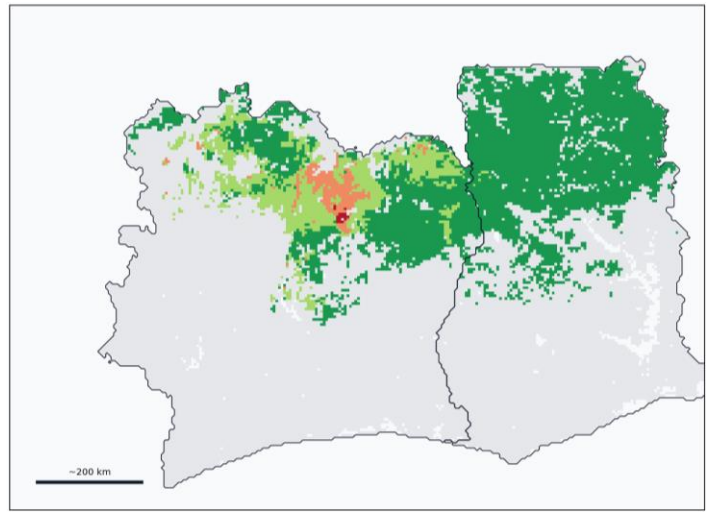
# Best Alternative Crops for Diversification

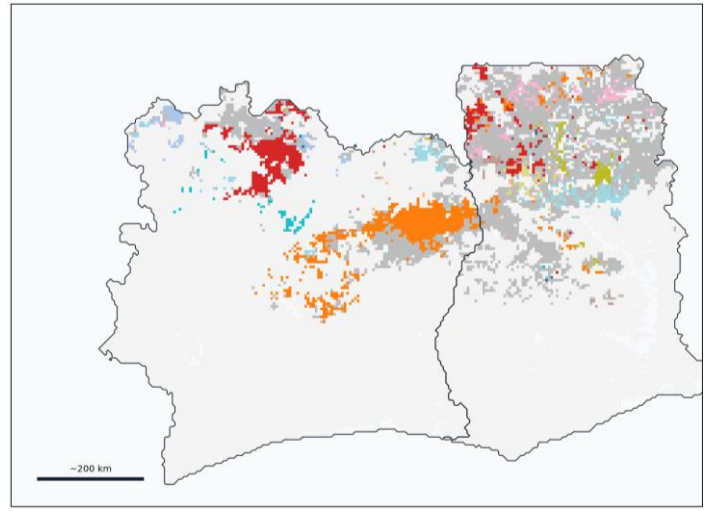






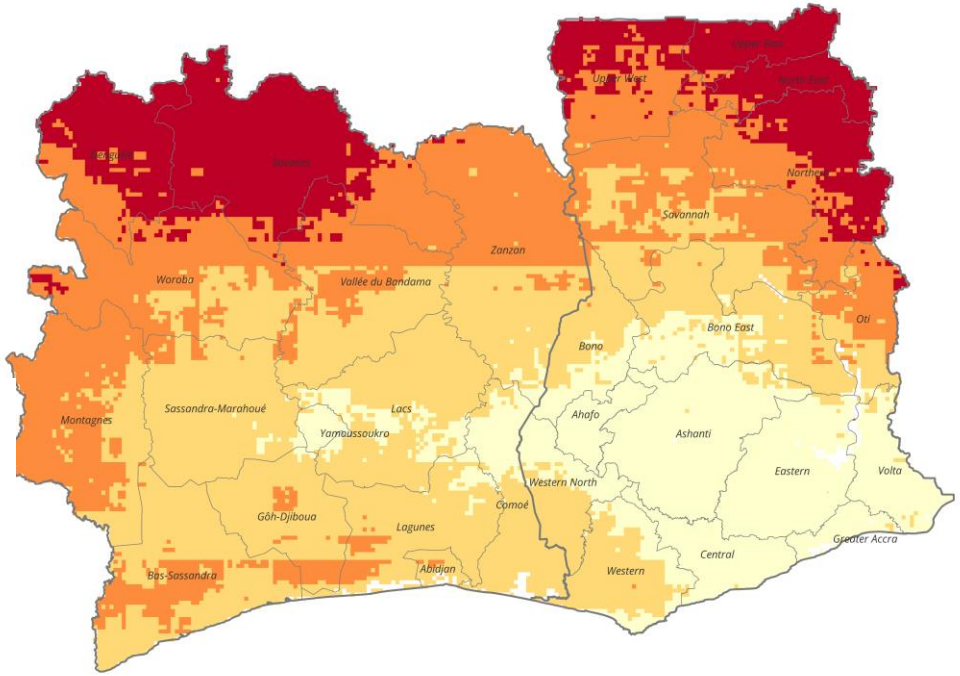



The primary scenario identifies ***59,569 km²*** of diversification opportunity and ***27,680 km²*** of broader adaptation priority. *Adaptation priority is not equivalent to area becoming unsuitable.*

# **Key message 2:** Some places remain suitable for cashew but face increasingly difficult climate conditions

- **Drier conditions and multiple hazards matter**
- We combine three independent climate pressures:
- **CDD — drought**
  Longer consecutive dry periods.
- **P95 — intense rainfall**
  Higher wet-day rainfall extremes.
- **FloodIndex — flood susceptibility**
  Extreme rainfall + terrain + clay + susceptible land cover.
- Future projections use **CMIP6 ensemble scenarios,**
- observed trends use **CHIRPS**.




High/Very High climate pressure covers
**38.5% of Ghana and 49.0% of Côte d'Ivoire**
Hot spots cover
**16.6% and 15.7%**

# **Key message 3:** Protect ecological value while sustaining livelihoods

**Ecological value and farmer resilience must be considered together**

Our biodiversity hotspot combines:

- modelled tree-species richness
- tree cover
- tree height
- habitat integrity

and is calculated **only in natural land cover**.

Natural Lands is used separately: **NL50 = ≥50% natural land in the analysis cell.**

This avoids automatically classifying existing agricultural landscapes as conservation zones.

Forest loss identifies where valuable natural landscapes are already under degradation pressure.

**Relevant question:**
Where can livelihoods be strengthened without shifting pressure onto remaining high-value natural landscapes?

# **Key message 4:** Ecological priorities are not one single score

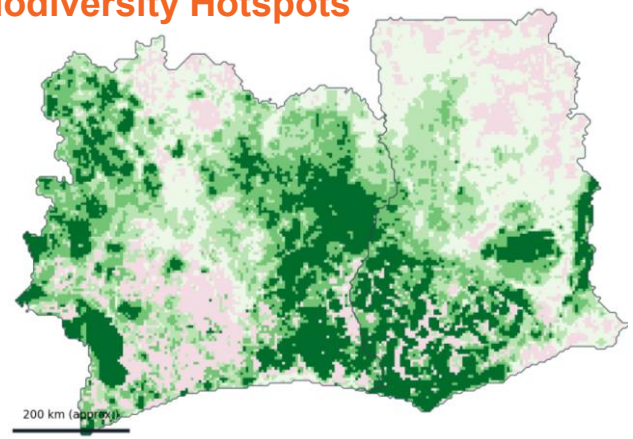
**We separate four types of ecological evidence**

- Current ecological value - Biodiversity hotspot
- Natural habitat & protection - Natural Lands + protected areas + Forest (per EUDR definition)
- Degradation pressure - Hansen forest loss
- Future ecological exposure - Projected climate loss across 696 modelled tree species

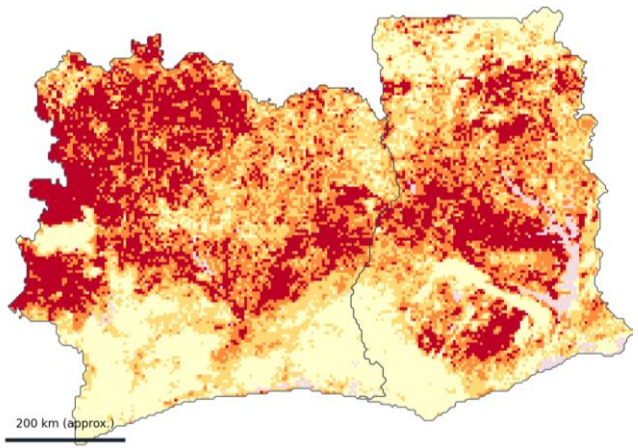
**This produces two different ecological responses:**

- Conservation / avoid conversion - Protect valuable or regulated natural landscapes from expansion pressure
- Restoration / buffer - Restore high-value natural landscapes already experiencing degradation
- Climate-sensitive biodiversity - High biodiversity & high future tree exposure

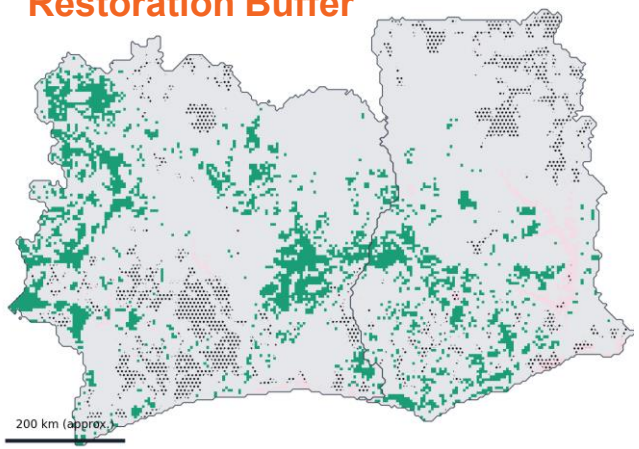
**Biodiversity Hotspots**



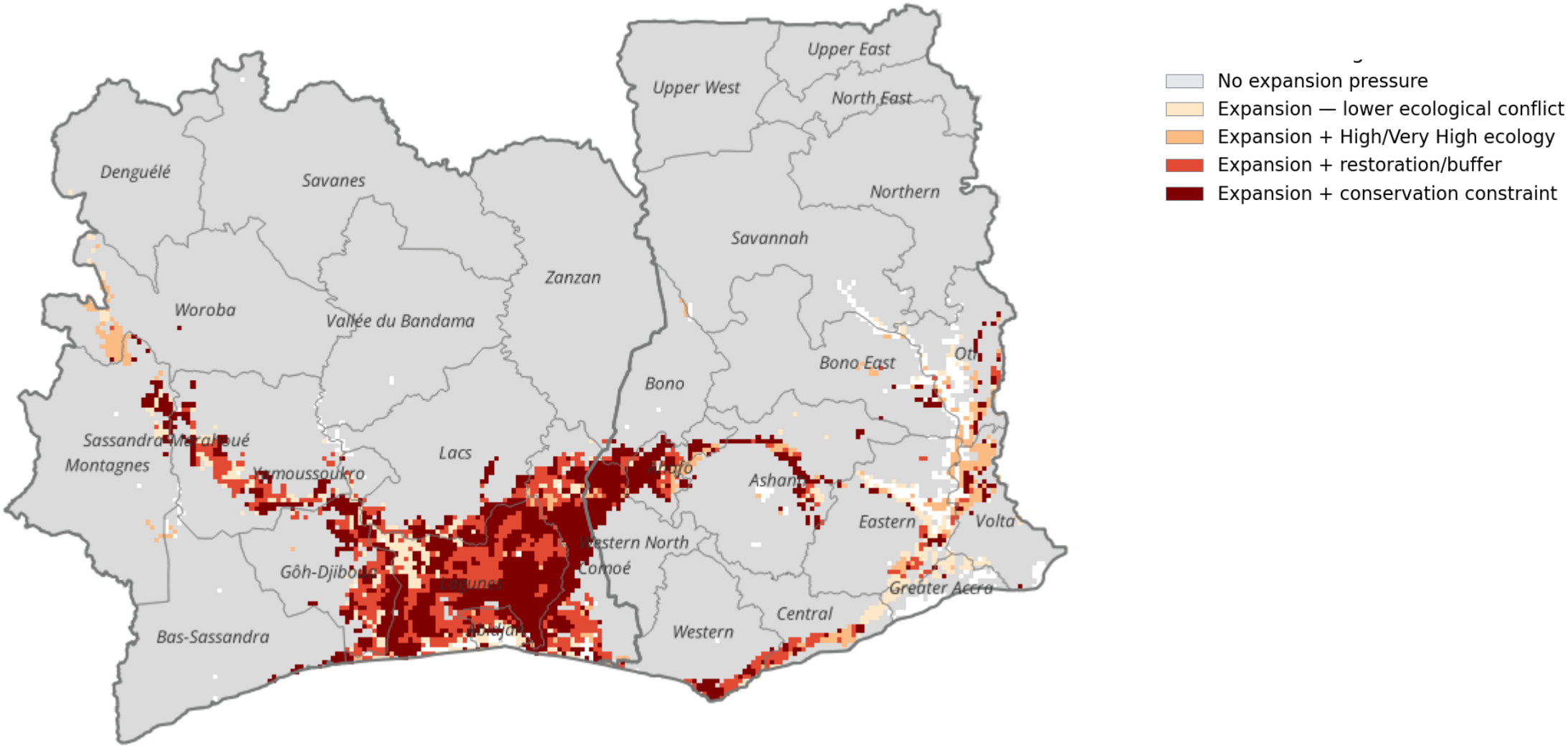

**Future Tree Biodiversity Exposure**




**Restoration Buffer**



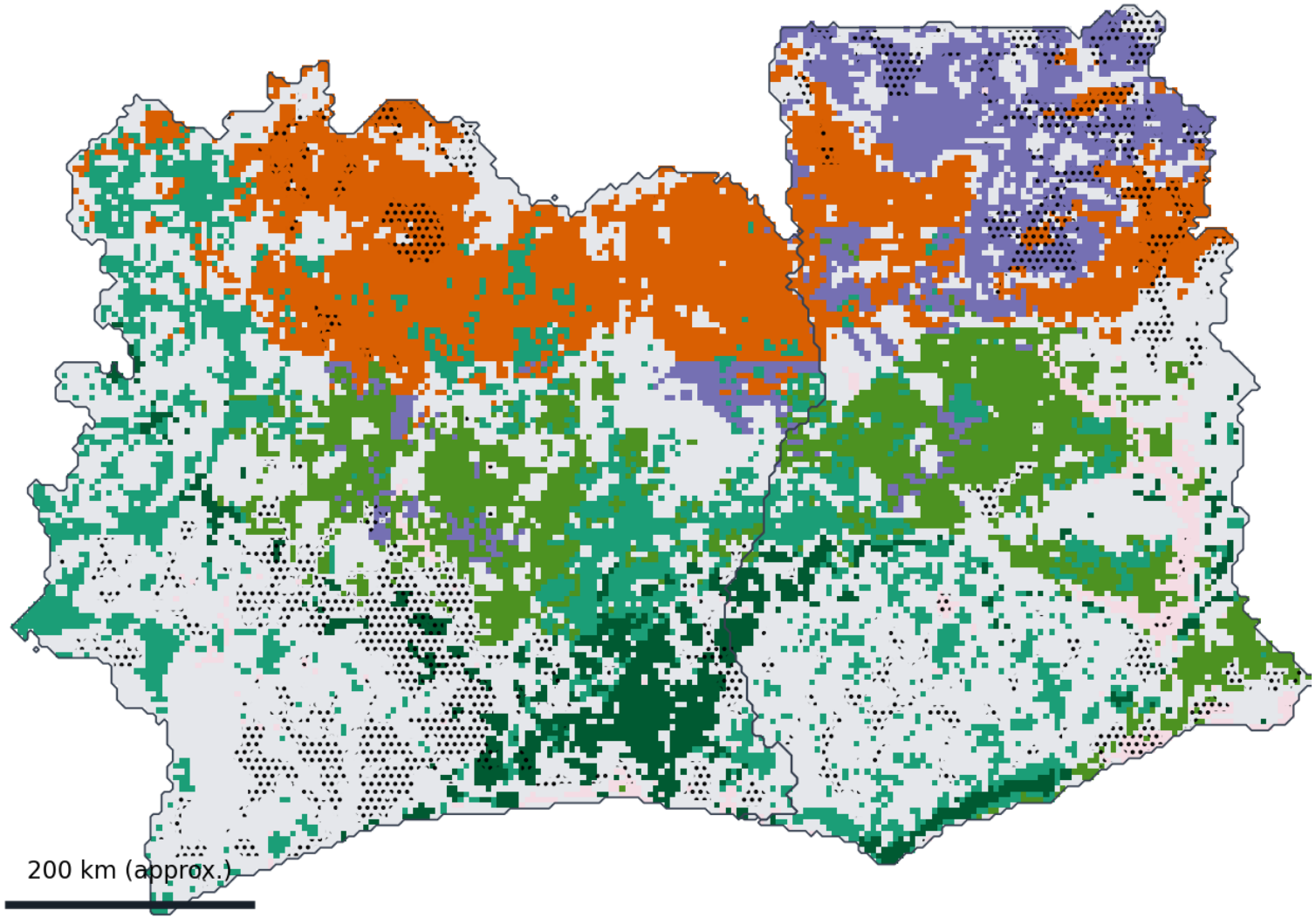
# Future Cashew Expansion & Ecological conflict



# Intervention priorities: The spatial-overlay analysis produces five action priorities

1. **Climate Adaptation Priority**
   Cashew remains viable but climate conditions deteriorate
2. **Focus on Resilient Cashew & Sustainable Intensification**
   Cashew remains suitable with manageable climate pressure
3. **Consider Diversification Options & Transformation**
   Cashew declines while viable climatic alternatives remain
4. **Protect Biodiversity Buffer & Restoration Priority**
   High biodiversity natural land is already under degradation pressure
5. **Prioritize Conservation & Avoid Cashew Expansion**
   Expansion pressure conflicts with high ecological, protected or forest-status evidence

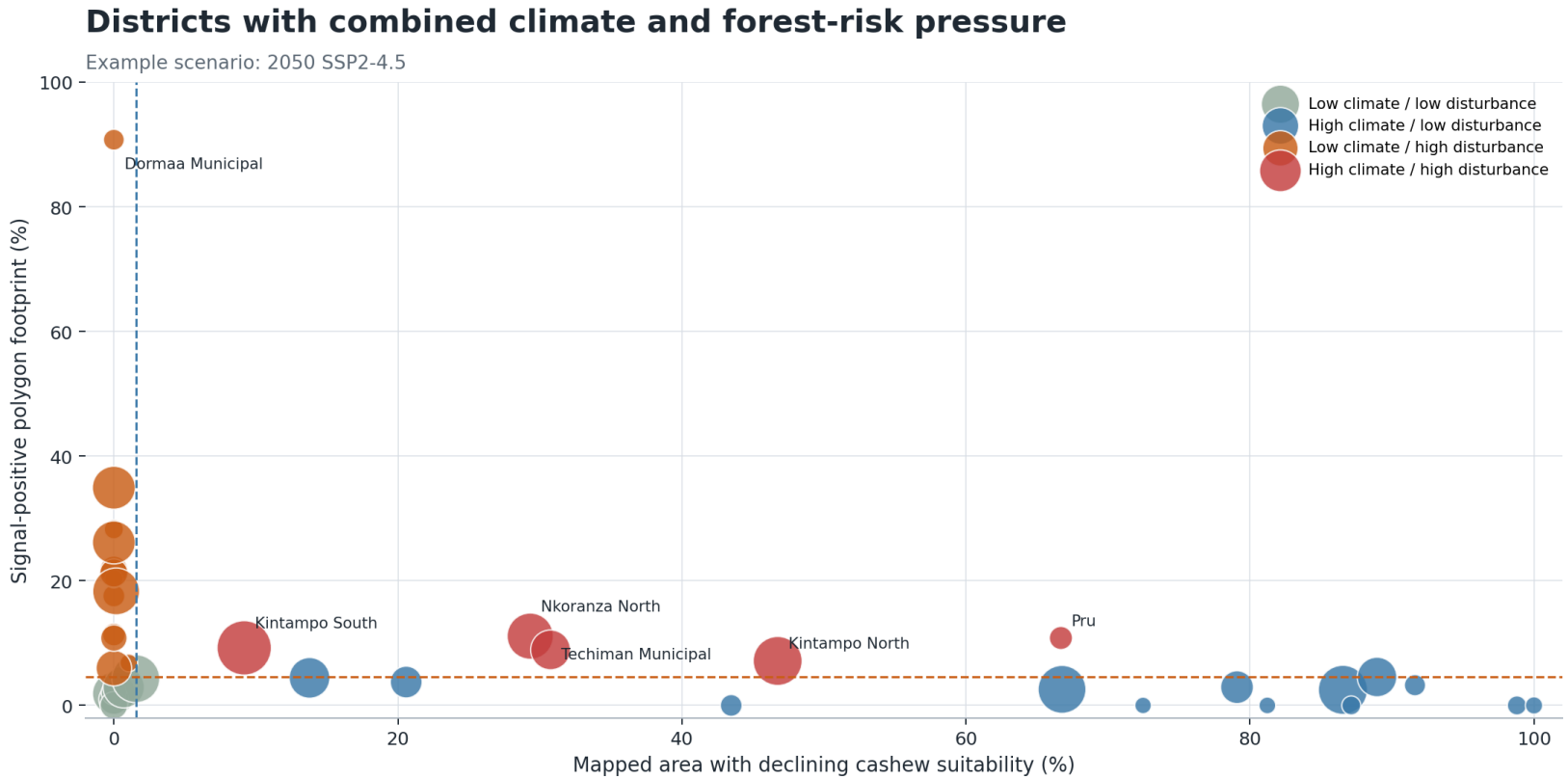
# Intervention Strategies derived for Decision-making




- No dominant intervention signal
- Climate Adaptation Priority
- Resilient Cashew & Sustainable Intensification
- Diversification Strategy
- Biodiversity Buffer (Restoration Priority)
- Avoid Expansion (Conservation)

# **Key message 5:** Future expansion can create regulatory exposure, climate-smart expansion also needs to be regulation-smart

- We intersect:
- **Future cashew expansion-pressure signal & Global Forest Cover 2020 (JRC)**
- This identifies areas where future climatic opportunity overlaps land classified as forest in the EUDR reference year.



# Linking farm-level forest-risk screening with climate adaptation

We applied a free and open-source solution (WHISP, FAO 2024) to 38,402 mapped cashew polygons in Ghana, covering 60,523 ha across 43 districts. WHISP combines multiple Earth-observation indicators to screen for post-2020 disturbance and information gaps.

## What we found:

***Post-2020 disturbance signal***

- 3,216 polygons were indicator-positive.
- These polygons represent 5,635 ha of mapped polygon footprint.
- This is the area of polygons containing a signal, not hectares actually deforested.

***WHISP screening status***

- 37,604 Low risk
- 709 More information needed
- 89 High risk

***Largest absolute disturbance footprints include:***

- Berekum — 1,039 ha
- Tain — 792 ha
- Sunyani West — 773 ha

***Highest proportional exposure includes:***

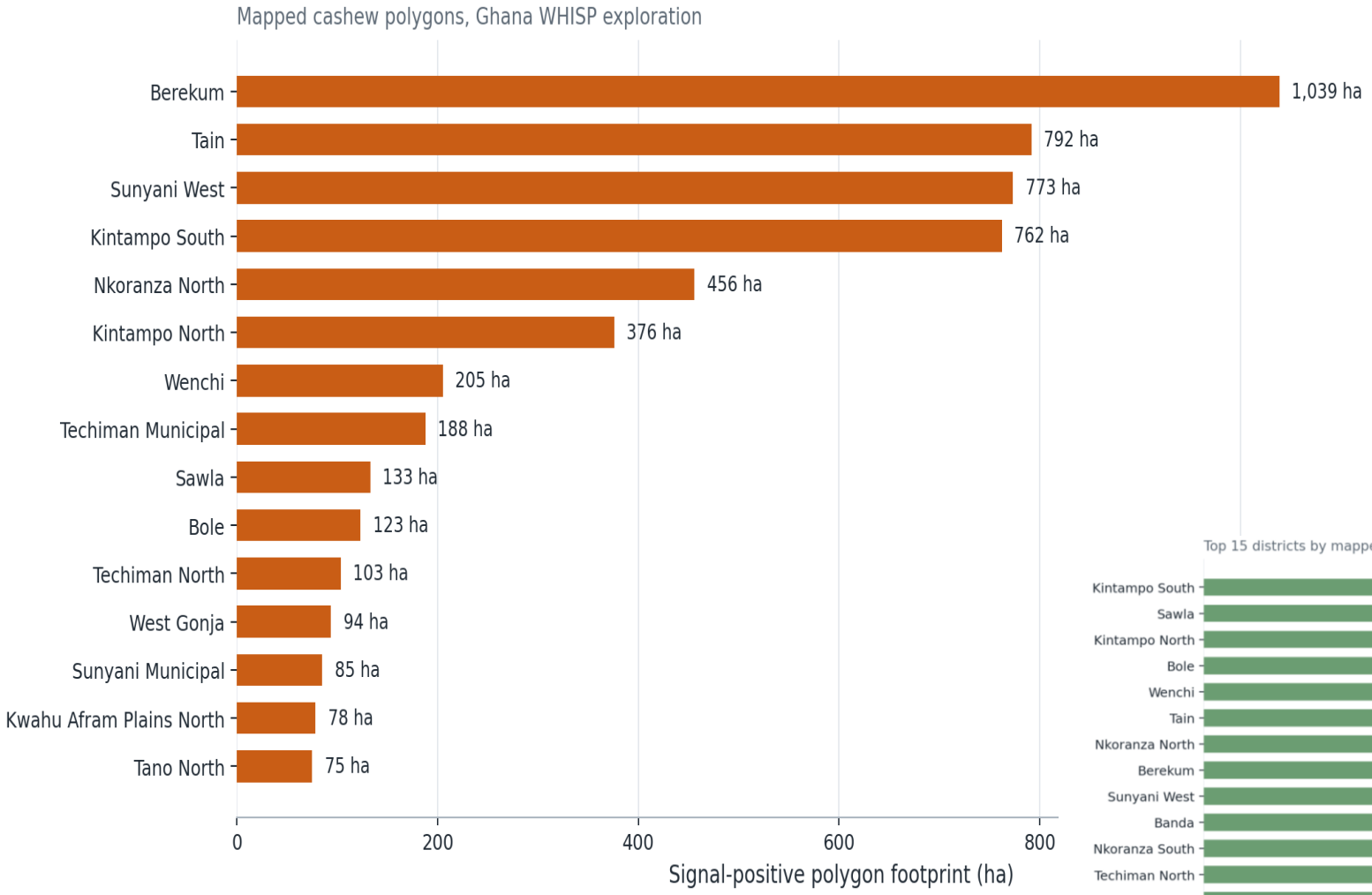
- Dormaa Municipal — 90.8%
- Berekum — 34.9%
- Dormaa East — 28.3%

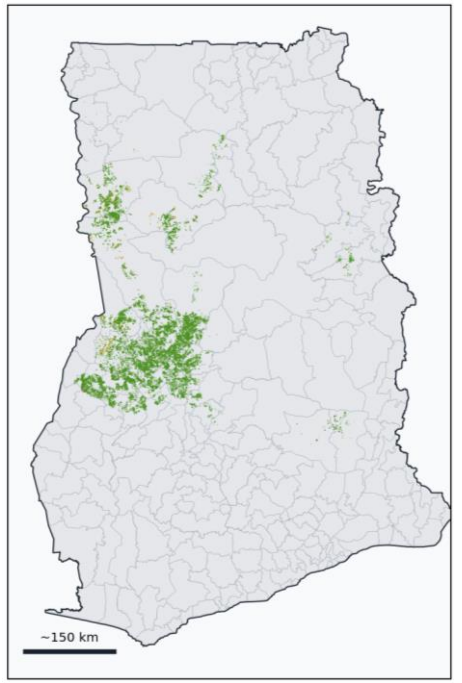
***Cashew suitability is declining & post-2020 disturbance signals are relatively high:***

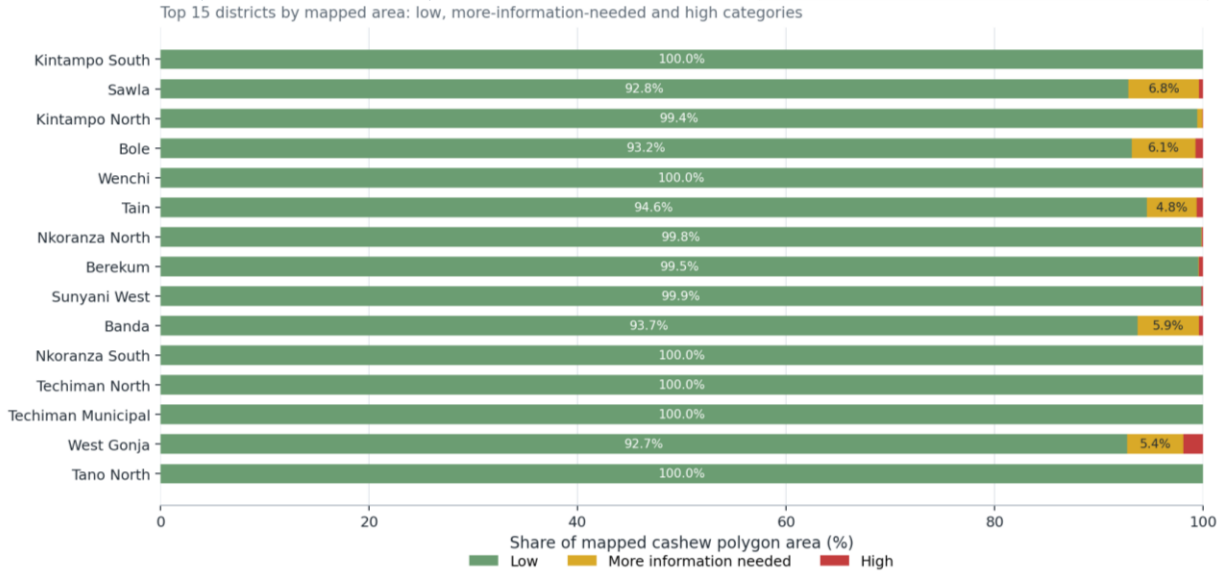
*Kintampo North, Kintampo South, Nkoranza North, Pru and Techiman Municipal*

***Important:*** *Cashew is not currently an EUDR-regulated commodity. This is therefore a prospective / counterfactual screening exercise, not an EUDR compliance determination. WHISP signals indicate where further investigation may be needed; they do not prove deforestation or non-compliance.*

# Cashew Post-2020 Forest Disturbance Signal

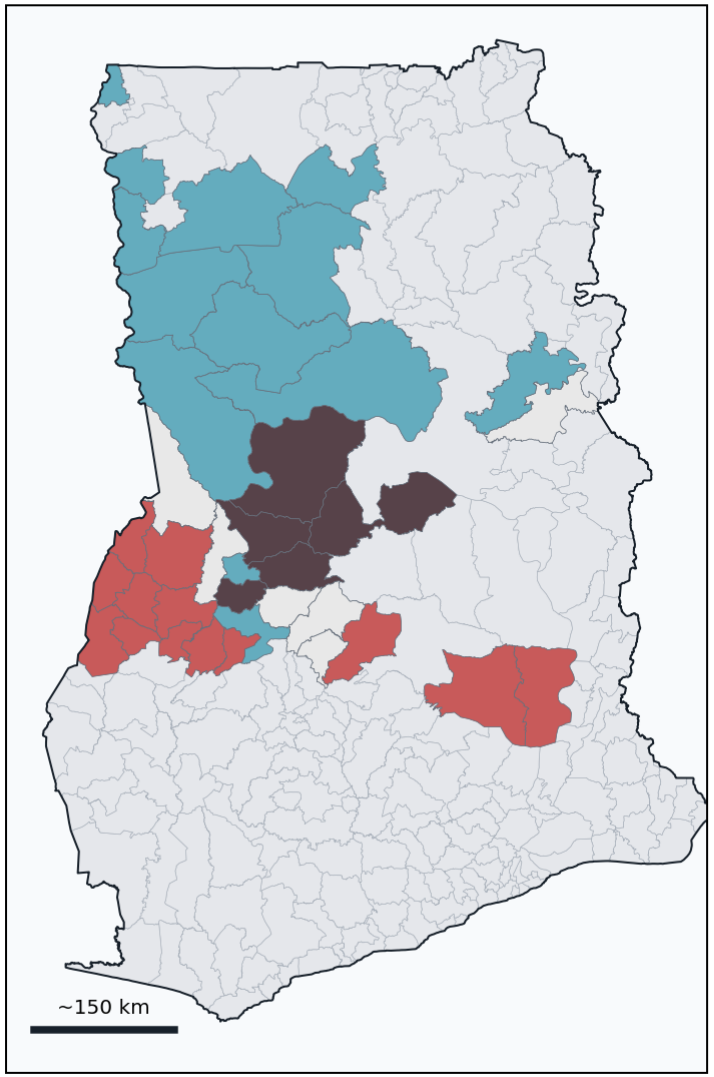


# Climate pressure × prospective exposure 2050 SSP245

Ghana · MOFA · WHISP




Legend

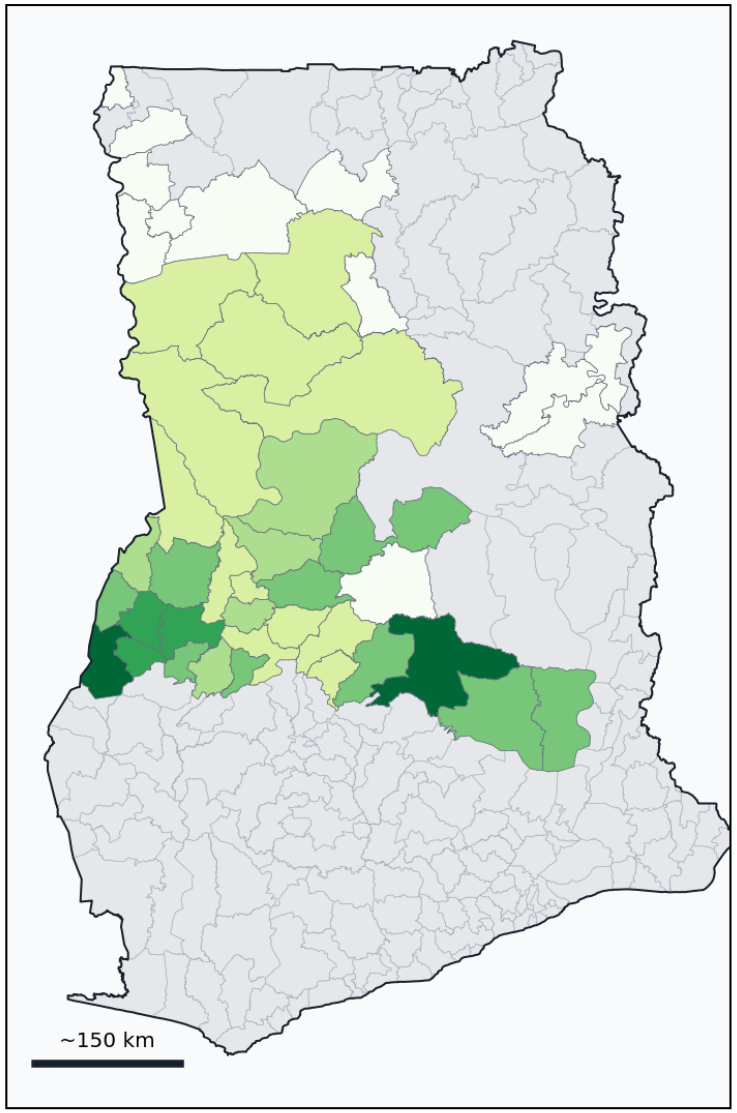
- Low climate / low signal
- High climate / low signal
- Low climate / high signal
- High climate / high signal
- More information needed
- No mapped sample / insufficient

Separate median splits, not a score.
Climate: mapped area with class decline.
≥95% climate coverage; ≥10 polygons.

Counterfactual screen.
Not EUDR compliance.

# Mapped cashew footprint with post-2020 signal

Ghana · MOFA · WHISP




Legend

- 0%
- >0–5%
- >5–10%
- >10–25%
- >25–50%
- >50–100%
- No mapped sample / insufficient data

Share of mapped polygon area (%).
Indicator-positive polygon footprint,
not hectares actually deforested.

Counterfactual screen.
Not EUDR compliance.

# Next steps

| | | |
|---|---|---|
| **Review** | Validate preliminary spatial-overlay results | Review classification rules, thresholds, scenario sensitivity, ecological and climate assumptions, and country-specific interpretation |
| **Stakeholder consultation** | Ground-truth and interpret the spatial priorities | Discuss results with steering-comitee, national partners and sector experts; identify implausible patterns, missing local context, implementation constraints and priority areas |
| **Refinement & final reporting** | Convert preliminary outputs into final recommendations | Refine overlay rules and maps, incorporate stakeholder feedback, finalize priority typologies, document limitations, and prepare final maps, conclusions and recommendations |