Climate Change Actions from Bonn to the North Bay

Ellie Cohen, President & CEO
North Bay Watershed Association
January 5, 2018

Point Blue
Conservation science for a healthy planet.

Photos by Ellie Cohen/Point Blue unless otherwise noted

Point Blue Conservation Science

Leaders in assessing changes in climate, land-use and the ocean, and in developing collaborative, nature-based solutions for wildlife and people

- 160+ scientists & 20 grad students
- Manage >1 billion ecological observations across the Americas
- 2017 budget: ~$14 million
- Founded in 1965 as Point Reyes Bird Observatory

Point Blue file photo

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Future of life as we know it on our planet?

Already exceeding 4 of 9 ‘planetary boundaries’

- Climate change
- Species extinction
- Habitat loss (land-use changes)
- Fertilizers (altered biogeochemical cycles)

- Steffen et al, SCIENCE, Jan 2015, Planetary Boundaries
- Natl Acad. of Sci., Abrupt Climate Change Dec 2013
- Barnosky et al, NATURE June 2012

Image Cheng (Lily) Li.

Paris Climate Agreement - Dec. 2015

Hold increase in global avg. temp. below 2°C (1.5); includes nature-based solutions

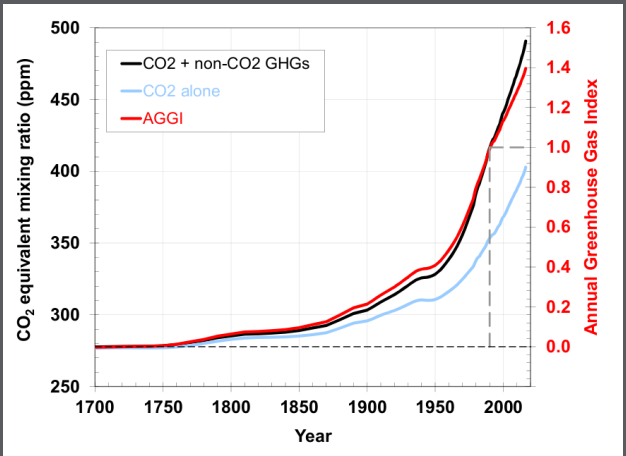
United Nations Framework Convention on Climate Change http://unfccc.int/resource/docs/2015/cop21/eng/l09.pdf

www.pointblue.org/parisagreementecosystems

*Guiot, et al. Paris Agrmt and Mediterranean **basin** ecosystems. Science* 28 Oct 2016 DOI: 10.1126/science.aah5015

“1.5°C is the wrong goal…
Must return to <1°C by 2100”

1.5C exceeds Eemian when seas were 20-30 ft higher ~120k yrs ago; need to return to 350 PPM to stay in Holocene range to sustain humanity



https://www.esrl.noaa.gov/gmd/aggi/aggi.html

REQUIRES:

- Reforestation & improved agricultural (soil) and forestry practices
- Major CO2 extraction technology
- Rapid phasedown of global emissions by at least 6%/year starting in 2021

Hansen, J et al: Young people's burden: requirement of negative CO_2 emissions, Earth Syst. Dynam., 8, 577-616, 2017

http://www.columbia.edu/~jeh1/mailings/2017/20170718_BurdenCommunication.pdf7

To stay below 2°C limit:

Fire photo by peasap; Earth photo by NASA; composite by Phil Plait

We must remove 18% of CO2 currently in the atmosphere to get back to a safe climate by 2100

(~**550.5 Gt** (billion metric tons) CO2e or 150 Pg C)

With major emissions reductions at 6% per year beginning by 2021

Hansen, J et al: Young people's burden: requirement of negative CO_2 emissions, Earth Syst. Dynam., 8, 577-616, 2017

UNFCCC COP23

United Nations Framework Convention on Climate Change

United Nations
Climate Change Secretariat

Nations Unies
Secrétariat sur les changements climatiques

Secretariat of the United Nations Framework Convention on Climate Change / Platz der Vereinten Nationen 1 / 53113 Bonn, Germany

EX3MHF

To Diplomatic Missions: Please take note of the code EX3MHF that may be used to confirm this registration. Please log into the system to find the most updated information.

ACKNOWLEDGEMENT OF PARTICIPANT'S NOMINATION / UNFCCC VISA SUPPORT LETTER

This is to acknowledge that a Designated Contact Point (DCP) has nominated the individual to attend the meeting session COP23/CMP13/CMA1.2, Bonn, Germany from 06 Nov 2017 to 17 Nov 2017 as specified below.

Full name:
Ms. Ellen M. Cohen

Organization:		
Point Reyes Bird Observatory *		
Registration type:	Attendance starts:	Attendance ends:
Observer - NGO head	06 Nov 2017	17 Nov 2017

The above mentioned organization has been admitted as an observer organization to the sessions of the Convention.

COP23 | FIJI

UN CLIMATE CHANGE CONFERENCE

BONN 2017

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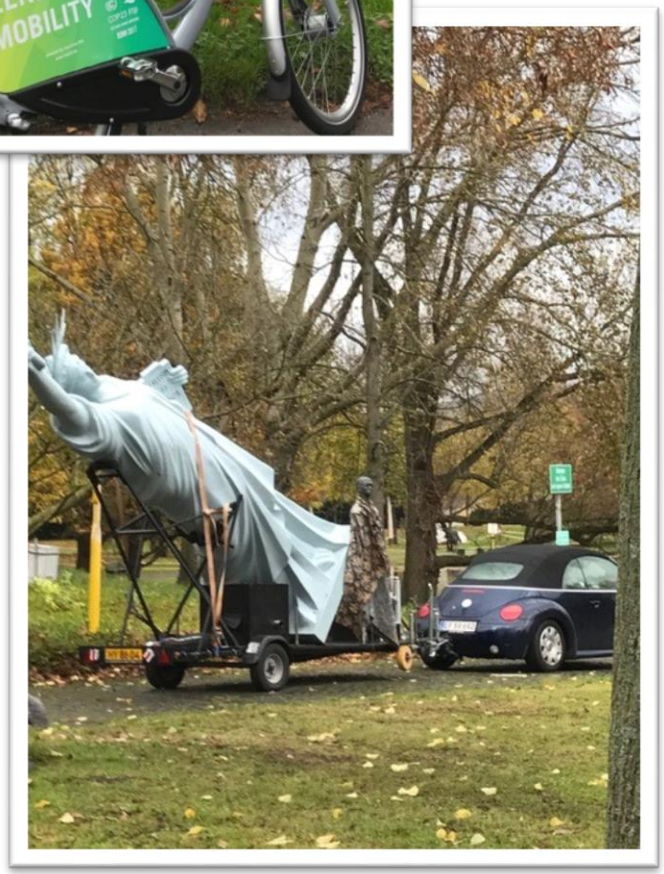
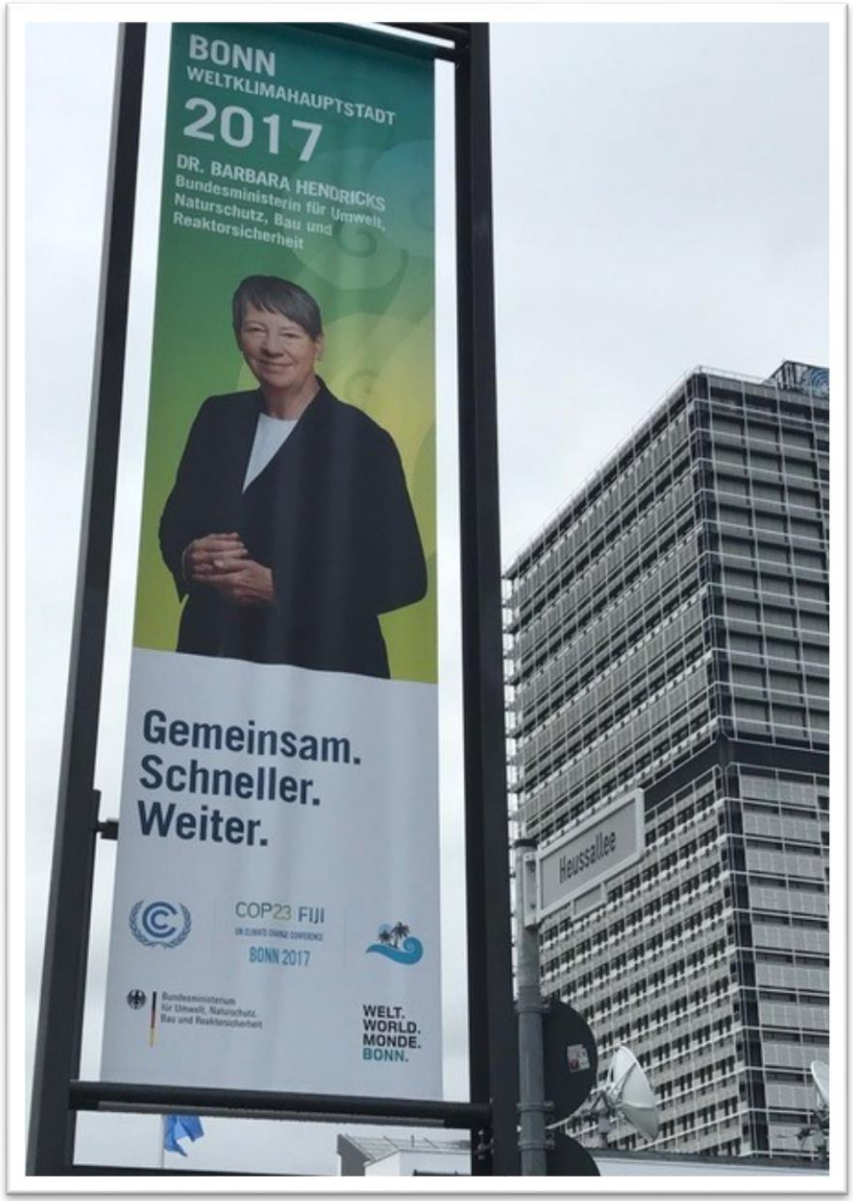
Rhine River, Bonn, Germany





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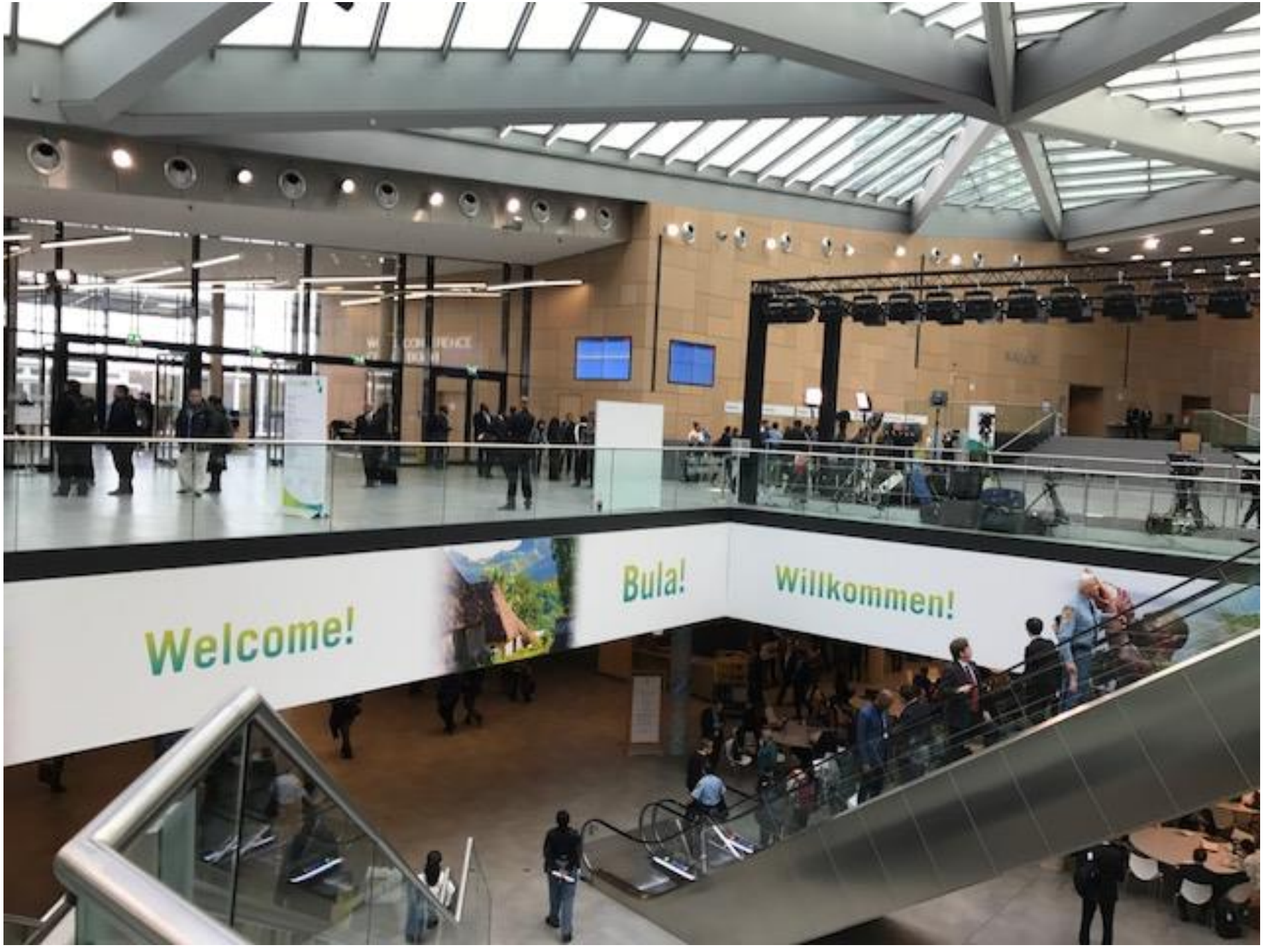
COP23 UNFCCC meeting, Bonn, Germany November 2017


Welcome!
Bula!
Willkommen!

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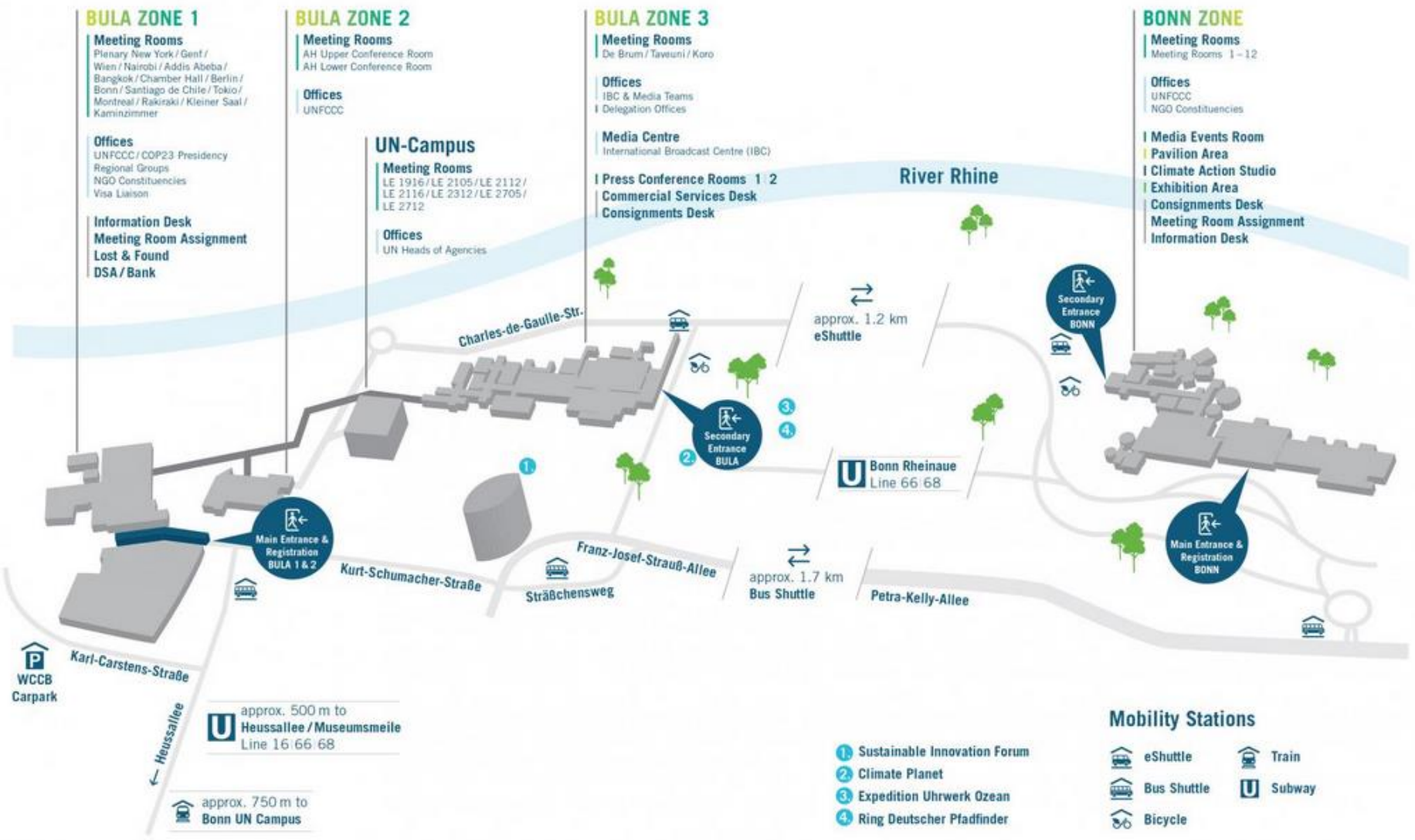
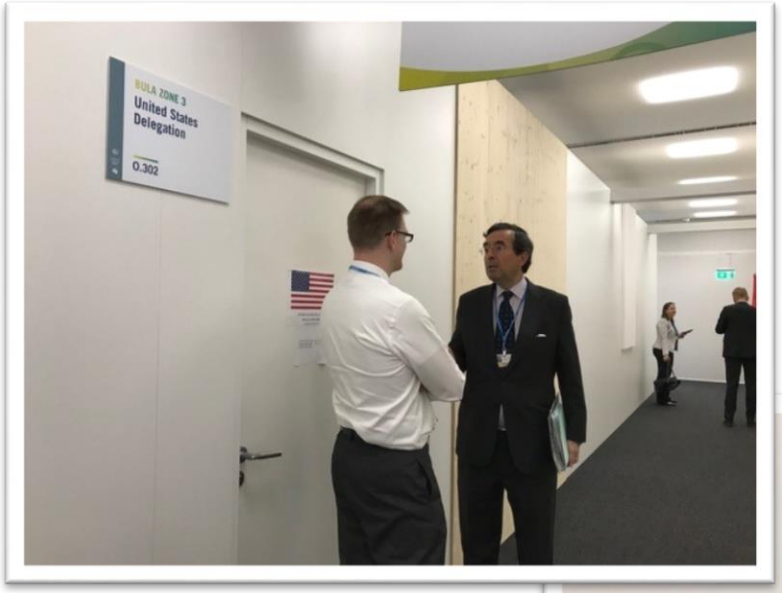
BULA ZONE

BONN ZONE




BULA ZONE 3
United States
Delegation
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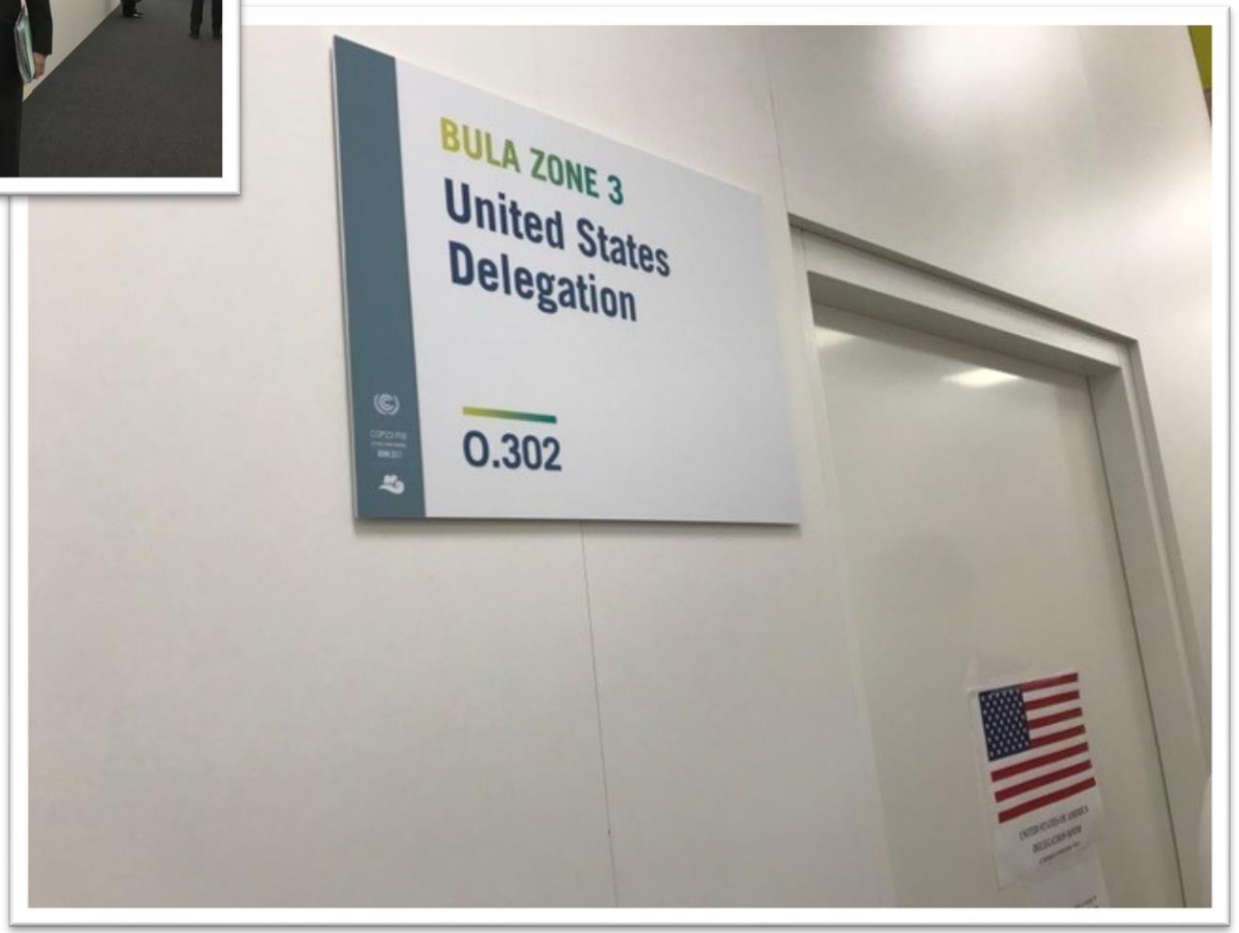
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United States
Delegation
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Alternative US Delegation at the US Climate Action Center

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Panel on Innovations in CA Climate Policy Nov. 9 2017 COP 23 ; www.wearestillin.com/cop23

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Former NYC Mayor Mike Bloomberg Nov. 11 2017

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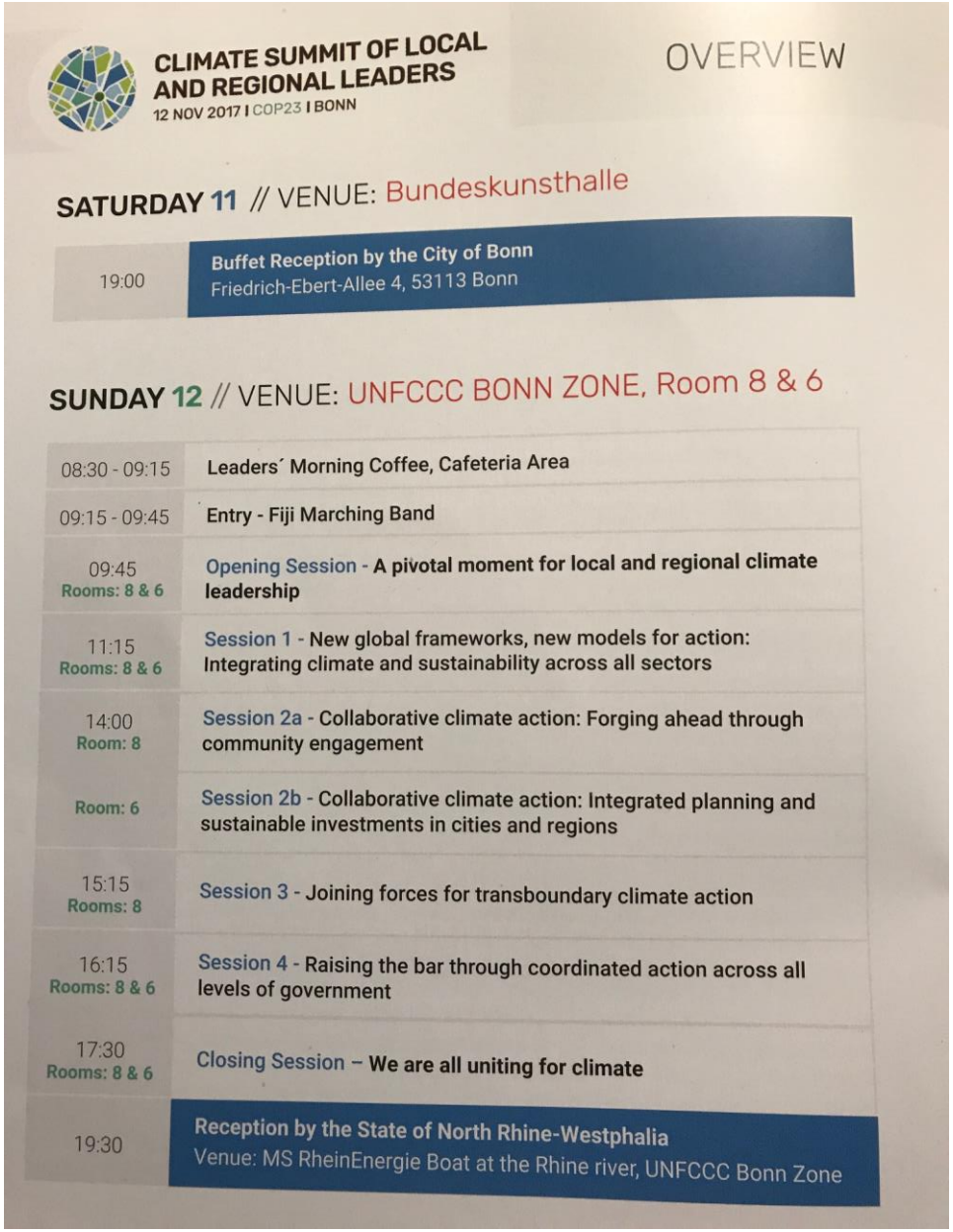
CA Governor Jerry Brown, UNFCCC Chair Patricia Espinoza



CLIMATE SUMMIT OF LOCAL AND REGIONAL LEADERS
12 NOV 2017 | COP23 | BONN

OVERVIEW

SATURDAY 11 // VENUE: Bundeskunsthalle

19:00	**Buffet Reception by the City of Bonn** Friedrich-Ebert-Allee 4, 53113 Bonn

SUNDAY 12 // VENUE: UNFCCC BONN ZONE, Room 8 & 6

08:30 - 09:15	Leaders´ Morning Coffee, Cafeteria Area
09:15 - 09:45	Entry - Fiji Marching Band
09:45 Rooms: 8 & 6	Opening Session - **A pivotal moment for local and regional climate leadership**
11:15 Rooms: 8 & 6	Session 1 - New global frameworks, new models for action: Integrating climate and sustainability across all sectors
14:00 Room: 8	Session 2a - Collaborative climate action: Forging ahead through community engagement
Room: 6	Session 2b - Collaborative climate action: Integrated planning and sustainable investments in cities and regions
15:15 Rooms: 8	Session 3 - Joining forces for transboundary climate action
16:15 Rooms: 8 & 6	Session 4 - Raising the bar through coordinated action across all levels of government
17:30 Rooms: 8 & 6	Closing Session – **We are all uniting for climate**
19:30	**Reception by the State of North Rhine-Westphalia** Venue: MS RheinEnergie Boat at the Rhine river, UNFCCC Bonn Zone

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ICLEI and others-- http://www.cities-and-regions.org/

Over 300 Mayors from around the world attend the Climate Summit of Local and Regional Leaders
http://www.cities-and-regions.org/

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Free mass transit & bikes as well as electric buses for use by COP23 attendees

But ~40% of Germany's electricity comes from coal;
Coal barges on Rhine River next to UNFCCC COP23, Bonn, November 2017

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Bonn Zone- with official country pavilions and the US conspicuously absent

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French Pavilion, Bonn Zone November 2017

A new focus on agriculture as part of the climate solution

United Nations

Framework Convention on Climate Change

FCCC/SBSTA/2017/L.24/Add.1

Distr.: Limited
14 November 2017

Original: English

Subsidiary Body for Scientific and Technological Advice
Forty-seventh session
Bonn, 6–15 November 2017

Agenda item 7
Issues relating to agriculture

Issues relating to agriculture

Draft conclusions proposed by the Chair

Addendum

Recommendation of the Subsidiary Body for Scientific and Technological Advice

The Subsidiary Body for Scientific and Technological Advice, at its forty-seventh session, recommended the following draft decision for consideration and adoption by the Conference of the Parties at its twenty-third session:

Draft decision -/CP.23

http://unfccc.int/resource/docs/2017/sbsta/eng/l24a01.pdf

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Cities and Regions Pavilion, ICLEI

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Key for us all

Natural Climate Solutions

can make up ~37% of emissions reductions needed to stay below 2C by 2030

Griscom et al. Natural Climate Solutions. PNAS (Proceedings of the National Academy of Sciences, US). October 17 2017 doi: 10.1073/pnas.1710465114

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Farmers can boost yields and contribute over 3 Gt CO_2e yr^{-1} of emissions reductions
25 – 50% of the 4p1000 target for up to 20 years through soil management practices that restore carbon to croplands

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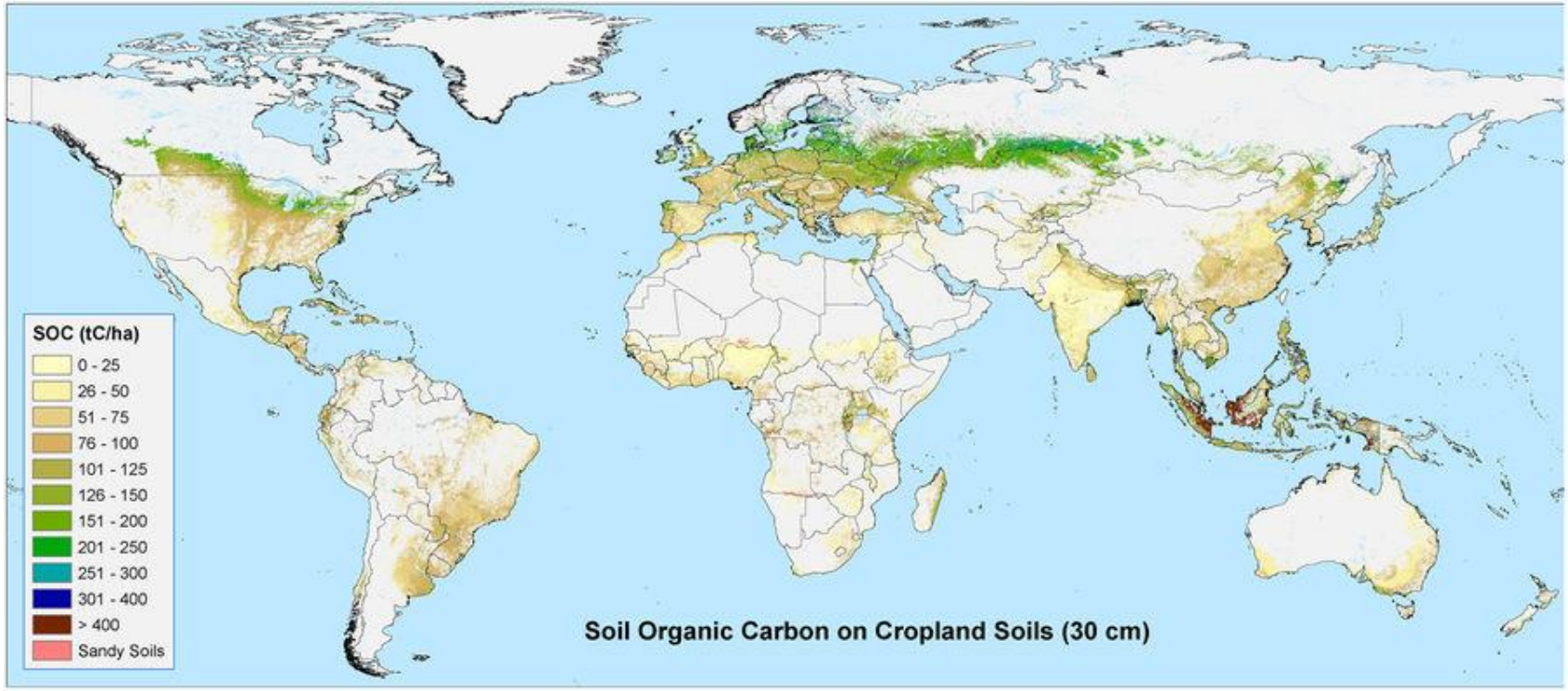
Cropland soils could sequester up to 18% of annual global emissions



Zomer et al (TNC). Global Sequestration Potential of Increased Organic Carbon in Cropland Soils. *Scientific Reports* Nov 2017.

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Restoration Engine: turning CO_2 to stone: Climeworks + CarbFix
Hellisheidi Power Station, Reykjavik

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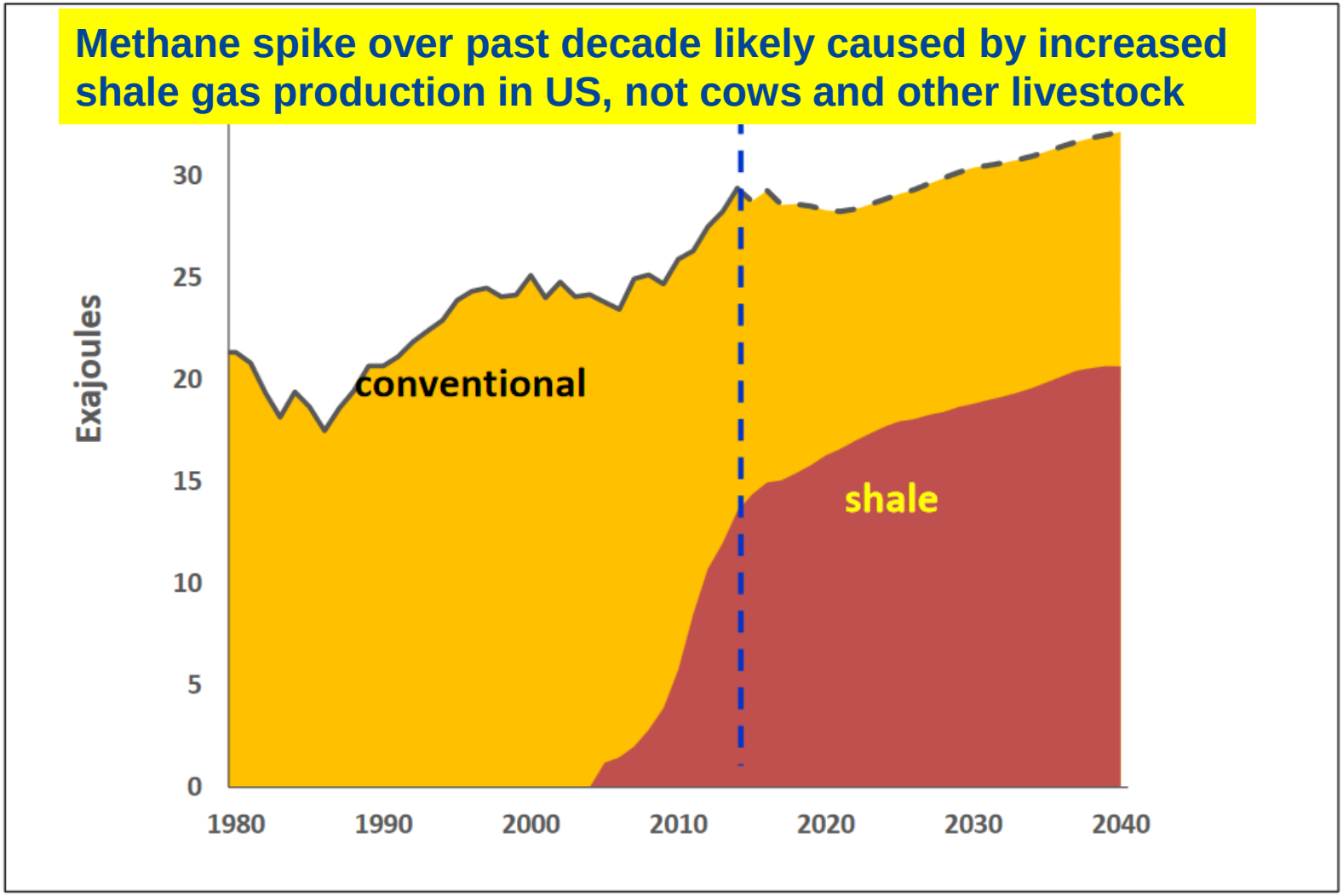
Natural Gas Production in the United States

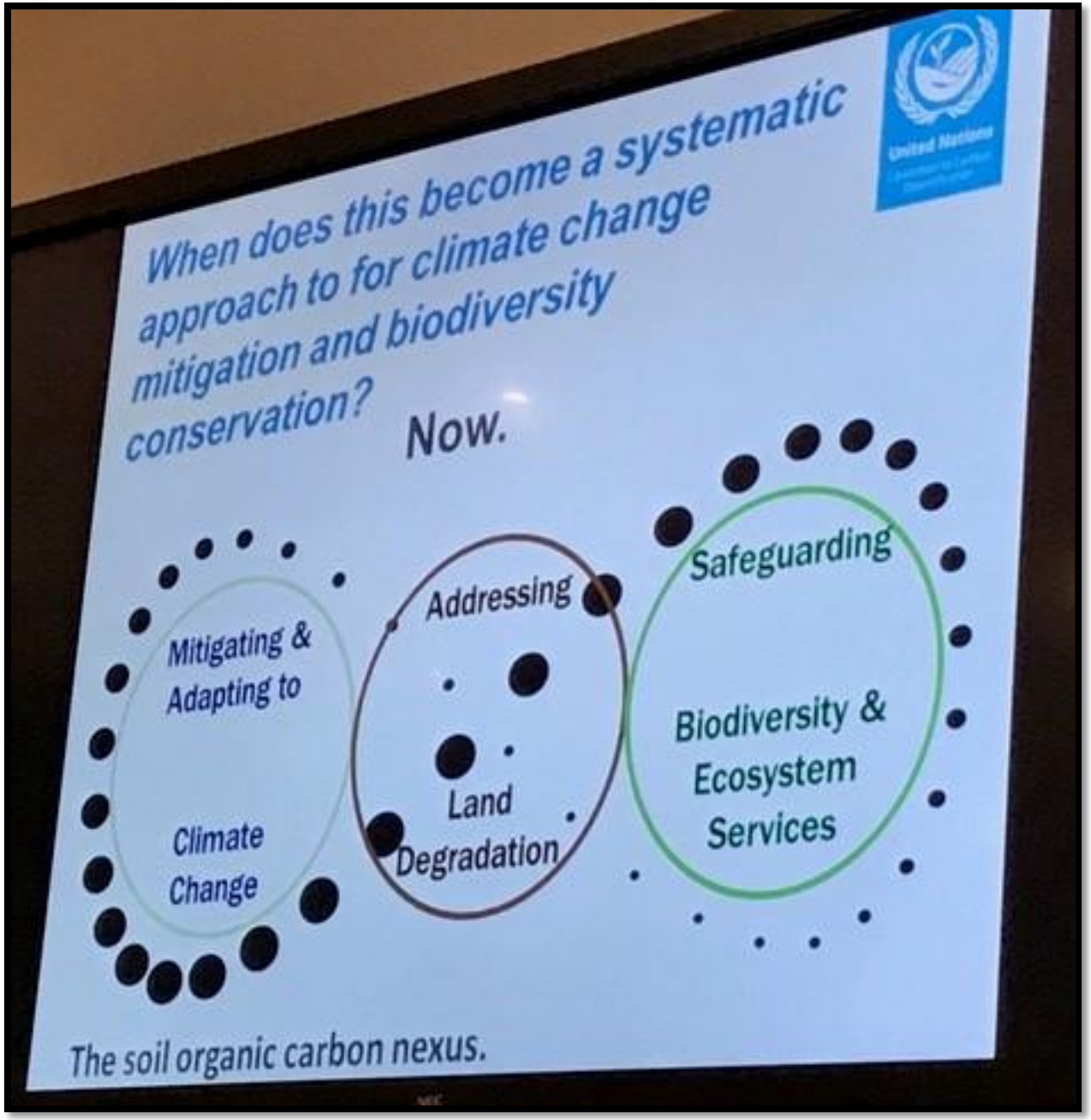
Dept of Energy -- EIA 2015 Outlook data and mean reference projections

Methane spike over past decade likely caused by increased shale gas production in US, not cows and other livestock



Howarth 2015

www.howarthlab.org


When does this become a systematic approach to for climate change mitigation and biodiversity conservation?
Now.
Mitigating & Adapting to
Climate Change
Addressing
Land Degradation
Safeguarding
Biodiversity & Ecosystem Services
The soil organic carbon nexus.

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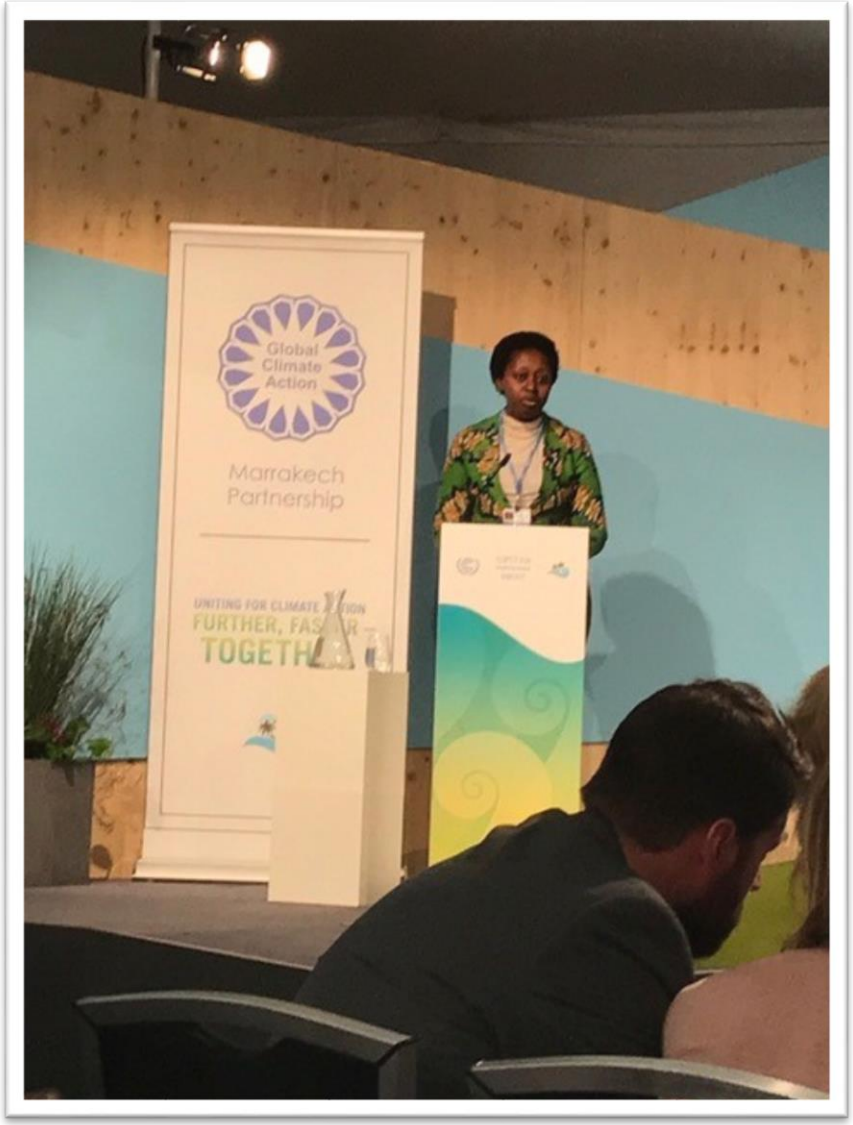
Women in climate leadership



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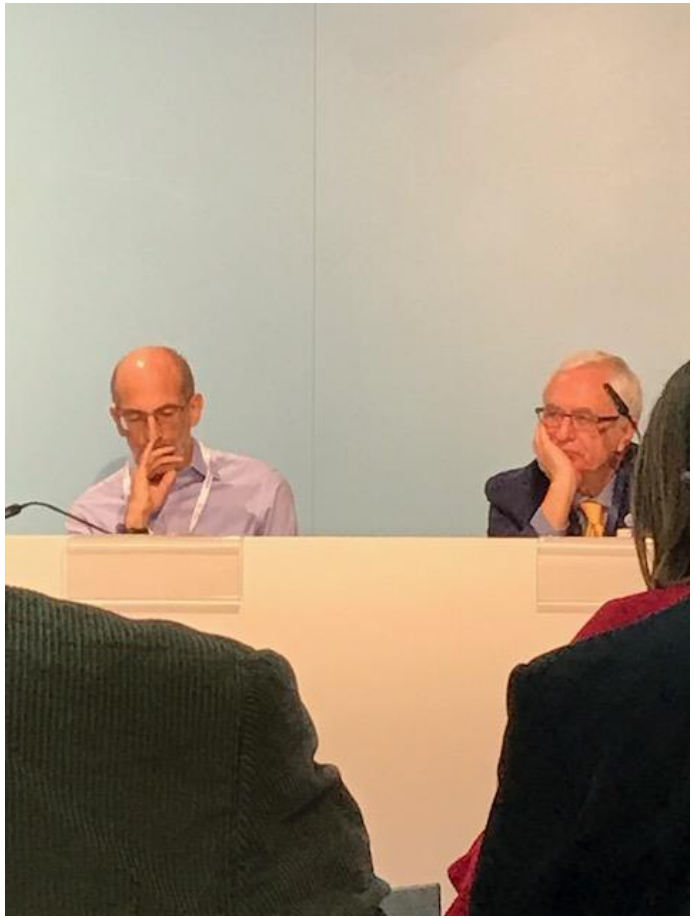
Ms. Aisa Kirabo Kacyira, UN Habitat; Laurence Tubiana, European Climate Foundation; Mayor and regional leader, Maria Helena J. Correia Langa of Mozambique

Partner Globally, Act Locally!

With Laurence Tubien, European Climate Foundation, Director



Ken Alex, CA OPR Director; Louis Blumberg, CA TNC; Mediterranean Climates Session

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Steve Hammer, World Bank in front of photo from Fiji

Leaders of island nations call for urgent action on climate change at COP23.
Pictured: Environmental Minister from Dominica addressing closing plenary

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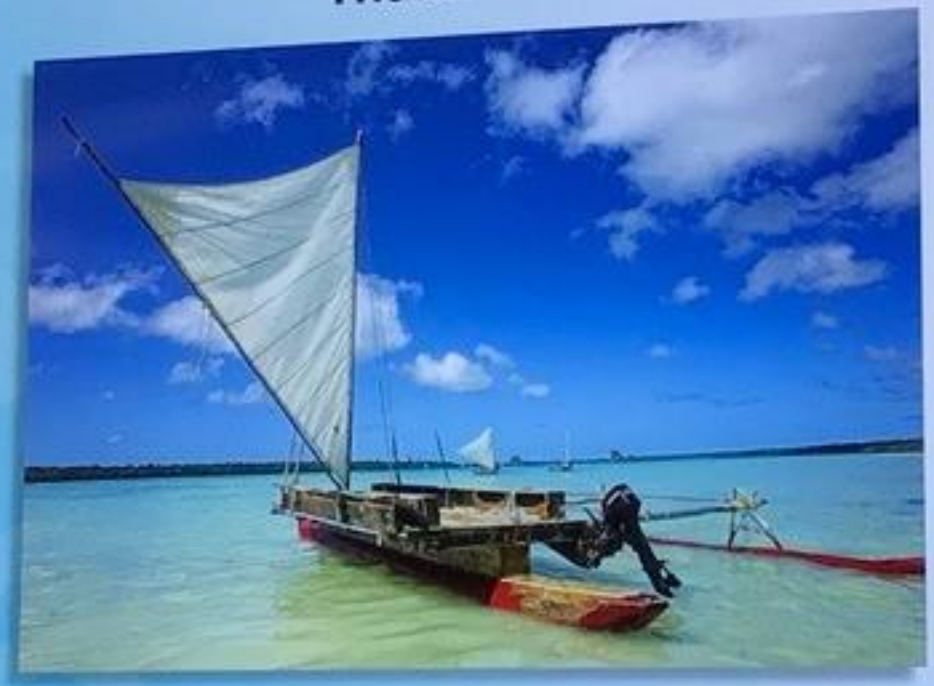
SPREP

The Secretariat of the Pacific Regional Environment Programme

What we need is a paradigm shift……

Thank You!



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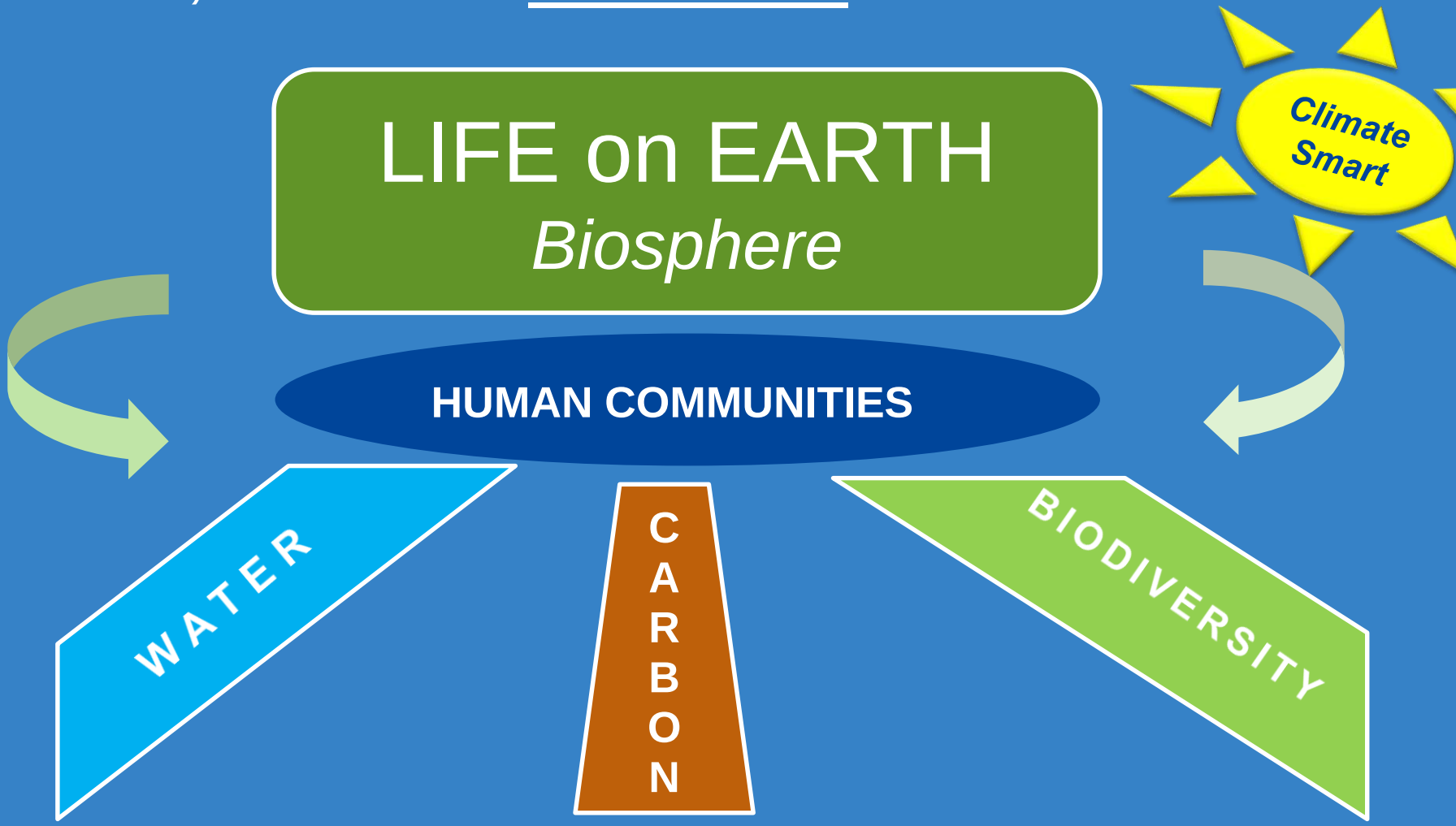
Prioritize actions for multiple benefits-

Protect, restore & accelerate nature's benefits



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ecohen@pointblue.org

Spiers et al Ecological Informatics 2016
Duffy et al PNAS May 2016
Atwood, et al. Predators - blue carbon ecosystems. *Nature Climate Change*, 2015
Ballard, et al. Biological Conservation 2012

Improved Land-Use At Scale Required

For carbon sequestration…& resilience, water, biodiversity, food security, health, other benefits

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Griscom et al PNAS 2017; Hansen et al Earth Syst. Dynam. 2017; Sanderman PNAS 2017; Paustian et al Nature 2016; Drawdown 2017; Positive Disruption, Rocky Mountain Institute 2017

Extension of CA Climate Law

SB32 (Pavley)– 40% reduction in GHG emissions below 1990 levels by 2030

- Now at
  ~440 MMT/yr CO2e
- With current policies
  ~310 MMT/yr CO2e
- By 2030
  260 MMT/yr CO2e

How reduce by at least another 50 MMT CO2e per year?

Cumulative gap of 221 MMT CO2e

https://www.arb.ca.gov/cc/scopingplan/2030sp_pp_final.pdf. *See p. 37*. 2017
http://www.mercurynews.com/2016/08/27/more-electric-cars-more-solar-power-expected-as-state-struggles-to-reach-tough-new-climate-standards/

New CA GHG Reduction Fund focus on natural & working lands to increase sequestration and avoid emissions

https://www.arb.ca.gov/cc/scopingplan/meetings/101317/draft-nwl-implementation-plan-proposed-process.pdf

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One potential CA rangeland scenario by 2030:

To sequester ~**147 MMT (67%) CO2e** of CA's 221 MMT gap

= ~ 70 MMT CO2e

Prescribed Grazing on 10m acres

= ~42 MMT CO2e

Compost Amendment on 1m acres

= ~35 MMT CO2e

Riparian Restoration on .5m acres

ASSUMPTIONS:

- ramping up by 2023; then 7 years implemented at this scale
- Prescribed grazing: increase CO2e -1 MT CO2e /acre (NRCS)
- Compost amendment: ~.5 MT /acre or 18 MT /acre over 30 yrs (CCI)
- Riparian restoration- 40 MT/acre once forests mature (Point Blue)

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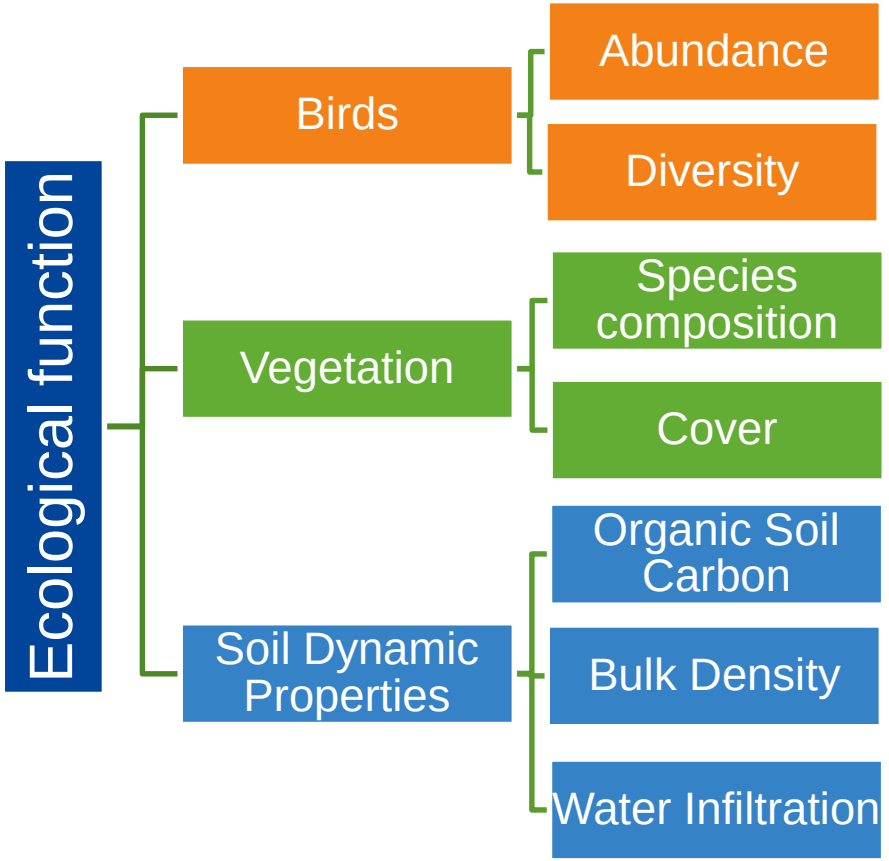
METRICS ARE KEY

Developing standardized metrics to assess, document, improve, replicate successes *at scale*



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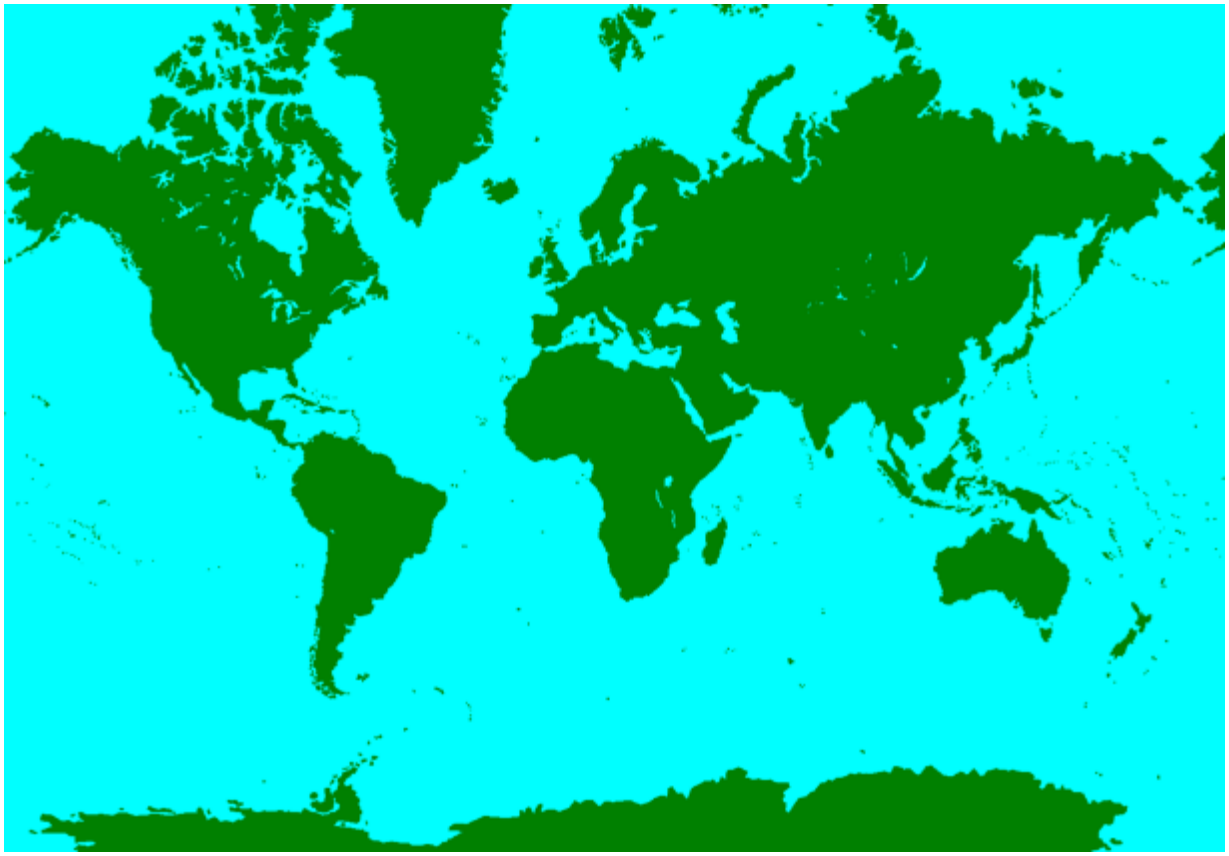
Rangeland Monitoring Network Handbook of Methods: www.pointblue.org/rmn
http://www.pointblue.org/our-science-and-services/conservation-science/working-lands/rangeland-monitoring-network/

Global Healthy Lands Network Vision:

Scale up with standardized data & verification, open source, trainings, new communities of practice



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The New York Times

November 9, 2097

New Global Climate Union Report: On track for 350 PPM, <1C

Climate Stabilizing, Health Benefits Up Thanks to Climate-Smart, Community-Based Land Management

By JUSTIN GILLIS

NORFOLK, Va. — Huge vertical rulers are sprouting beside low spots in the streets here, so people can judge if the tidal floods that increasingly inundate their roads are too deep to drive through.

Five hundred miles down the Atlantic Coast, the only road to Tybee Island, Ga., is disappearing beneath the sea several times a year, cutting the town off from the mainland.

And another 500 miles on, in Fort Lauderdale, Fla., increased tidal flooding is forcing the city to spend millions fixing battered roads and drains — and


Thank you!
ecohen@pointblue.org
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Conservation science
for a healthy planet.