**A) Climate & niches**

* **τ** (climate suitability threshold)
  + ↑τ → **fewer** climate-suitable cells for every species; baseline BSH goes down. Any loss that concentrates on good climate (e.g., hotspot masks) hurts **more**; random loss looks closer to proportional.
  + Signature: steeper **climate-only** decline (fraction basis). Interaction effects can grow under hotspot masks because consumers sit in the same few good cells as their prey.
* **b0\_basal, bspread\_basal** (basal niche breadth)
  + ↓breadth → basal become **patchier** → prey base is clumpier → clustered/hotspot removal bites harder and can boost **interaction-only**.
* **b0\_cons, bspread\_cons** (consumer niche breadth)
  + ↓breadth → consumers themselves are more spatially restricted; climate-only declines sharpen.
* **niche\_mode** and **mu\_basal\_centers, mu\_basal\_sd**
  + :uniform → basal niches spread across the gradient (low “prey synchrony”).
  + :bimodal with small mu\_basal\_sd → two basal guilds jammed into two climate bands (high prey synchrony). Hotspot removal aligned with those bands produces a clear **interaction-only** signal (your best case so far).

**B) Metaweb (who eats whom) → redundancy vs fragility**

* **sigma** (width of the log-ratio diet kernel)
  + ↓sigma → **narrower diets**, each consumer has **fewer prey** → low redundancy → interaction effects amplify (especially under hotspots). Too low can truncate food-chain length.
* **density, pmax** (thinning of potential links)
  + ↓values → fewer realized prey per consumer (similar to ↓sigma). Push down to make interactions matter more; too far and communities become shallow and fragile.
* **R0\_mean, R0\_sd** (preferred predator:prey mass ratio & heterogeneity)
  + ↑R0\_mean or ↑R0\_sd can increase potential chain length and heterogeneity. Broad spreads can improve redundancy for some consumers while isolating others—expect noisier interaction responses.
* **basal\_frac**
  + ↓basal share → fewer basal species → taller but more brittle webs; hotspot losses show stronger interaction-only.

**C) Space & loss pattern**

* **Grid nx, ny, climate “texture”**
  + ↑texture/patchiness → clearer climate hotspots → hotspot masks align better with prey/consumer peaks → larger **interaction-only**.
* **Mask kind** & parameters
  + :random → nearly proportional climate-only changes; interaction-only ≈ 0.
  + :clustered (BFS, nseeds\_cluster) → moderate contiguity; interaction effects small–moderate.
  + :hotspot (our consumer-hotspot mask; **hotspot\_power**)
    - ↑hotspot\_power → more aggressively keeps “top” cells for the chosen proxy (we used consumer occupancy or basal suitability); makes interaction-only big and clearly different from random/clustered.
* **S (# species), seeds**
  + ↑S smooths curves (law of large numbers); different random seeds shift noise.

**D) Analysis choices**

* **Loss metric**: :fraction vs :area
  + **Fraction basis** (our default panels): measure BSH vs the **original** area → you always see climate-only declines; interaction-only appears when removal disrupts prey support in the same places consumers use it (hotspots).
  + **Area basis** (evaluate before/after **only on kept cells**): under the current **strictly local** model, it’s ~zero (kept cells don’t change). You’ll only see signals here if you add **regional persistence (metapop) rules** or dispersal coupling.
* **Trophic-level partitioning**
  + In our current runs, lower TLs (consumers just above basal) carry almost all the climate-only change; interaction-only is small and grows a bit under hotspots.

Why synergy ≈ 0?  
Our occupancy is **local** (no cross-cell feedbacks). The Shapley-style decomposition separates climate (A) and local prey support (p); their covariance (“synergy”) needs a cross-cell coupling to show up systematically. If you add a **viability threshold** (species collapses everywhere if its kept area < θ) or **regional rescue** around each cell, synergy will become non-zero (we sketched that earlier).