



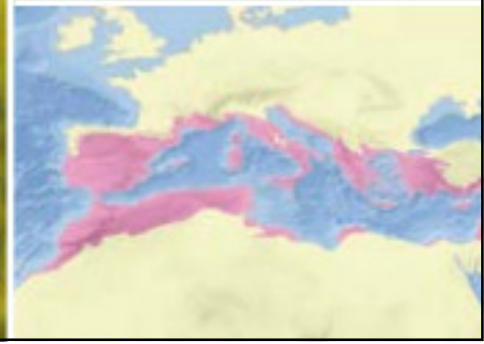
Session 4- Enabling conditions and Monitoring

**IUCN Red list of Ecosystems.
Biodiversity and Forest monitoring**

**Mediterranean Forest Week
Broummana- 04 Abril 2019**



MEDITERRANEAN





WHY AN IUCN RED LIST OF ECOSYSTEMS?

Goal:

Support conservation in resource use and management decisions by identifying ecosystems most at risk of biodiversity loss





IUCN RED LIST OF ECOSYSTEMS

- **Scientific, transparent & repeatable** process for assessing risk of ecosystem collapse
- Applicable & useful across ecosystem types
- Designed to bring **different data types** together
- Focus on **ecological processes** not just patterns
- Separate **risk assessment & conservation priority**



Haor, the bowl-shaped large tectonic depressions of Bangladesh, are the home of many freshwater swamp forests composed mostly of aquatic Hijal (Indian Oak; *Barringtonia acutangula*) tree. These aquatic forests are under continued destruction for converting into agricultural lands. Location: Bara beel under Karimganj Upazila, Kishoreganj District, Bangladesh.





II. CONCEPT OF 'COLLAPSE'

RLE assessments reflect the probability of ecosystem collapse

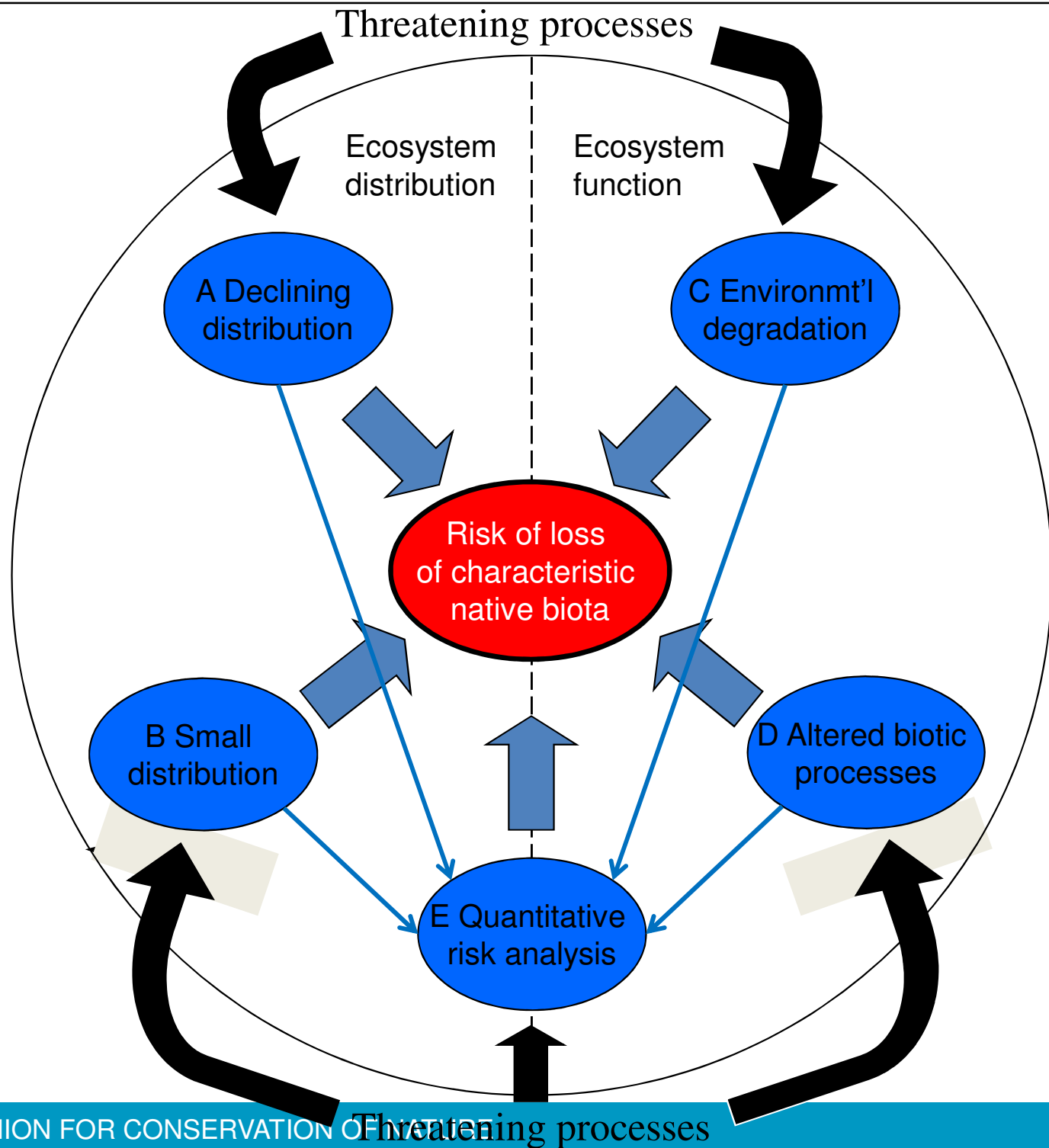
- **Collapse:** Theoretical threshold beyond which an ecosystem can no longer maintain its defining features
- Once the collapsed state has been defined, the Red List category assigned reflects the probability the ecosystem will reach this state.



Convention on
Biological Diversity



?





© Julia Leijola

• The source of life - Two herdsman bring their goats and sheep back to their summer encampment across Egiin Gol (Eg river). Mongolian herdsman have long been the custodians of the country's pristine nature. Since the 1990s there have been efforts to build a hydroelectric dam on the river. In November 2013, its construction was approved. Location: Khuvsgul Province, Mongolia

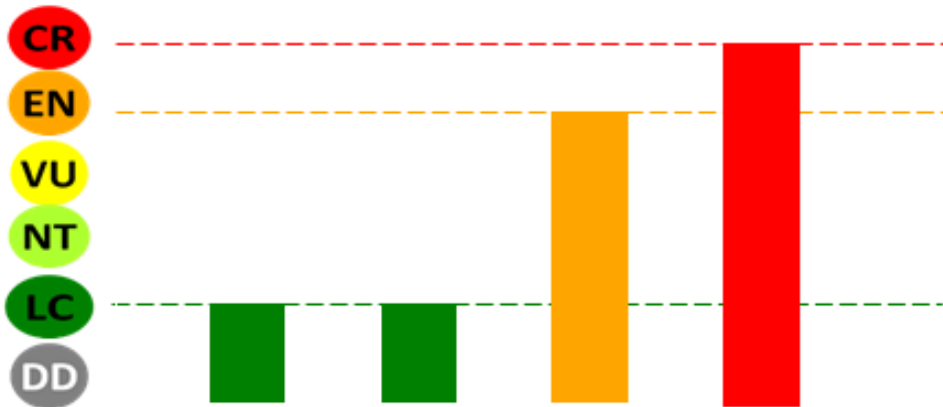
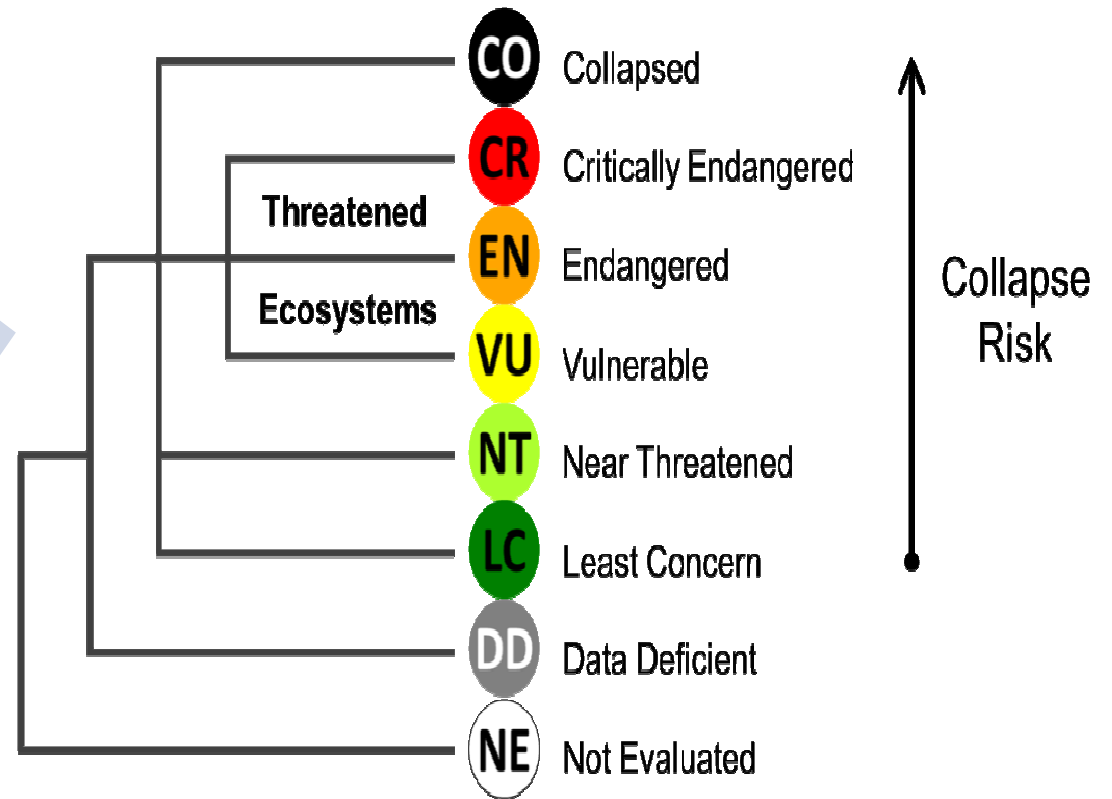
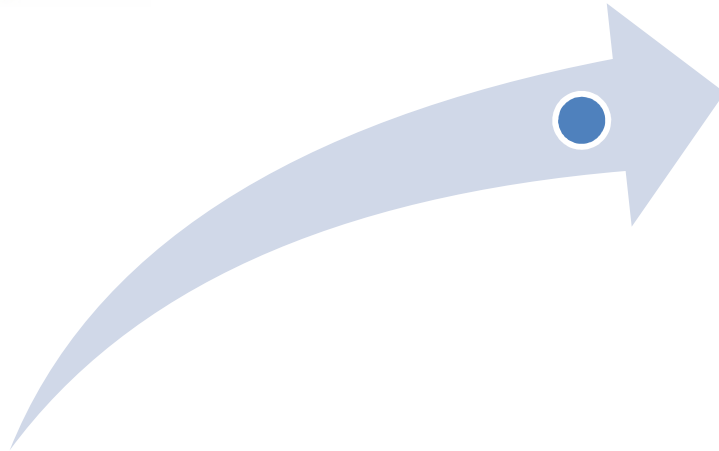




Cédraie (*Cedrus atlantica*) - Chênaie verte (*Quercus rotundifolia*) Anefgou, Haut Atlas Oriental (c) A. Benabid



Water "Buchón" and its effects on the Sonso Lagoon - The Nature Reserve of Sonso Lagoon is one of the most important sites at a regional level, since it has a rich biodiversity. The water "buchón" is an aquatic plant that was taken from their natural habitat and it is simply responding to the reality of its environment (eutrophication) with its high invasive potential. Location: margen oriental del río Cauca, entre los municipios de Buga, Yocoto y Guacarí, en el departamento del Valle del Cauca, Colombia.





Free software

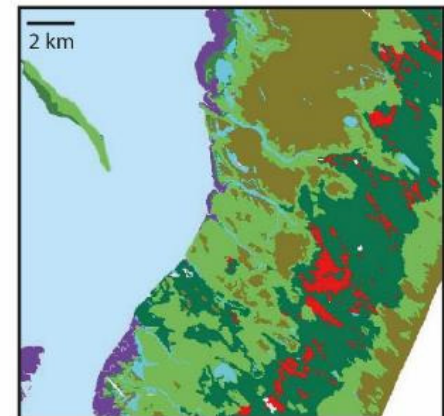
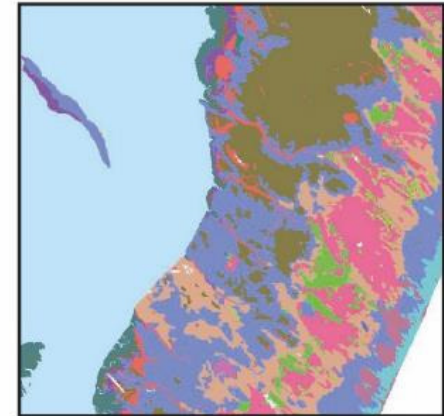
- REMAP online remote sensing
<https://remap-app.org/remap>
- R package for spatial analysis
- Excel tools for change metrics (rates of decline, summary of assessment)

<https://iucnrle.org/resources/capacity-building/>

Year	ARD	PRD
1999	852.17	852
2000	822.353	816
2001	792.536	782
2002	762.729	748
2003	732.922	714
2004	703.115	680
2005	673.308	646
2006	643.501	612
2007	613.694	578
2008	583.887	544
2009	554.080	510
2010	524.273	476
2011	494.466	442
2012	464.659	408
2013	434.852	374
2014	405.045	340

Year	Area	Change per year (km²)
1999	852.17	
2009	554	29.817

Year	Area	r (proportional rate of change) Ch
1999	852.17	
2009	554	-0.043062235





REMAP - RLE remote sensing app

<https://remap-app.org>

The screenshot shows the remap website interface. At the top, there's a red navigation bar with the 'remap' logo on the left and links for 'about', 'methods', 'tutorials', 'f.a.q.', and 'launch remap' on the right. The main banner features a scenic landscape image with the text 'remap' in large white letters, followed by the tagline 'Enabling large-scale ecosystem mapping and assessment' and a red 'LAUNCH' button. Below the banner, there are three columns, each with a red icon and a title: 'Global' (with a globe icon), 'Mapping' (with a map icon), and 'Assessment' (with a bar chart icon). Each column contains a brief description of the platform's capabilities and its contribution to global ecosystem monitoring.

remap: remote ecosystem monitoring

https://remap-app.org

remap

about methods tutorials f.a.q. launch remap

remap

Enabling large-scale ecosystem mapping and assessment

LAUNCH

Global

Mapping

Assessment

Remap is an online mapping platform for people with little technical background in remote sensing. We developed remap to enable you to quickly map and report the status of ecosystems, contributing to a global effort to assess all ecosystems on Earth under the [IUCN Red List of Ecosystems](#).

Until now, the data, remote sensing methods and computing resources needed to map ecosystems have been inaccessible to non-experts. Remap allows you to quickly train a machine learning classifier to make accurate maps of the landscape. To make your own, simply add points to the map to identify different ecosystems.

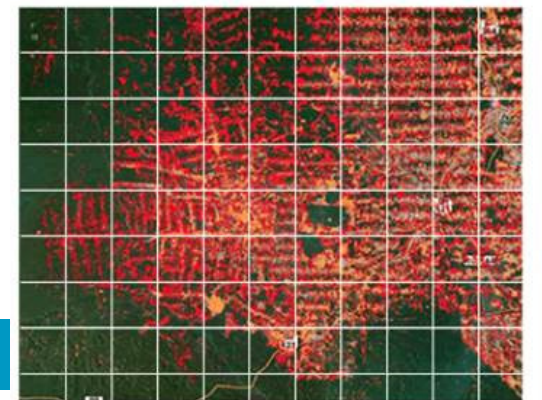
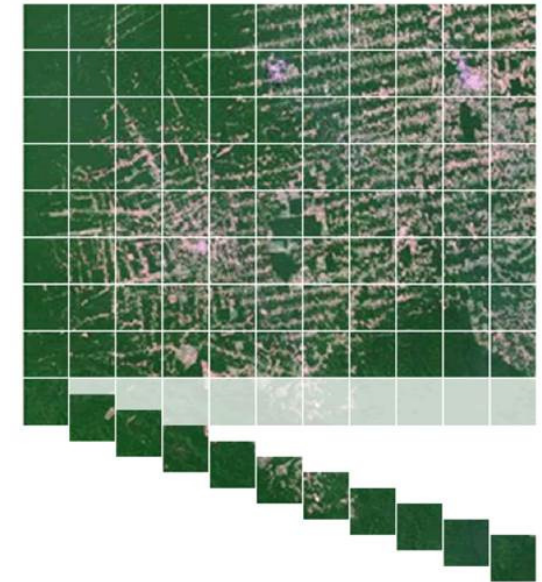
We know quite a lot about which species around the world are most endangered. The IUCN Red List of Ecosystems aims to identify the ecosystems on earth at the highest risk of collapse. Use remap to calculate the spatial metrics needed to classify ecosystems as [Vulnerable](#), [Endangered](#) or [Critically Endangered](#).

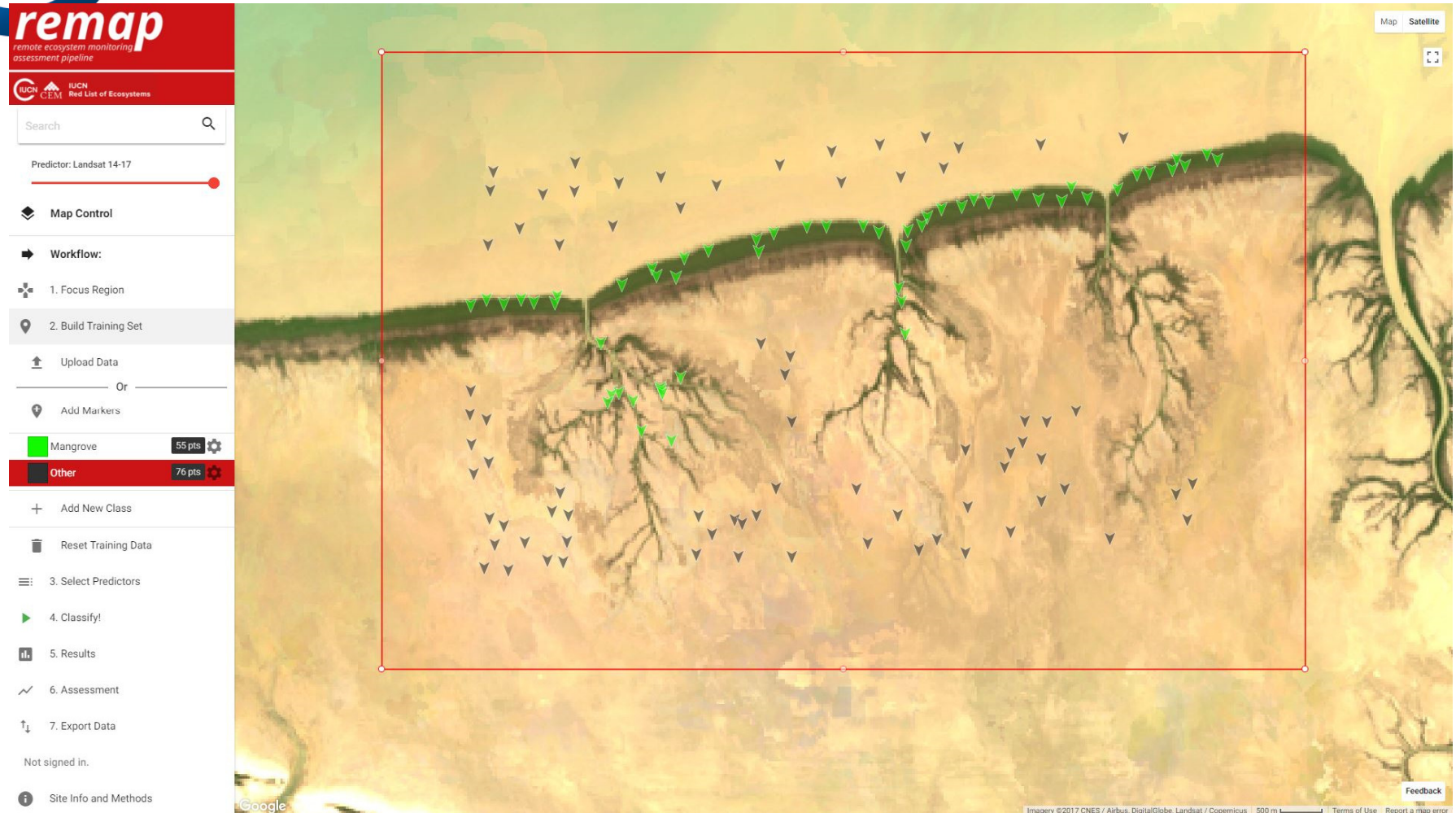


REMAP - RLE remote sensing app

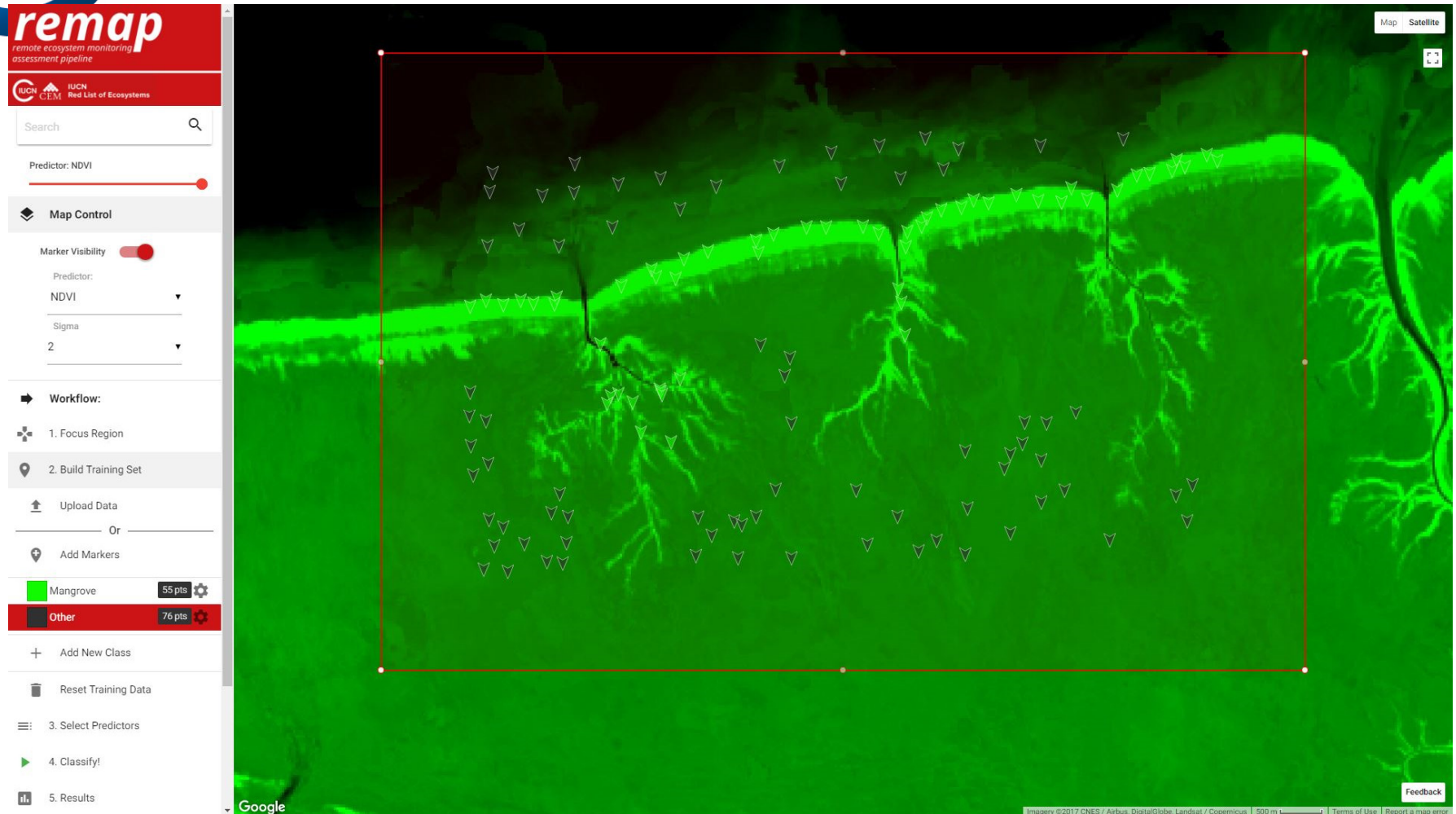
<https://remap-app.org>

- Aim: make ecosystem maps easy to make from remote sensing data
- No data choices
- No raw data downloads
- No methods choices
- No technical skills
- Runs in the Google Earth Engine
- Useful in Myanmar to collect training data for a remote sensing ecosystem classification





Focus region ➡ train the classifier



Focus region ➡ train the classifier ➡ select predictors

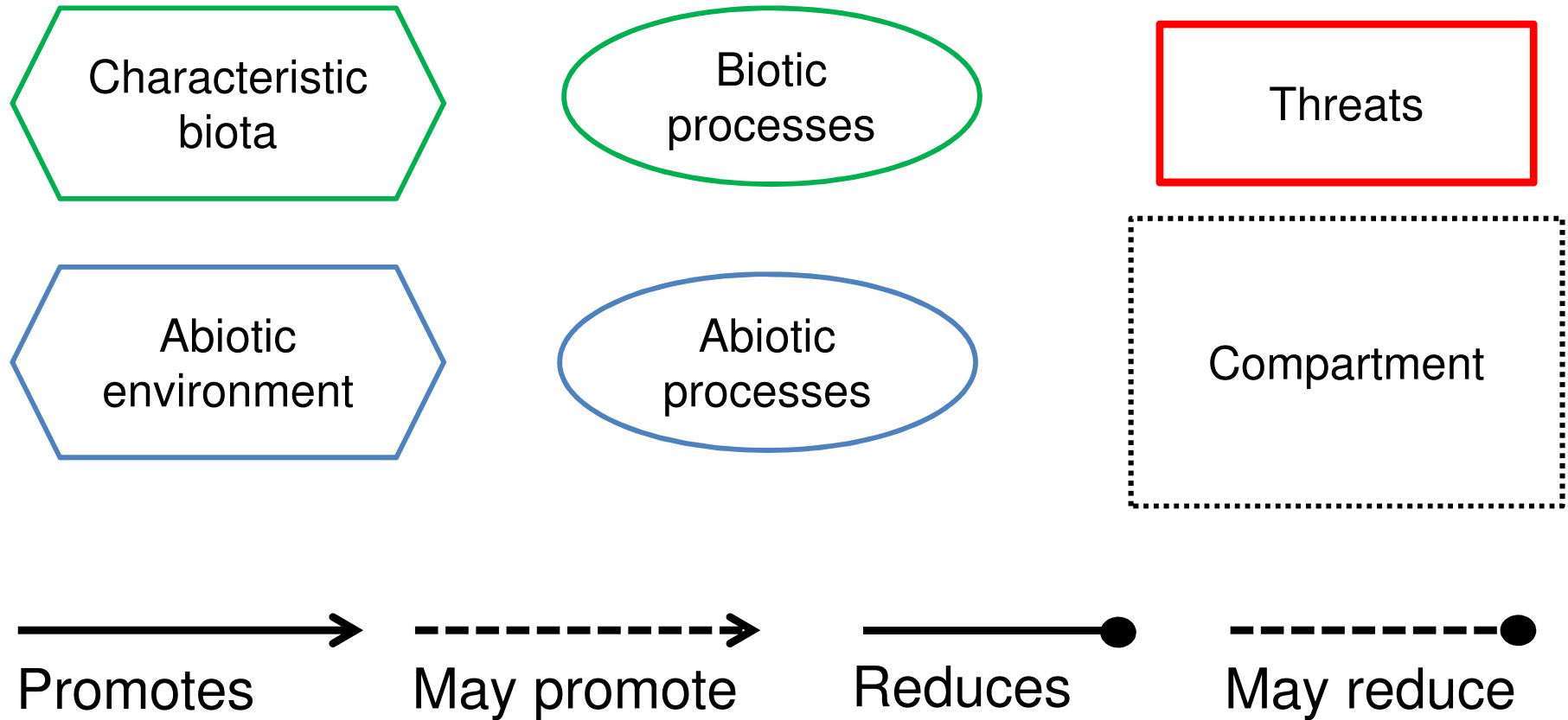


Focus region ➡ train the classifier ➡ select predictors

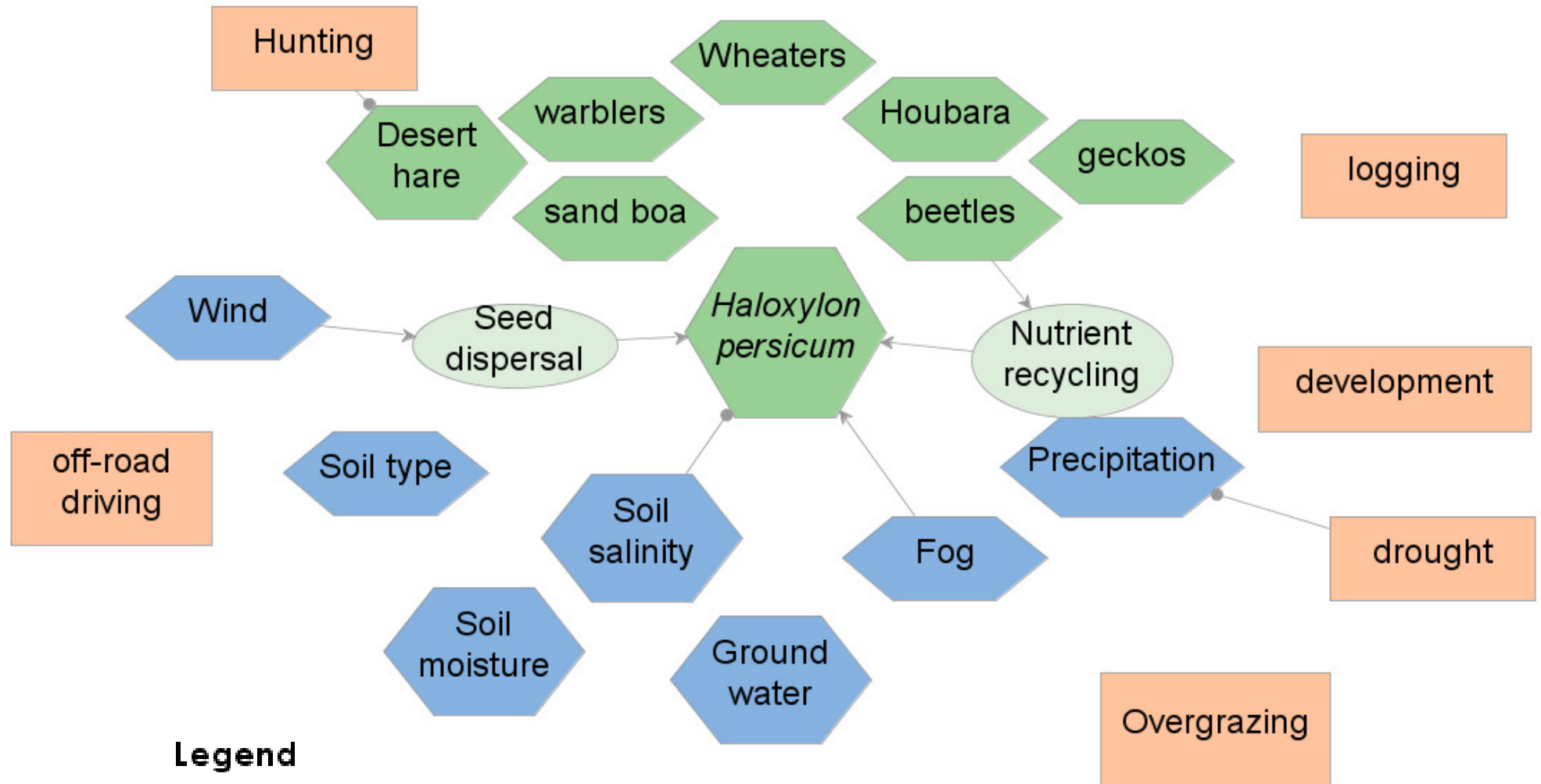
run classification



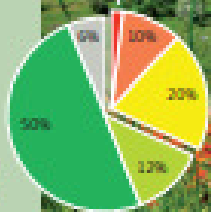
Conceptual model



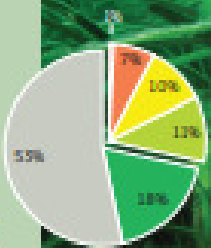
Conceptual model



32% of
terrestrial
habitats
threatened

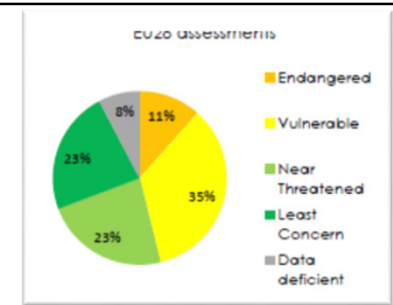


At least 18% of marine habitats threatened



European Red List of Habitats

A European Red List assessment
for terrestrial, freshwater and marine habitats



Forest




Freshwater

		EU25a		EU25b		EU25c		EU25d		EU25e		EU25f		EU25g		EU25h		EU25i		EU25j		EU25k		EU25l		EU25m		EU25n		EU25o		EU25p		EU25q		EU25r		EU25s		EU25t		EU25u		EU25v		EU25w		EU25x		EU25y		EU25z		EU25aa		EU25ab		EU25ac		EU25ad		EU25ae		EU25af		EU25ag		EU25ah		EU25ai		EU25aj		EU25ak		EU25al		EU25am		EU25an		EU25ao		EU25ap		EU25aq		EU25ar		EU25as		EU25at		EU25au		EU25av		EU25aw		EU25ax		EU25ay		EU25az		EU25ba		EU25bb		EU25bc		EU25bd		EU25be		EU25bf		EU25bg		EU25bh		EU25bi		EU25bj		EU25bk		EU25bl		EU25bm		EU25bn		EU25bo		EU25bp		EU25bq		EU25br		EU25bs		EU25bt		EU25bu		EU25bv		EU25bw		EU25bx		EU25by		EU25bz		EU25ca		EU25cb		EU25cc		EU25cd		EU25ce		EU25cf		EU25cg		EU25ch		EU25ci		EU25cj		EU25ck		EU25cl		EU25cm		EU25cn		EU25co		EU25cp		EU25cq		EU25cr		EU25cs		EU25ct		EU25cu		EU25cv		EU25cw		EU25cx		EU25cy		EU25cz		EU25da		EU25db		EU25dc		EU25dd		EU25de		EU25df		EU25dg		EU25dh		EU25di		EU25dj		EU25dk		EU25dl		EU25dm		EU25dn		EU25do		EU25dp		EU25dq		EU25dr		EU25ds		EU25dt		EU25du		EU25dv		EU25dw		EU25dx		EU25dy		EU25dz		EU25ea		EU25eb		EU25ec		EU25ed		EU25ee		EU25ef		EU25eg		EU25eh		EU25ei		EU25ej		EU25ek		EU25el		EU25em		EU25en		EU25eo		EU25ep		EU25eq		EU25er		EU25es		EU25et		EU25eu		EU25ev		EU25ew		EU25ex		EU25ey		EU25ez		EU25fa		EU25fb		EU25fc		EU25fd		EU25fe		EU25ff		EU25fg		EU25fh		EU25fi		EU25fj		EU25fk		EU25fl		EU25fm		EU25fn		EU25fo		EU25fp		EU25fq		EU25fr		EU25fs		EU25ft		EU25fu		EU25fv		EU25fw		EU25fx		EU25fy		EU25fz		EU25ga		EU25gb		EU25gc		EU25gd		EU25ge		EU25gf		EU25gg		EU25gh		EU25gi		EU25gj		EU25gk		EU25gl		EU25gm		EU25gn		EU25go		EU25gp		EU25gq		EU25gr		EU25gs		EU25gt		EU25gu		EU25gv		EU25gw		EU25gx		EU25gy		EU25gz		EU25ha		EU25hb		EU25hc		EU25hd		EU25he		EU25hf		EU25hg		EU25hi		EU25hj		EU25hk		EU25hl		EU25hm		EU25hn		EU25ho		EU25hp		EU25hq		EU25hr		EU25hs		EU25ht		EU25hu		EU25hv		EU25hw		EU25hx		EU25hy		EU25hz		EU25ia		EU25ib		EU25ic		EU25id		EU25ie		EU25if		EU25ig		EU25ih		EU25ii		EU25ij		EU25ik		EU25il		EU25im		EU25in		EU25io		EU25ip		EU25iq		EU25ir		EU25is		EU25it		EU25iu		EU25iv		EU25iw		EU25ix		EU25iy		EU25iz		EU25ja		EU25jb		EU25jc		EU25jd		EU25je		EU25jf		EU25jg		EU25jh		EU25ji		EU25jj		EU25jk		EU25jl		EU25jm		EU25jn		EU25jo		EU25jp		EU25jq		EU25jr		EU25js		EU25jt		EU25ju		EU25jv		EU25jw		EU25jx		EU25jy		EU25jz		EU25ka		EU25kb		EU25kc		EU25kd		EU25ke		EU25kf		EU25kg		EU25kh		EU25ki		EU25kj		EU25kl		EU25km		EU25kn		EU25ko		EU25kp		EU25kq		EU25kr		EU25ks		EU25kt		EU25ku		EU25kv		EU25kw		EU25kx		EU25ky		EU25kz		EU25la		EU25lb		EU25lc		EU25ld		EU25le		EU25lf		EU25lg		EU25lh		EU25li		EU25lj		EU25lk		EU25ll		EU25lm		EU25ln		EU25lo		EU25lp		EU25lq		EU25lr		EU25ls		EU25lt		EU25lu		EU25lv		EU25lw		EU25lx		EU25ly		EU25lz		EU25ma		EU25mb		EU25mc		EU25md		EU25me		EU25mf		EU25mg		EU25mh		EU25mi		EU25mj		EU25mk		EU25ml		EU25mm		EU25mn		EU25mo		EU25mp		EU25mq		EU25mr		EU25ms		EU25mt		EU25mu		EU25mv		EU25mw		EU25mx		EU25my		EU25mz		EU25na		EU25nb		EU25nc		EU25nd		EU25ne		EU25nf		EU25ng		EU25nh		EU25ni		EU25nj		EU25nk		EU25nl		EU25nm		EU25nn		EU25no		EU25np		EU25nq		EU25nr		EU25ns		EU25nt		EU25nu		EU25nv		EU25nw		EU25nx		EU25ny		EU25nz		EU25oa		EU25ob		EU25oc		EU25od		EU25oe		EU25of		EU25og		EU25oh		EU25oi		EU25oj		EU25ok		EU25ol		EU25om		EU25on		EU25oo		EU25op		EU25oq		EU25or		EU25os		EU25ot		EU25ou		EU25ov		EU25ow		EU25ox		EU25oy		EU25oz		EU25pa		EU25pb		EU25pc		EU25pd		EU25pe		EU25pf		EU25pg		EU25ph		EU25pi		EU25pj		EU25pk		EU25pl		EU25pm		EU25pn		EU25po		EU25pp		EU25pq		EU25pr		EU25ps		EU25pt		EU25pu		EU25pv		EU25pw		EU25px		EU25py		EU25pz		EU25qa		EU25qb		EU25qc		EU25qd		EU25qe		EU25qf		EU25qg		EU25qh		EU25qi		EU25qj		EU25qk		EU25ql		EU25qm		EU25qn		EU25qo		EU25qp		EU25qq		EU25qr		EU25qs		EU25qt		EU25qu		EU25qv		EU25qw		EU25qx		EU25qy		EU25qz		EU25ra		EU25rb		EU25rc		EU25rd		EU25re		EU25rf		EU25rg		EU25rh		EU25ri		EU25rj		EU25rk		EU25rl		EU25rm		EU25rn		EU25ro		EU25rp		EU25rq		EU25rr		EU25rs		EU25rt		EU25ru		EU25rv		EU25rw		EU25rx		EU25ry		EU25rz		EU25sa		EU25sb		EU25sc		EU25sd		EU25se		EU25sf		EU25sg		EU25sh		EU25si		EU25sj		EU25sk		EU25sl		EU25sm		EU25sn		EU25so		EU25sp		EU25sq		EU25sr		EU25ss		EU25st		EU25su		EU25sv		EU25sw		EU25sx		EU25sy		EU25sz		EU25ta		EU25tb		EU25tc		EU25td		EU25te		EU25tf		EU25tg		EU25th		EU25ti		EU25tj		EU25tk		EU25tl		EU25tm		EU25tn		EU25to		EU25tp		EU25tq		EU25tr		EU25ts		EU25tt		EU25tu		EU25tv		EU25tw		EU25tx		EU25ty		EU25tz		EU25ua		EU25ub		EU25uc		EU25ud		EU25ue		EU25uf		EU25ug		EU25uh		EU25ui		EU25uj		EU25uk		EU25ul		EU25um		EU25un		EU25uo		EU25up		EU25uq		EU25ur		EU25us		EU25ut		EU25uu		EU25uv		EU25uw		EU25ux		EU25uy		EU25uz		EU25va		EU25vb		EU25vc		EU25vd		EU25ve		EU25vf		EU25vg		EU25vh		EU25vi		EU25vj		EU25vk		EU25vl		EU25vm		EU25vn		EU25vo		EU25vp		EU25vq		EU25vr		EU25vs		EU25vt		EU25vu		EU25vv		EU25vw		EU25vx		EU25vy		EU25vz		EU25wa		EU25wb		EU25wc		EU25wd		EU25we		EU25wf		EU25wg		EU25wh		EU25wi		EU25wj		EU25wk		EU25wl		EU25wm		EU25wn		EU25wo		EU25wp		EU25wq		EU25wr		EU25ws		EU25wt		EU25wu		EU25wv		EU25ww		EU25wx		EU25wy		EU25wz		EU25xa		EU25xb		EU25xc		EU25xd		EU25xe		EU25xf		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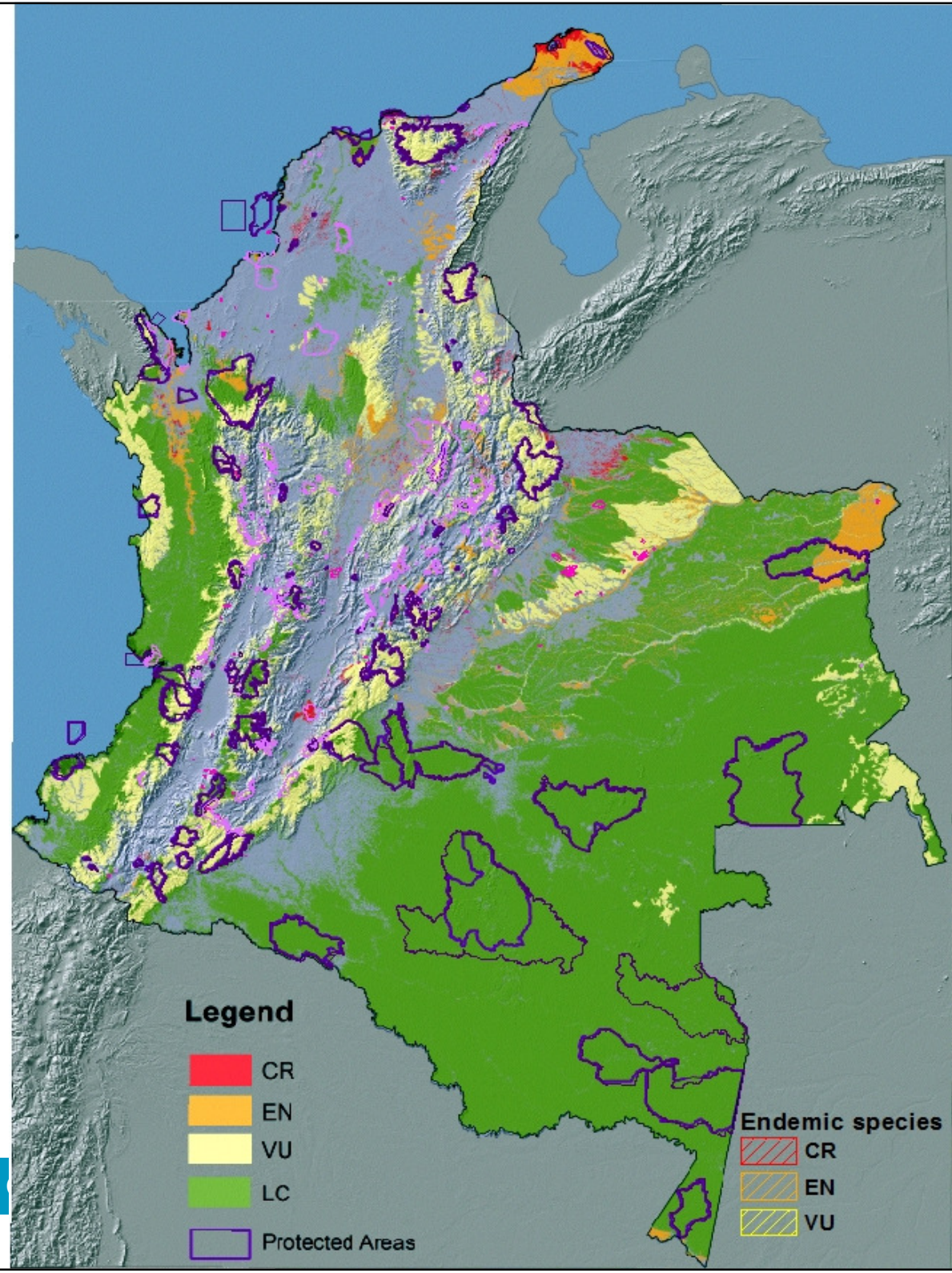


RLE & WDPA






WDPA

-  Federal or national ministry or agency
-  Individual landowners
-  Sub-national ministry or agency

INTERNATIONAL UNION FOR CONSERVATION



Legend

-  CR
-  EN
-  VU
-  LC
-  Protected Areas

Endemic species

-  CR
-  EN
-  VU

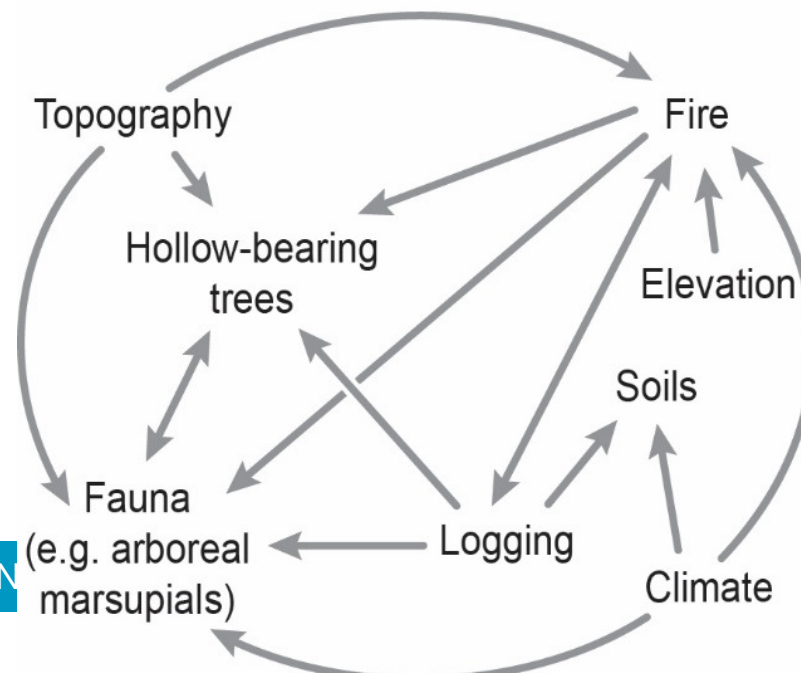


Mountain Ash forest of Southeastern Australia

- Managing mountain ash forests
- Key focus on old trees:
 - Managing fire
 - Regulating timber harvest
 - Mitigating climate change



Mountain Ash ecosystem



INTERNATIONAL UNION FOR CONSERVATION

Burns et al. (2015) *Austral Ecology*



Mountain Ash forest of Southeastern Australia



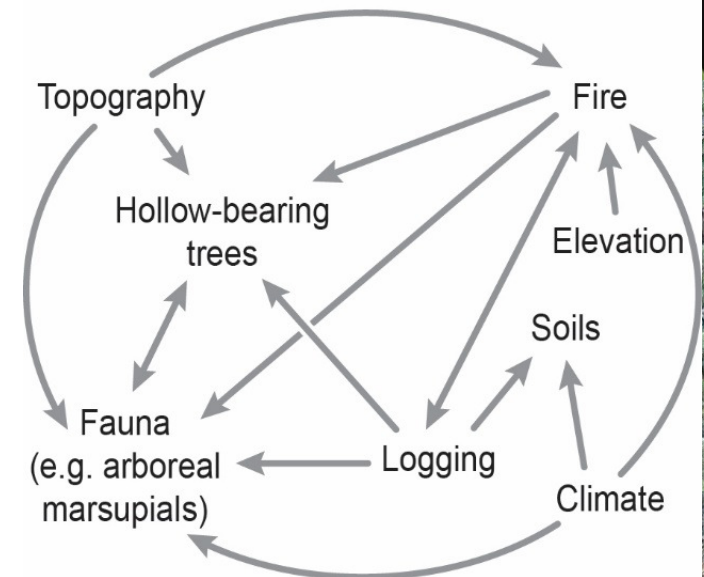
Mountain Ash ecosystem

- **Past 50 years:**

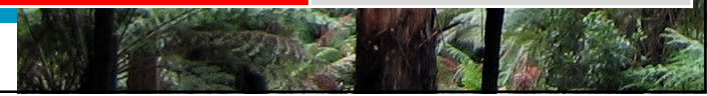
- Less than 4% remaining either recently unburnt or unlogged

- **Next 50 years:**

- Future scenarios of fire, climate change & logging look even worse



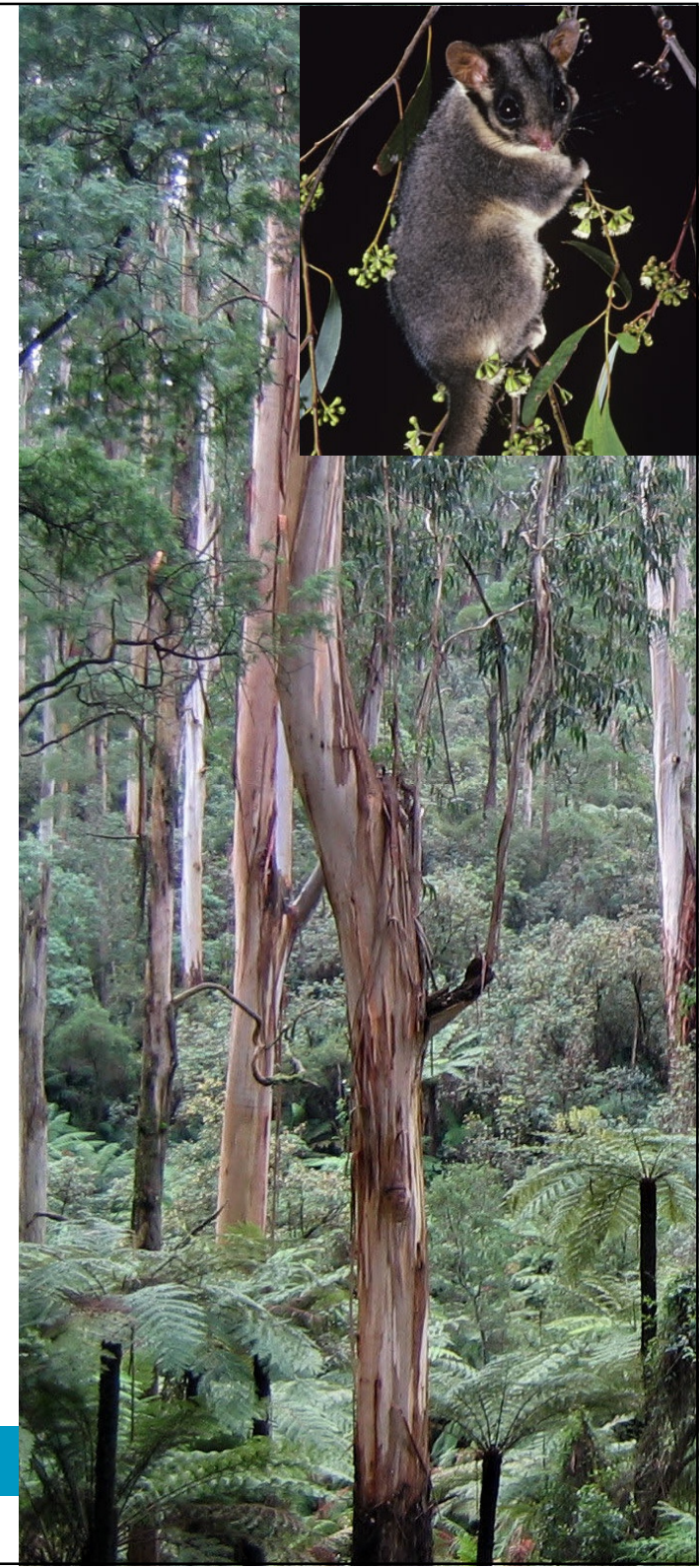
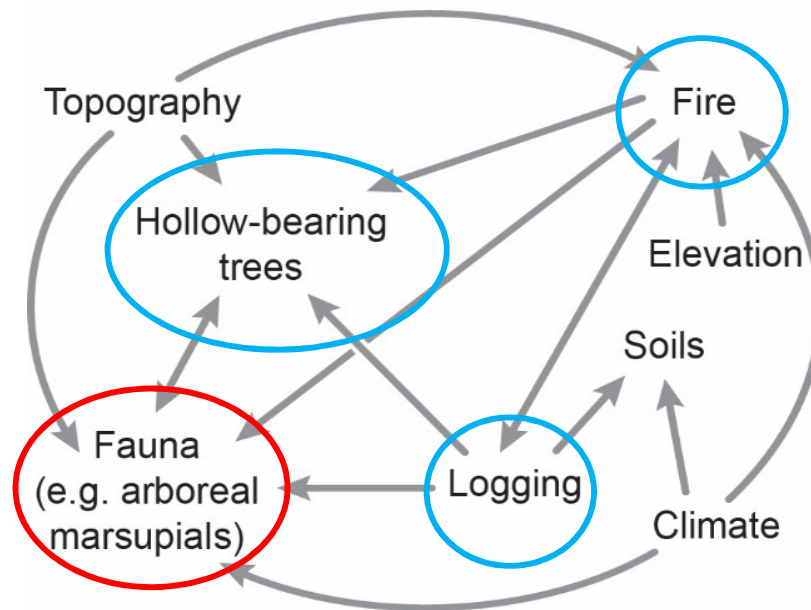
	A. Declining distribution	B. Restricted distribution	C. Environmental degradation	D. Biotic disruption	E. Quantitative risk analysis
Past 50 years	LC	EN (EOO)	DD	CR	CR
Future 50 years	LC	LC (AOO)	VU (LC-CR)	CR	
Since 1750	LC	VU (Locations)	DD	CR	



- **What happened next:**

- Areas moved out of production
- Burnings planned to avoid damage to old growth trees
- Recovery plan for threatened mammal

Mountain Ash ecosystem





<http://uicn.fr/lre-france/>



The national Red List of Ecosystems in France

Interpretation of ecosystem risk of collapse to build conservation strategies



All assessment forms will include a section dedicated to « results interpretation » in order to:

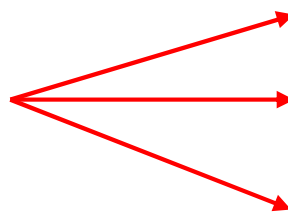
- Quickly describe the evaluated ecosystems and their extent
- **Explain the main threat(s) and how it affects the ecosystems**
- Highlight secondary or unquantifiable threats
- Announce the chosen global category of threat and to what criteria it refers

The national Red List of Ecosystems in France

How to consider drivers that affects both biotic and abiotic variables?

Disruption of biotic interactions (criterion D)

Biotic driver



Biotic variable 1

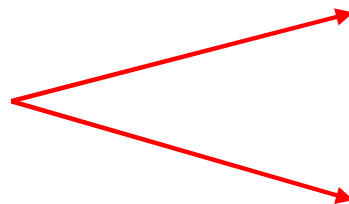
Biotic variable 2

Biotic variable 3

- *Choose the most affected variable*
- *Estimate the value for the collapse state*
- *Estimate the change in value of the variable during the assessment period*

Degradation of the abiotic environment (criterion C)

Abiotic driver

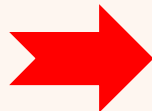


Choose the most affected abiotic variables

Disruption of biotic interactions (criterion D)

Choose the most affected biotic variables (affected by the changes in abiotic variables)

Climate change



Soil water deficit

Aridity index

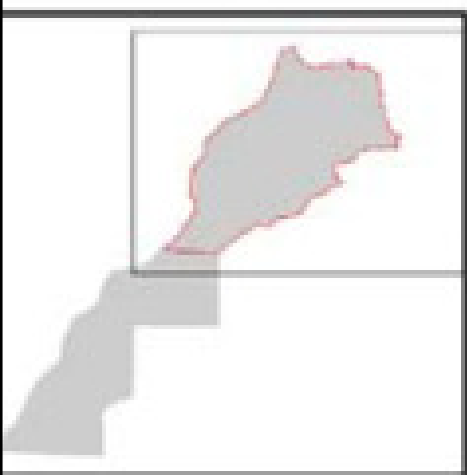
Summer rainfall



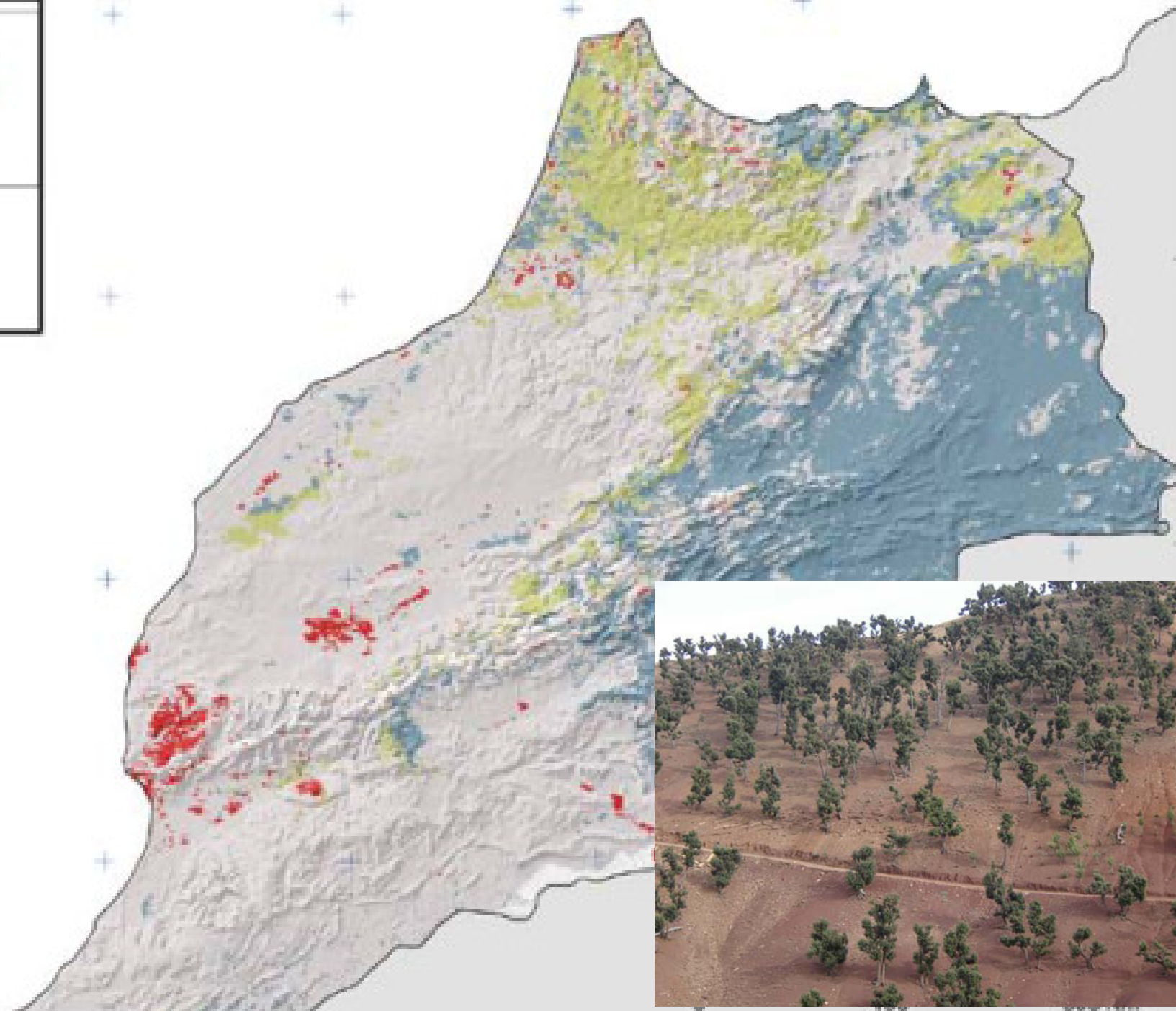
Floristic composition

Pathogen attacks

Health degradation of the dominant species



- sin datos
- Degradándose
- Fluctuando
- Aumentando
- Estática





THE CONSERVATION STATUS AND DISTRIBUTION OF MEDITERRANEAN SAPROXYLIC BEETLES

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MEDITERRANEAN

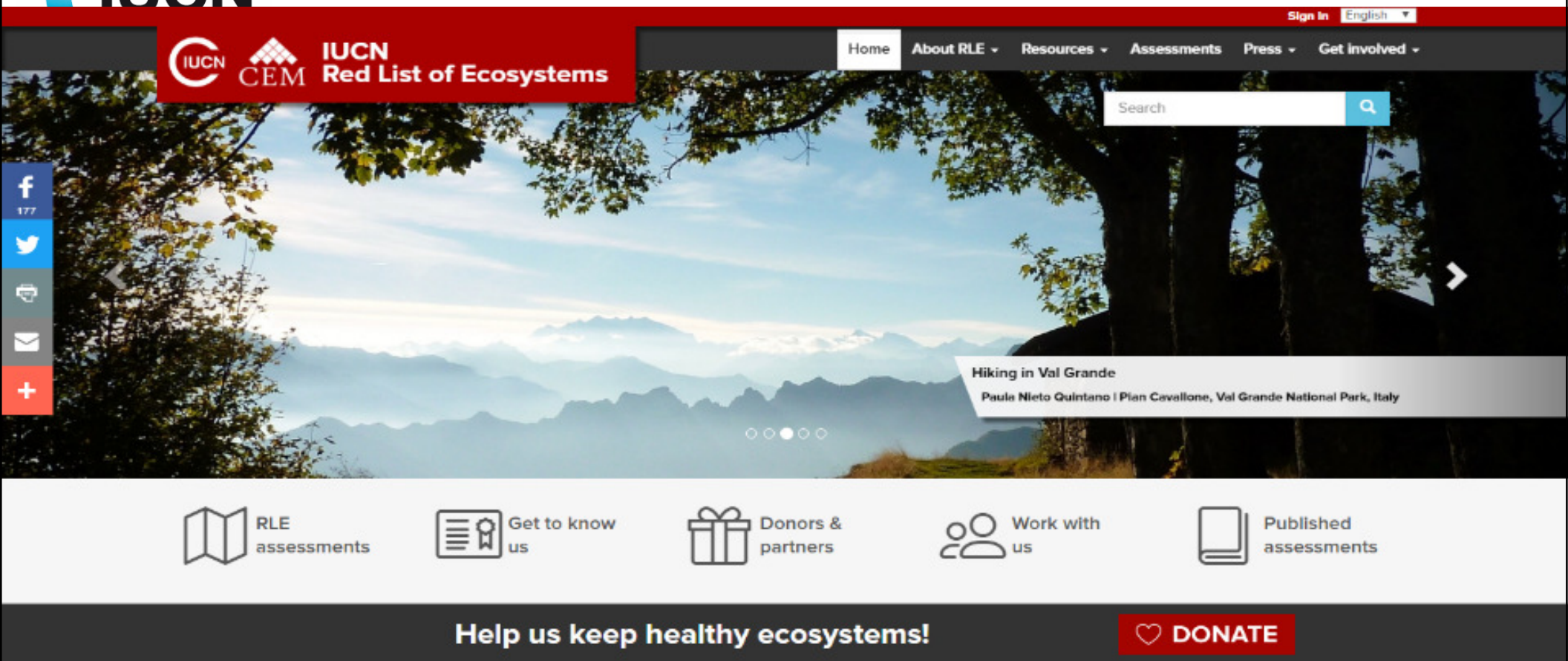




The [American Heart Association](#) cites denial as a principal reason that treatment of a [heart attack](#) is delayed.



Because the symptoms are so varied, and often have other potential explanations, the opportunity exists for the patient to deny the emergency



- Guidelines, scientific documents, support tools, case studies, communications
- English, Spanish and French



IUCN Red List of Ecosystems



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www.iucnrle.org

<http://uicn.fr/lre-france>

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