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WATCH

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GLOBAL FOREST WATCH: TRANSFORMING BIG DATA INTO BIG DECISIONS FOR FORESTS

Congress on Harnessing Big Data for the Environment, 7 December 2016

RACHAEL PETERSEN, IMPACTS MANAGER, GLOBAL FOREST WATCH

THE CHALLENGE

THE SOLUTIONS

THE IMPACT

FORESTS UNDER PRESSURE



1 Ha

of cleared rainforest



=

1M

miles driven by



passenger car

=

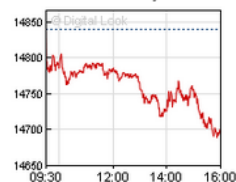


NEWS MARKET DATA

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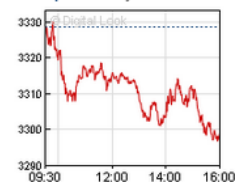
[Overview](#) [Stock markets](#) [Share prices](#) [Currencies](#) [Commodities](#) [Gilt & Bonds](#)
[UK Earnings](#)

..... Previous close value *All charts show local time

Dow Jones 15 min delay


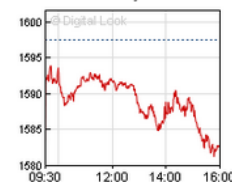
value	change	%
14700.95	-138.85	-0.94

Waiting for winners/losers data

Nasdaq 15 min delay


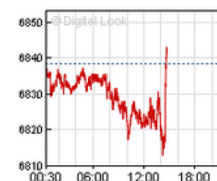
value	change	%
3299.13	-29.66	-0.89

Waiting for winners/losers data

S&P 500 15 min delay


value	change	%
1582.70	-14.87	-0.9

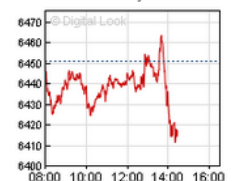
Waiting for winners/losers data

BBC Global 30


value	change	%
6841.26	+2.66	+0.04

Market reports

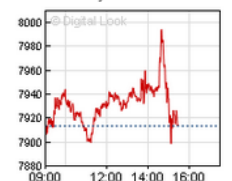
- London
- Paris
- Frankfurt
- Wall Street
- Tokyo

FTSE 100 15 min delay


value	change	%
6414.95	-36.34	-0.56

Top winner and loser

Company	value	change	%
Glencore International	327.05p	+12.75	+4.06
Shire Plc	1935.00p	-85.00	-4.21

Dax 15 min delay


value	change	%
7913.17	-0.54	-0.0

Top winner and loser

Company	value	change	%
Infineon Technologies AG	6.54	+0.55	+9.0
Thyssen Krupp AG	13.32	-0.42	-3.0

Stock markets

time (ET)

Index	value	change	time (ET)
FTSE 100	6417.80	-33.49	Thu 09:28
Dow Jones	14700.95	-138.85	Wed 16:04
Nasdaq	3299.13	-29.66	Wed 16:00
Dax	7920.30	+6.59	Thu 09:28
Cac 40	3828.21	-28.54	Thu 09:28
S&P 500	1582.70	-14.87	Wed 16:01
BBC Global 30	6838.22	-0.38	Thu 09:43

Currencies

time (ET)

Pair	value	change	time (ET)
Sterling - US Dollar	1.5544	-0.0010	Thu 09:30
Sterling - Euro	1.1888	+0.0080	Thu 09:40
Euro - US Dollar	1.3076	-0.0104	Thu 09:40
US Dollar - Yen	97.7880	+0.3930	Thu 09:40

[©BBC >>](#)
FTSE 100

Latest



..... Previous close value
*All charts show local time

3 Months

[BBC business news >>](#)
Asia Pacific

Pair	£1 buys	change	%
Japanese Yen	152.04000	+0.55000	+0.36
Australian Dollar	1.51660	+0.00300	+0.20
New Zealand Dollar	1.83380	+0.00400	+0.19
Hong Kong Dollar	12.06400	-0.00700	-0.06
Singapore Dollar	1.91980	+0.00200	+0.10

1121	El Progreso	1123	0	156700
1122	Escuintla	1124	0	477000
1123	Guatemala	1125	0	219760
1124	Huehuetenango	1126	0	765060
1125	Izabal	1127	0	802700
1126	Jalapa	1128	0	196870
1127	Jutiapa	1129	0	332910
1128	Petun	1130	0	3593570
1129	Quezaltenango	1131	0	213040
1130	Quiché	1132	0	720160
1131	Retalhuleu	1133	0	191130
1132	Sacatepéquez	1134	0	55670
1133	San Marcos	1135	0	354840
1134	Santa Rosa	1136	0	300220
1135	Sololc	1137	0	105670
1136	Suchitepéquez	1138	0	207920
1137	Totonicapán	1139	0	107640
1138	Zacapa	1140	0	271760
1139		1141	0	8420
1140	Bafatc	1142	0	580430
1141	Biombo	1143	0	68820
1142	Bissau	1144	0	8090
1143	Bolama	1145	0	148580
1144	Cacheu	1146	0	446420
1145	Gab-	1147	0	901250
1146	Oio	1148	0	53780
1147	Quín-	1149	0	283940
1148	Tombo-	1150	0	34260
1149	Bokuç	1151	0	337820
1150	Conarky	1152	0	39600
1151	Faranah	1153	0	356790
1152	Kankan	1154	0	713850
1153	Kindia	1155	0	254560
1154	Labuç	1156	0	227070
1155	Mamou	1157	0	177830
1156	Nzárucoruç	1158	0	365070
1157	Barima-Waini	1159	0	194430
1158	Cuyuni-Mazarur	1160	0	592930
1159	Demerara-Mah	1161	0	32630
1160	East Berbice-Co	1162	0	209940
1161	Essequibo Islai	1163	0	399130
1162	Mahaica-Berbic	1164	0	351170
1163	Pomeroon-Supe	1165	0	469290
1164	Potaro-Siparuni	1166	0	192580
1165	Upper Demerar	1167	0	563910
1166	Upper Takutu-L	1168	0	164040
1167	Centre	1169	0	347410
1168	Grand'Anse	1170	0	18830
1169	Laubon	1171	0	40900

DATA

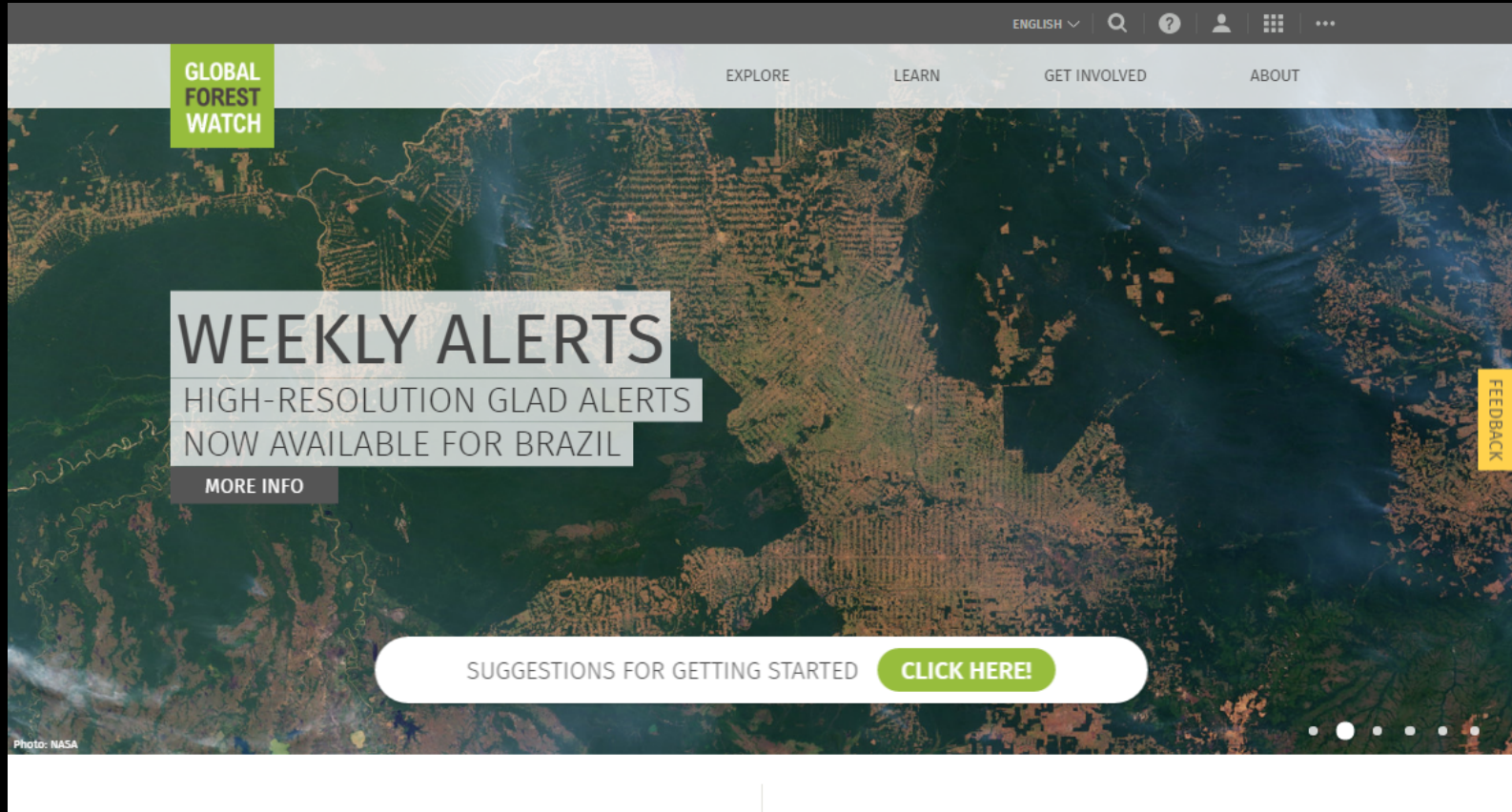
GLOBAL FOREST WATCH

free
easy-to-use
interactive
timely

USERS



THE GLOBAL FOREST WATCH PLATFORM



www.globalforestwatch.org

90+ PARTNERS AND COLLABORATORS

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Global Witness
Global Canopy Program
Gordon & Betty Moore Foundation
Guatemalan National Forest Institute (INAB)
HCV Resource Network

ICIMOD
Imaflora
Instituto de Conservación Forestal de Honduras
IOI Loders Croklaan
IUCN
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RESOLVE
Roundtable on Sustainable Palm Oil
SarVision
Stockholm Environmental Institute
The Generation Foundation
The Sustainable Trade Initiative
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Unilever
University of Cambridge Institute for Sustainability Leadership
University of Minnesota
Urthecast
Wildlife Conservation Society
Woods Hole Research Center
World Wildlife Fund
Yayasan Puter Indonesia
Zoological Society of London

Daily Image Acquisitions by Landsat (5, 7, 8)

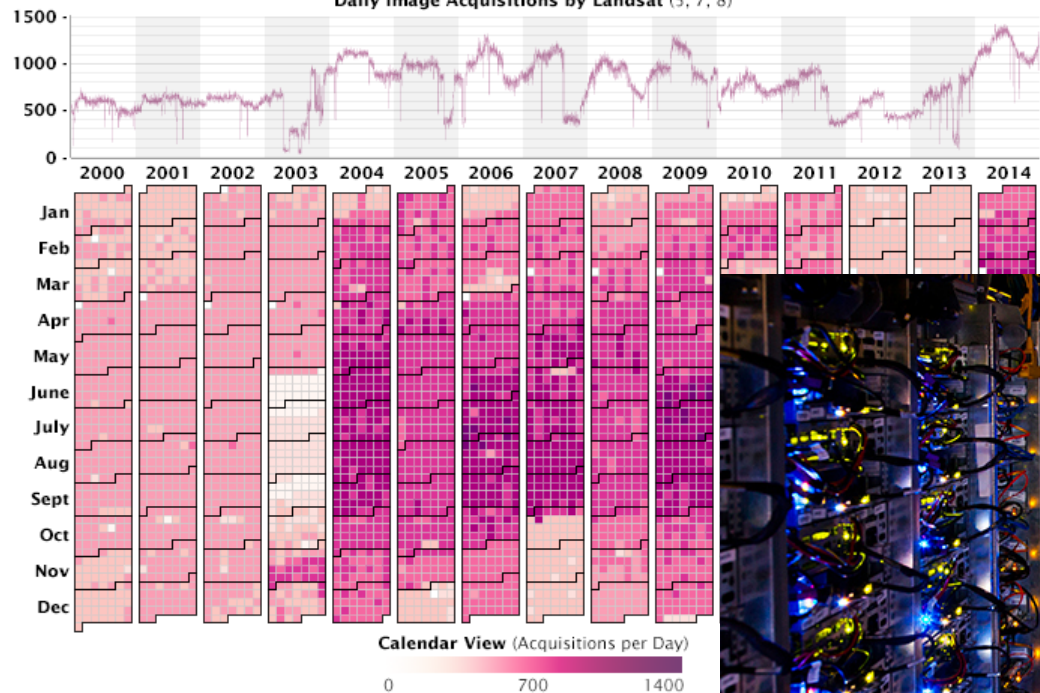
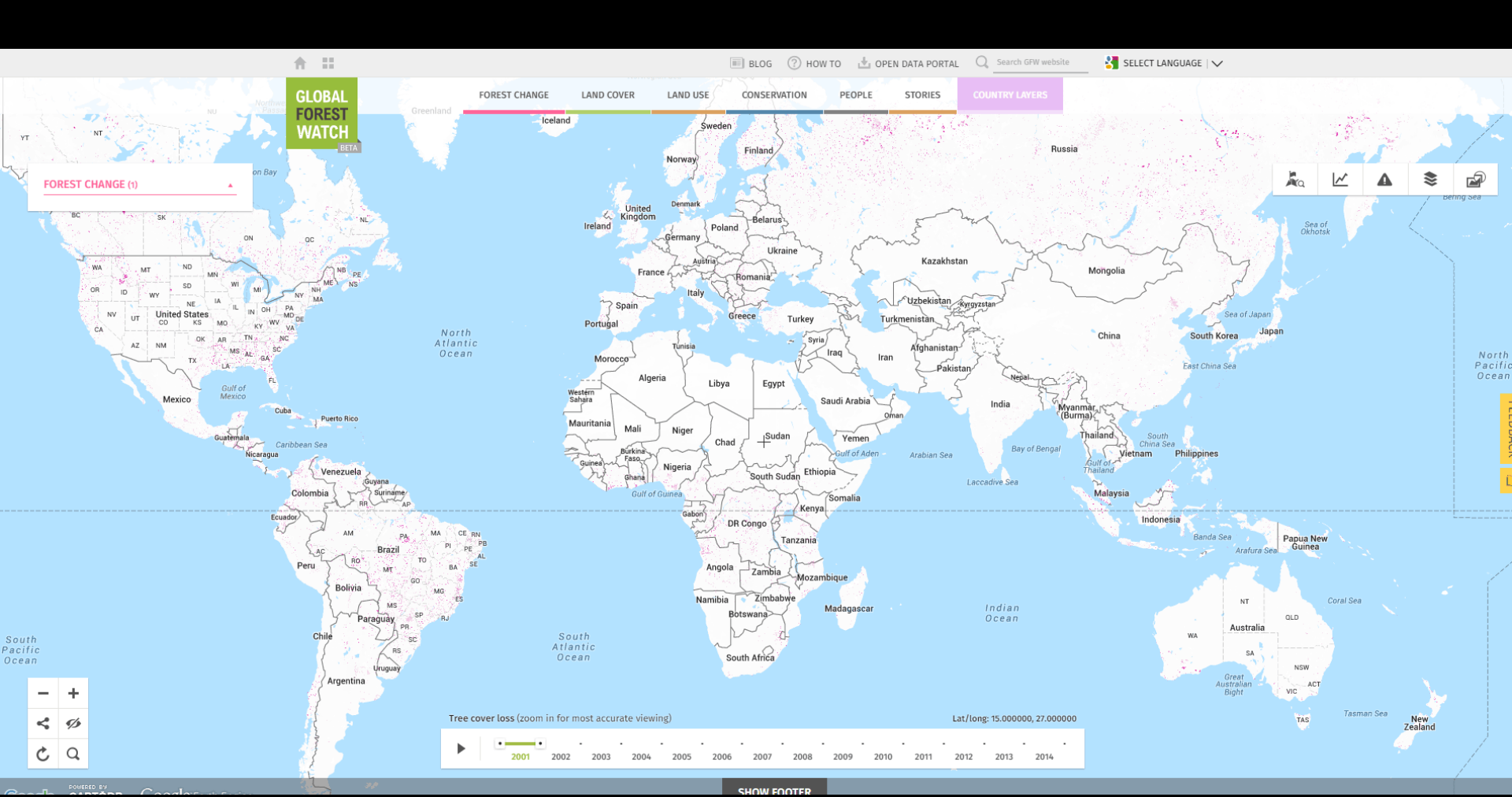
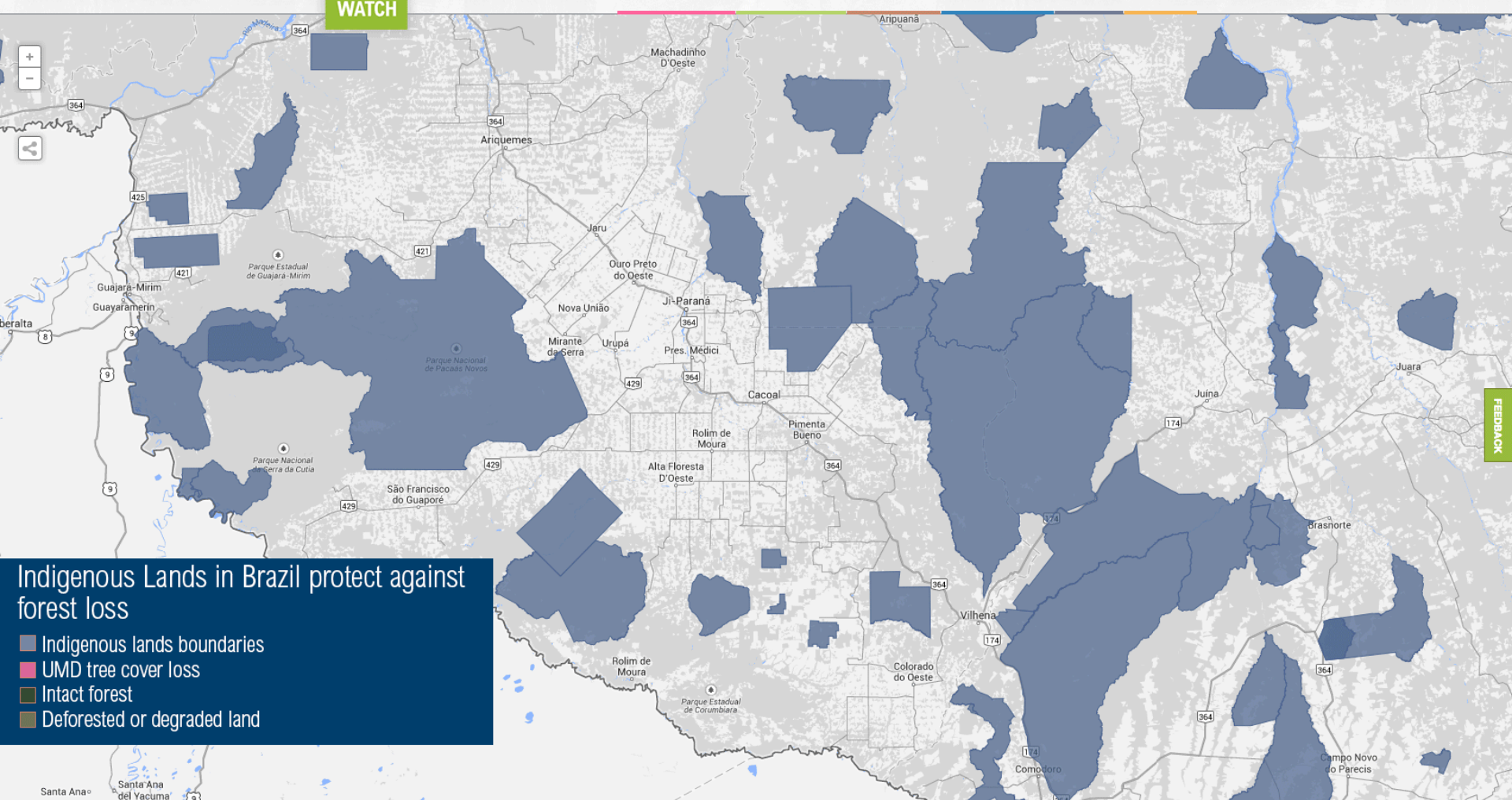


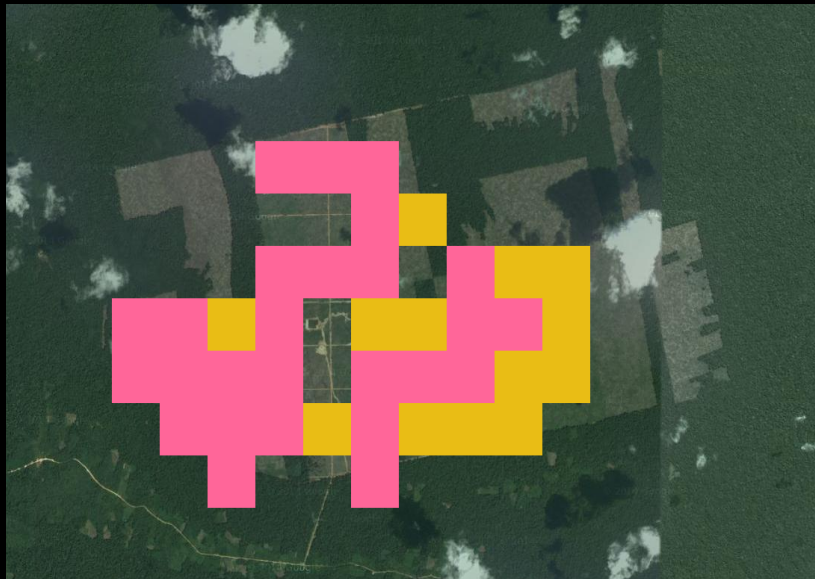
PHOTO: NASA/U.S. Geological Survey; Google



Credit: Data from WRI and UMD / Google / NASA / USGS, accessed through Global Forest Watch



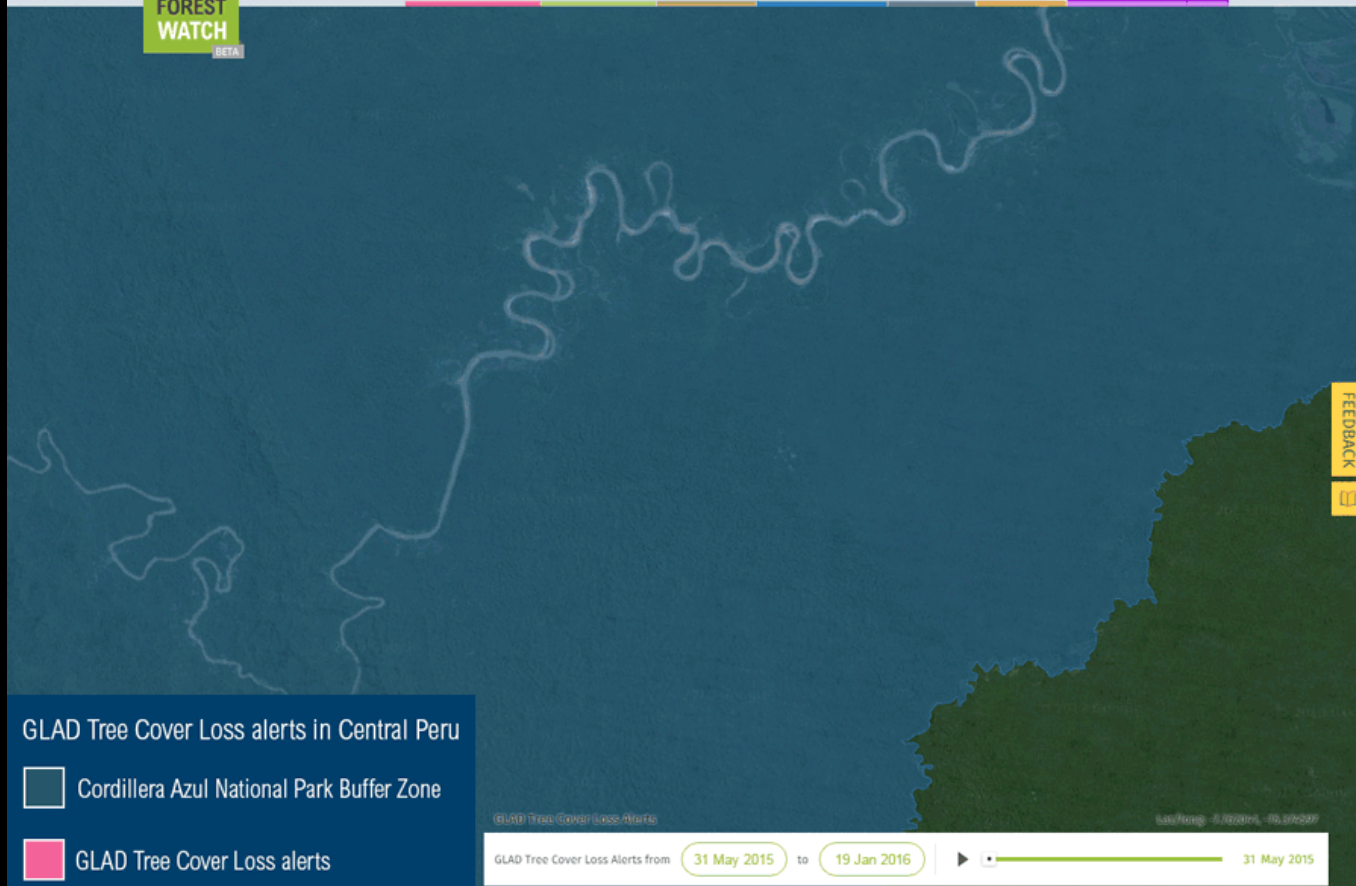
NEW WEEKLY ALERTS DETECT FOREST LOSS AT 30 METERS



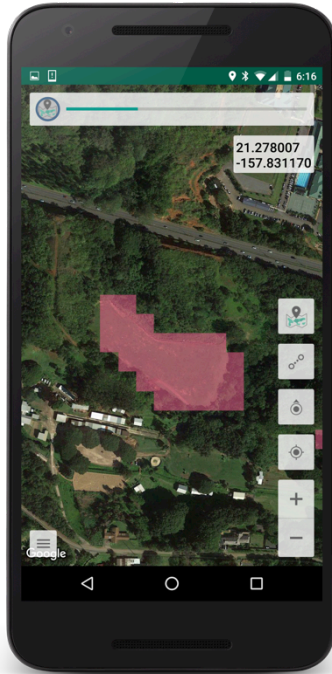
FORMA alerts
Updated: monthly
500 meters x 500 meters (MODIS)



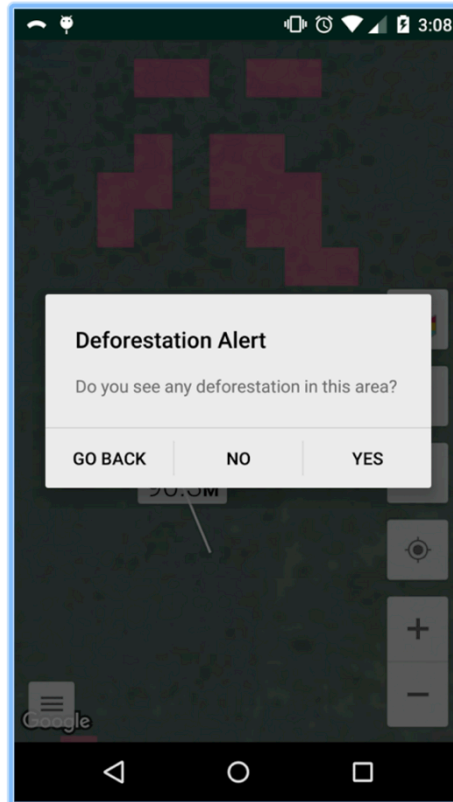
GLAD alerts
Updated: every 8 days
30 meters x 30 meters (Landsat)



FOREST WATCHER IMPROVES MANAGEMENT



FOREST WATCHER IMPROVES MANAGEMENT



FOREST WATCHER IMPROVES MANAGEMENT

A photograph showing three individuals in a lush green forest. On the left, a woman with dark hair tied back, wearing a black and white checkered shirt and gold hoop earrings, points her finger at a smartphone held by a man in a tan uniform. In the center, another man in a camouflage shirt looks on. The man in the uniform is holding the smartphone with both hands. The background is filled with dense green foliage.

“With Forest Watcher and Global Forest Watch, we can now have intelligence-led patrols in Kibale National Park. We no longer go randomly to places, but instead know where to look for the latest forest loss.”

*Senior Monitoring and Research Officer, Uganda
Wildlife Authority, Kibale National Park*

Image: Global Forest Watch/Jane Goodall Institute



HOW TO



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GLOBAL
FOREST
WATCH

DATA

FOREST CHANGE

FOREST COVER

FOREST USE

CONSERVATION

PEOPLE

STORIES

COUNTRY LAYERS



USHERING IN A NEW ERA OF FOREST JOURNALISM

BUSINESS INSIDER

SCIENCE

Data from Global Forest Watch also bolsters the case that deforestation occurred during the time period in question. It uses a monitoring system called Terra-i that issues monthly alerts based on satellite data that identify "deforestation hotspots" at a resolution of 250 by 250 meters. Terra-i alerts began appearing in August 2013, when Finer's analysis shows 1,000 hectares of land had been cleared at the site.



GLOBAL FOREST WATCH

FOREST CHANGE

Terra-i alerts

Data from Global Forest Watch shows Terra-i alerts beginning in August, 2013.

Questions of legality

Even if agriculture had been occurring on the land, the Ministry of Agriculture's interpretation of Legislative Decree 838 is not consistent with the law's intent, according to the [Peruvian Society for Ecological Development \(SPDE\)](#), a conservation group that works in the Amazon. In a [letter](#) to the U.S. trade representative regarding the terms of the United States-Peru Trade Promotion Agreement, SPDE Executive Director Lucila Pautrat argued that Decree 838 made land available "with exceptional and temporary basis to displaced individuals, not private companies."

MONGABAY

RAINFORESTS OCEANS ANIMALS & ENVIRONMENT FOR KIDS

Global Forest Watch image showing recent FORMA and Terra-i forest cover change alerts that reveal clearing in concessions controlled by a subsidiary of United Cacao.

A company aiming to be the world's largest producer of sustainable cacao, the bean used to make chocolate, appears to have ignored orders from the Peruvian government to cease operations for failing to provide justification for having razed what scientists say was more than 2,000 hectares of old-growth Amazonian rainforest.

The sanctions against United Cacao (LON:CHOC) and its operating subsidiary on a plantation near the town of Tamshiyacu came from the Peruvian Ministry of Agriculture on December 9, 2014. The Ministry cited the need to prevent further deforestation and harm to the environment, reports the [daily newspaper La Region](#), based in the region of Loreto where the plantation is located.

The resolution gave Cacao del Peru Norte ninety business days to show what's called a "classification of land use capability," to answer questions about whether the land is suitable for large-scale agriculture and to stop all agricultural activities in the meantime. However, it does not appear the company's leaders are paying any heed.

"As far as we know, workers continue to enter the area to continue their predatory work," said Professor José Manuyama, member of the Committee for the Defense of Water, to [La Region](#). "We condemn the attitude of [Cacao del Peru Norte]."

He urged government officials to enforce the shutdown, and he called for a demonstration in late March to celebrate World Water Day.



GLOBAL FOREST WATCH

Guayaquil

Rio Maniti

Peru

STATE OF ACRE

FOREST COVER

Intact Forest Landscapes 2000

**GLOBAL
FOREST
WATCH**
FINANCE

**GLOBAL
FOREST
WATCH**
CLIMATE

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COMMODITIES

**GLOBAL
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WATCH**
FIRES

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WATCH**
WATER

**GLOBAL
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WATCH**



GLOBAL FOREST WATCH

COMMODITIES

Photo: CIFOR

eliminating deforestation from **supply chains**

CORPORATE COMMITMENTS



Nestlé

In 2011 Nestlé announced the first zero deforestation commitment

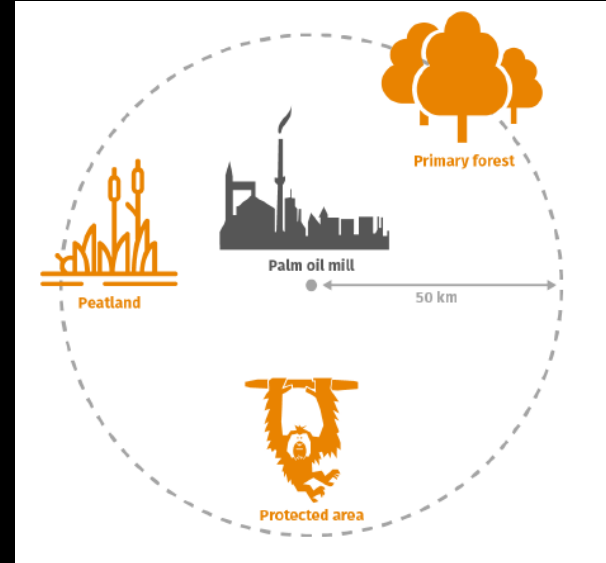


ANALYZING RISK AT THE MILL LEVEL

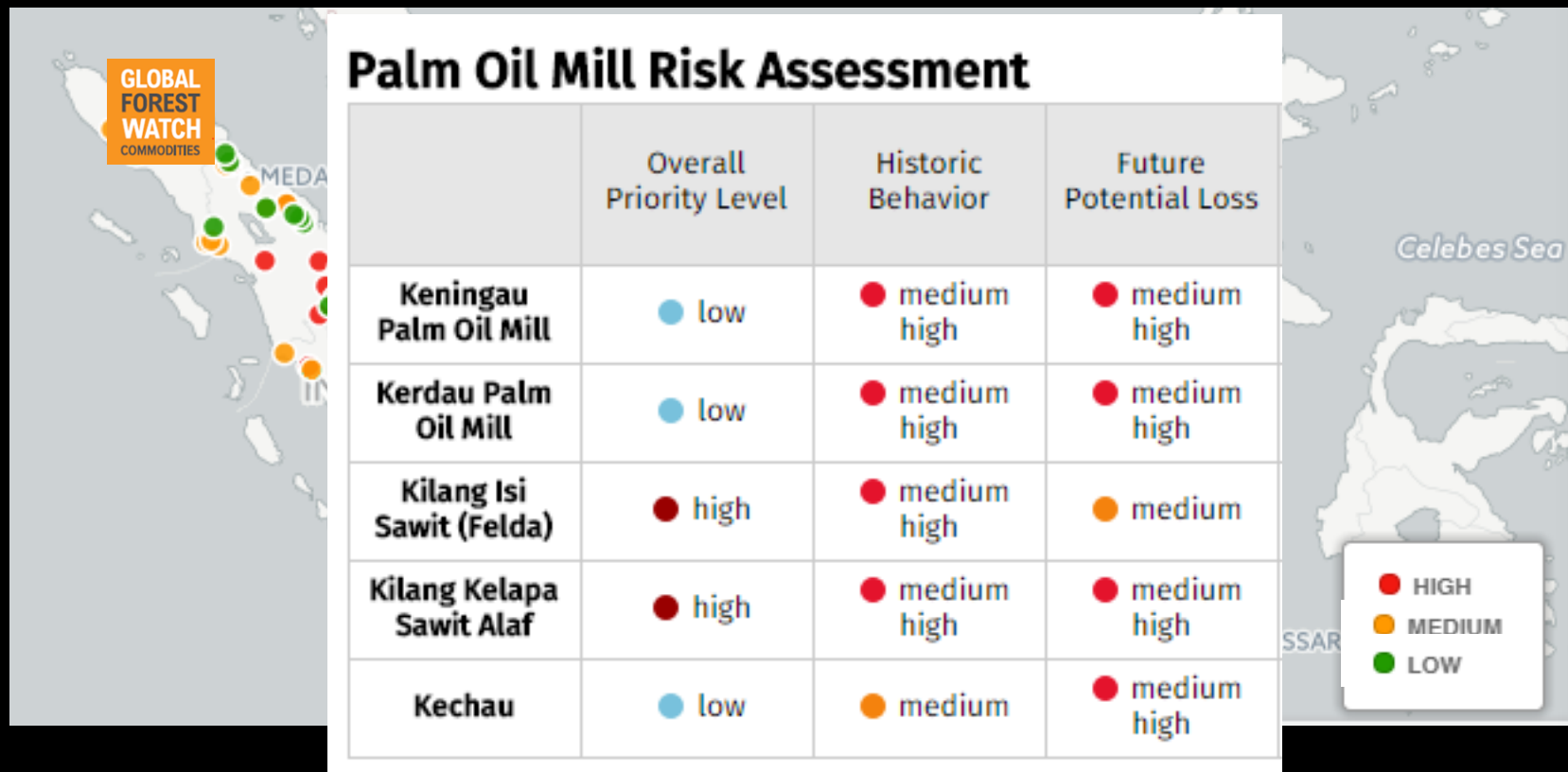
Risk indicators:

- **Environmental Values:**
 - Protected Areas
 - Primary Forest
 - Peatland
 - Carbon Density
- **Environmental Threats:**
 - Tree Cover Loss
 - Fire Activity

Analysis of 50 km
sourcing radius



ANALYZING RISK AT THE MILL LEVEL



GLOBAL FOREST WATCH FINANCE



Photo: WWF

Managing deforestation & climate **investment risk**

INVESTMENT SUMMARY

Cattle Processor 16

Edit

Brazil, Amazonas Lat/Long -3.2875, -59.3334 20,000 ha

Tags Beef, New Investment Risks Soy Moratorium Area

COMPANY POLICY RANKING

JBS

Low ● ○ ○ ○ ○ 2 of 5

View Forest 500 »



2015-2046 PROJECTIONS

Deforestation

Low

Carbon Emissions

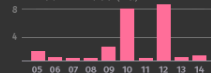
Low/Med

FOREST AREA COVER

8,867

Hectares (44.33% of total area)

TREE COVER LOSS (ha)



TREE COVER LOSS

43.27% 93.87% ↑

Total '05-'14

Last Year Change

INVESTMENT REVIEW

— Benchmark ◀ Actual Value ⓘ

VIEW POLICY

Forests

Passed ✓

0% Intact Forest Landscape



Identifies the world's last remaining unfragmented forest landscapes, large enough to retain all native biodiversity and showing no signs of human alteration as of the year 2013.

Protected Areas

Issue X

2.3% Protected Area



Areas that are legally protected according to various designations (e.g., national parks, state reserves, and wildlife reserves) and managed to achieve conservation objectives.

Biodiversity

Passed ✓

17% Biodiversity Hotspot
0% Areas of Extinction

Biodiversity regions around the world where biodiversity conservation is most urgent and critical sites for conservation that contain endangered species with limited ranges and populations found nowhere else on the planet.

High Carbon Intensity

Passed ✓

45% High Carbon Forest Area



Areas with carbon rich woody biomass exceeding the country average for stored carbon.

Fires

Issue X

3 Fires in the Last 30 Days



The latest fire monitoring product by NASA's MODIS Satellite, which identifies global fire locations in near-real time. Information is collected and processed with a fire detection algorithm to flag high confidence active fires.

Social

Passed ✓

0% Indigenous Land Rights
0% Instances of Slave Labor

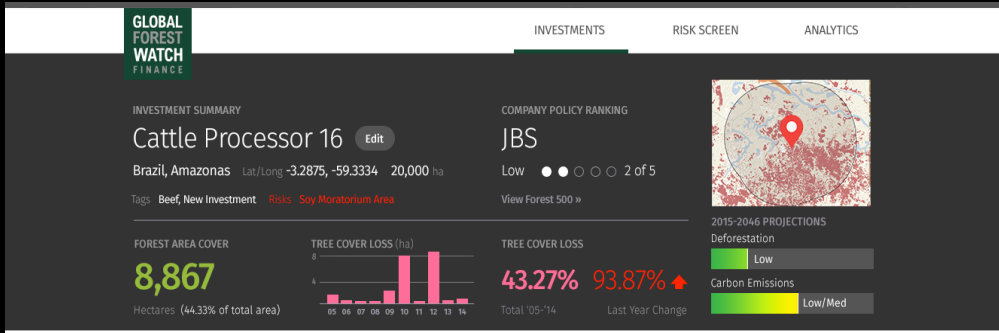
Areas inhabited by indigenous communities, where land and resource rights are held by indigenous communities and publicly documented incidences of slave labor.

SHARE ANALYSIS

VIEW REPORT

REJECT

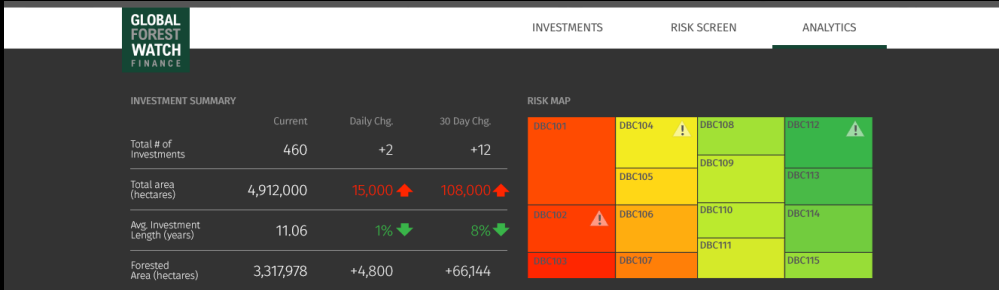
APPROVE



Risk Screen

Key User: *Retail Banker*

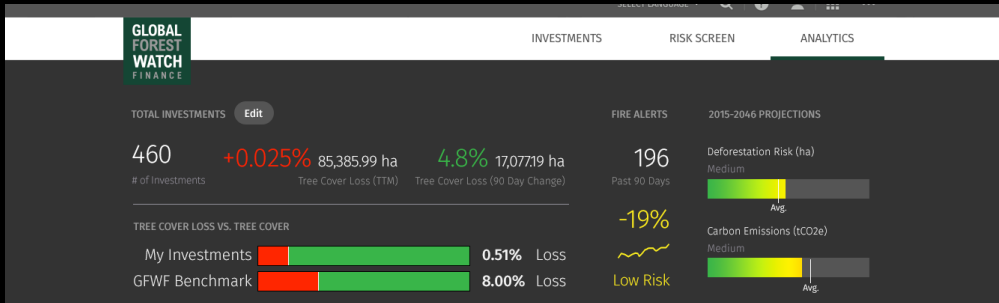
Current and historical tree cover loss information regarding an investment



Dashboard

Key User: *ESG Risk Officer*

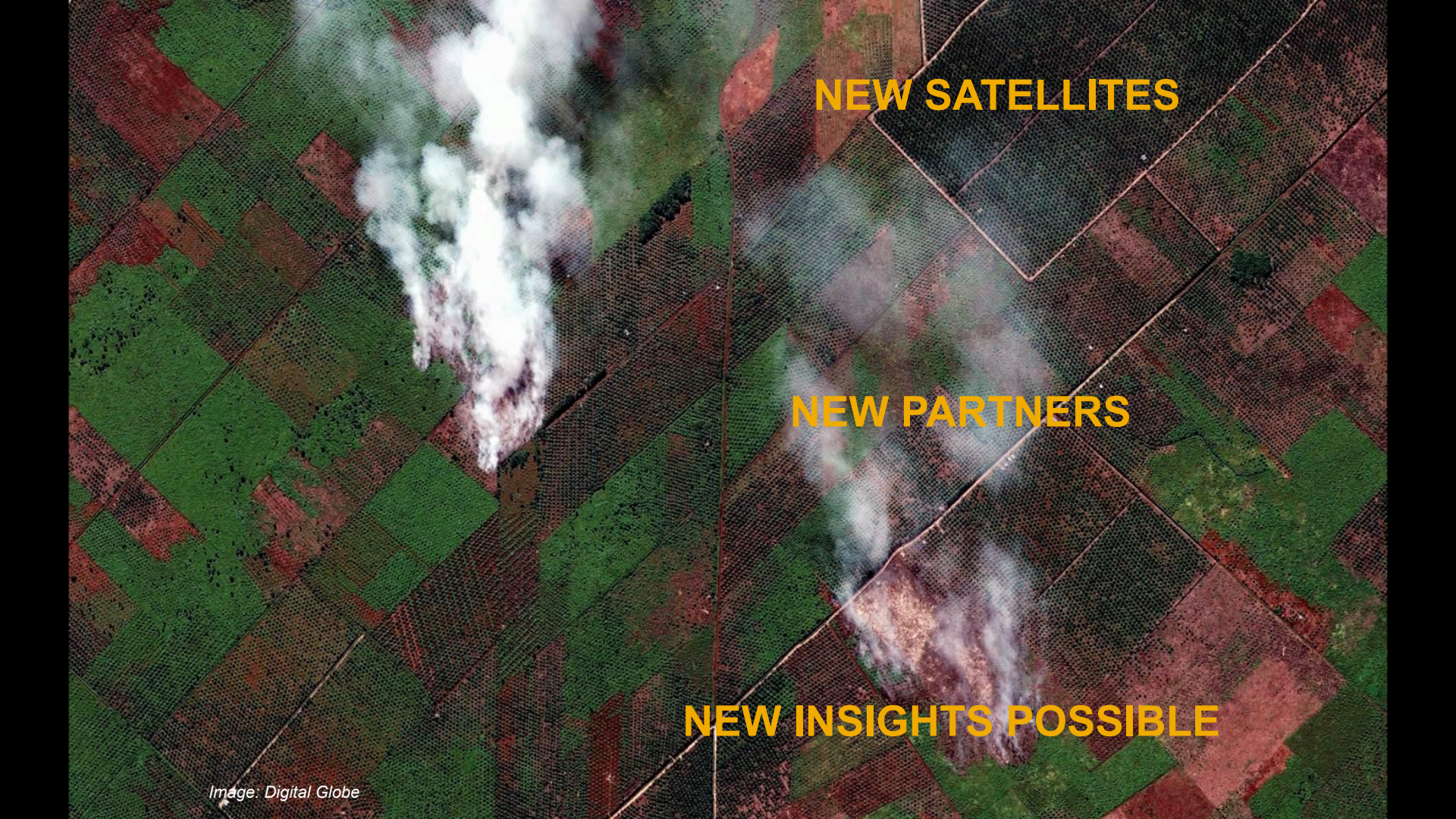
Portfolio risk assessment, alerts and recent changes in forests and carbon dioxide emissions for all existing investments



Analytics

Key User: *Analyst*

Aggregated portfolio view used to create executive reports and understand changes in investment risk exposure quarterly and annually

An aerial photograph of a landscape with a grid-like pattern of green and brown patches, likely agricultural fields. Two distinct areas of fire are visible, each with thick white smoke rising into the air. The smoke from the fire on the left is more dense and reaches higher than the smoke from the fire on the right. The text 'NEW SATELLITES' is overlaid in yellow at the top right.

NEW SATELLITES

NEW PARTNERS

NEW INSIGHTS POSSIBLE

The logo consists of a green square with the words 'GLOBAL', 'FOREST', and 'WATCH' stacked vertically in white, bold, sans-serif capital letters. The word 'FOREST' is in a darker shade of green than the others.

GLOBAL FOREST WATCH

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Rpetersen@wri.org