

EO 4 Ecosystem Accounting 2022

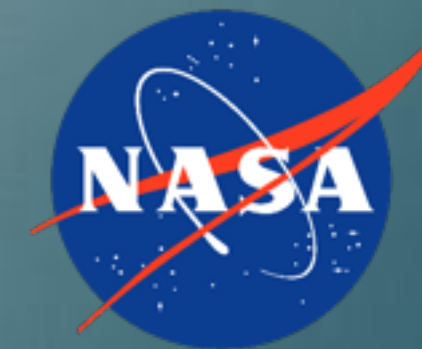
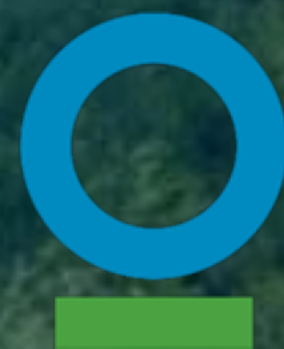
New Approach for Mapping Ecosystem Extent based on Land Cover Mapping and Ecosystem Modelling: A Pilot Study in Liberia



Miroslav Honzák, Conservation International
Celio de Sousa, National Aeronautics and Space Administration
et al.

November 29, 2022

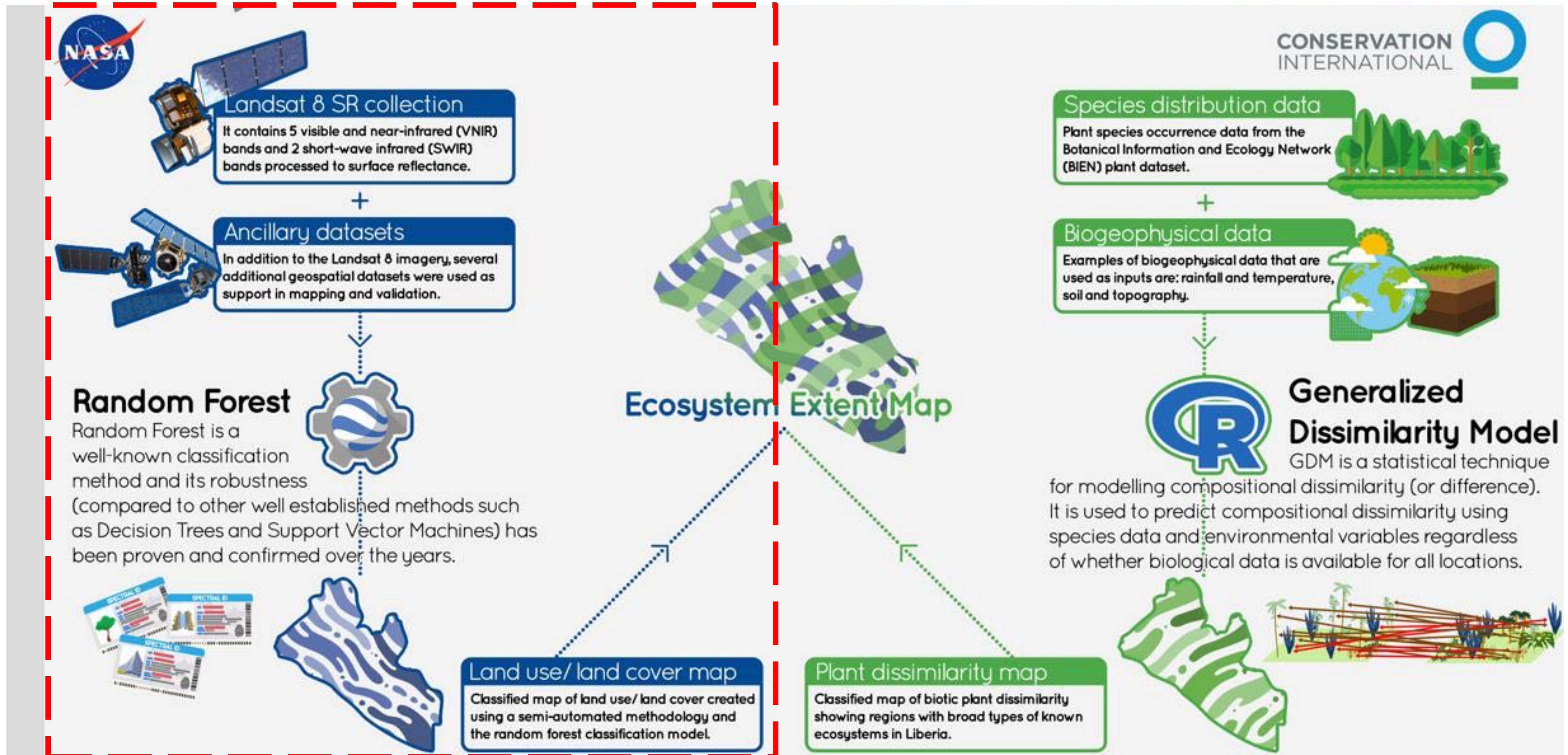
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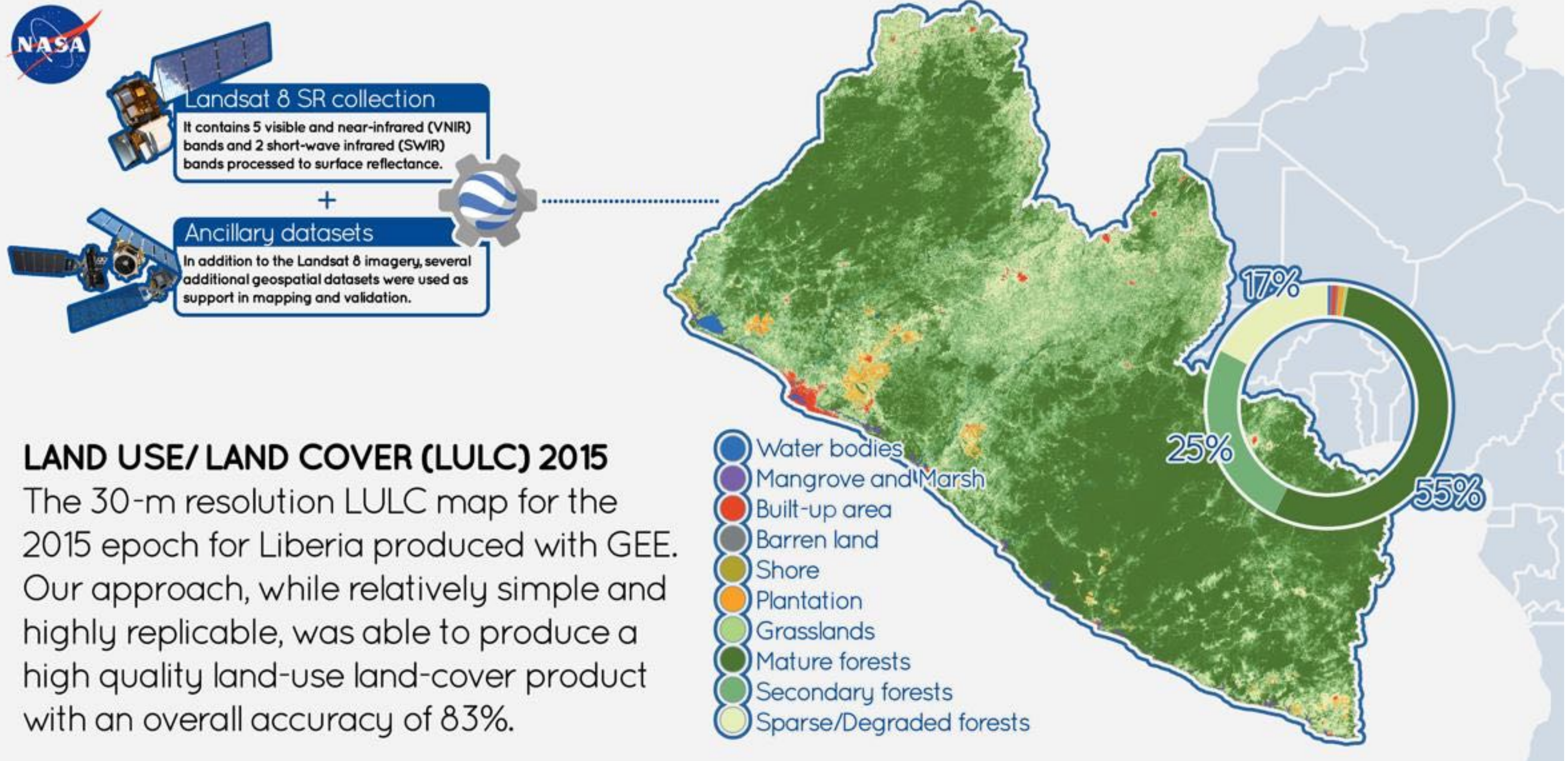
Liberia



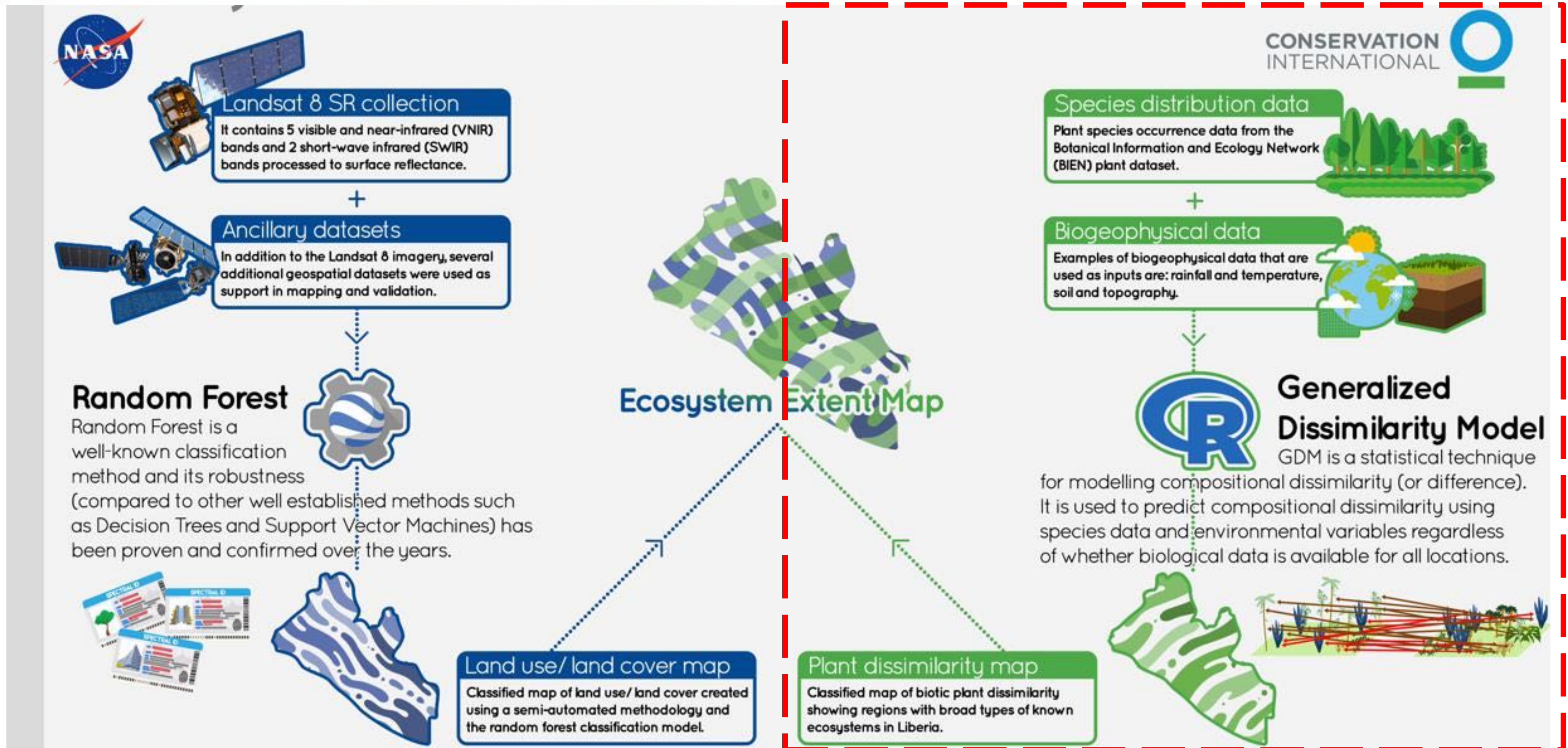
The CI-NASA Partnership Approach

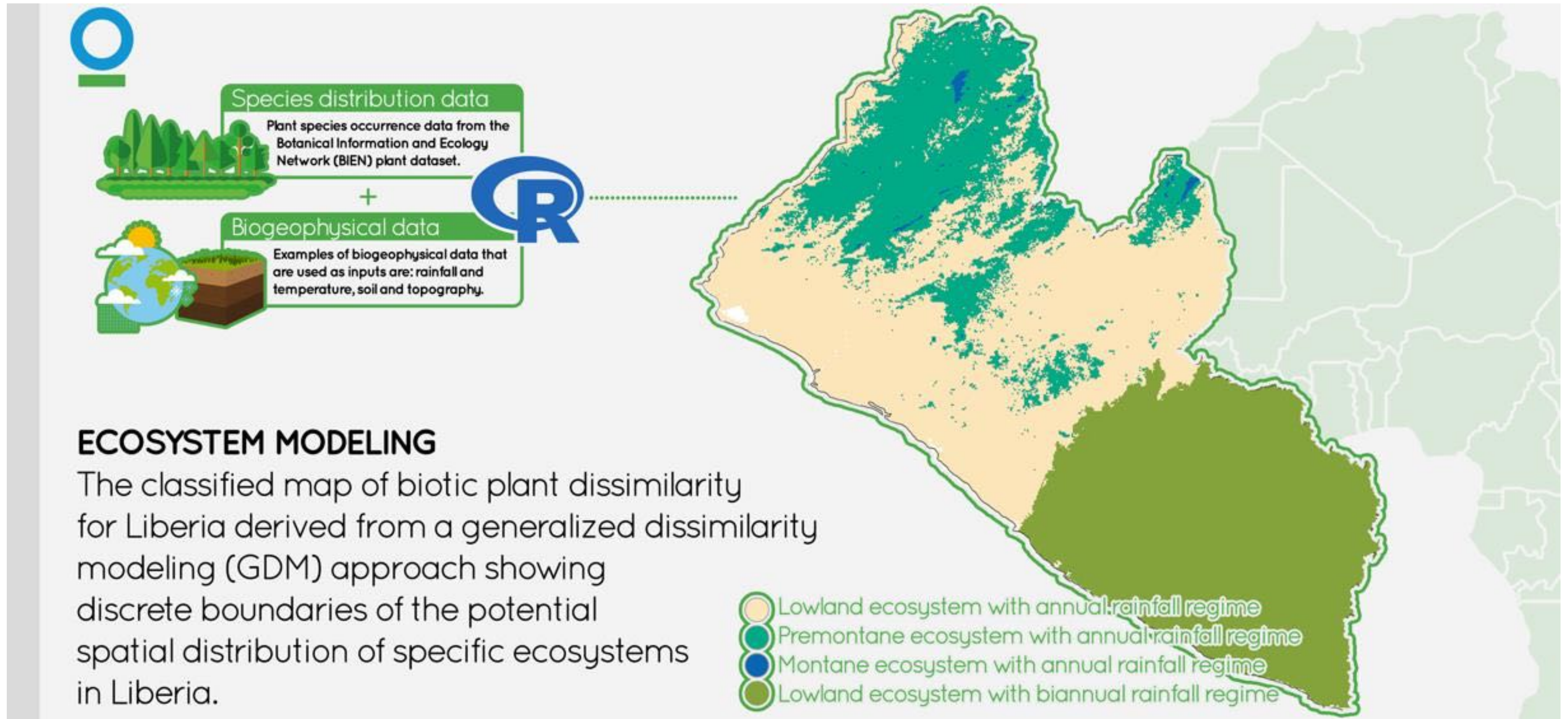


Resulting Land Cover Map



The CI-NASA Partnership Approach (cont.)





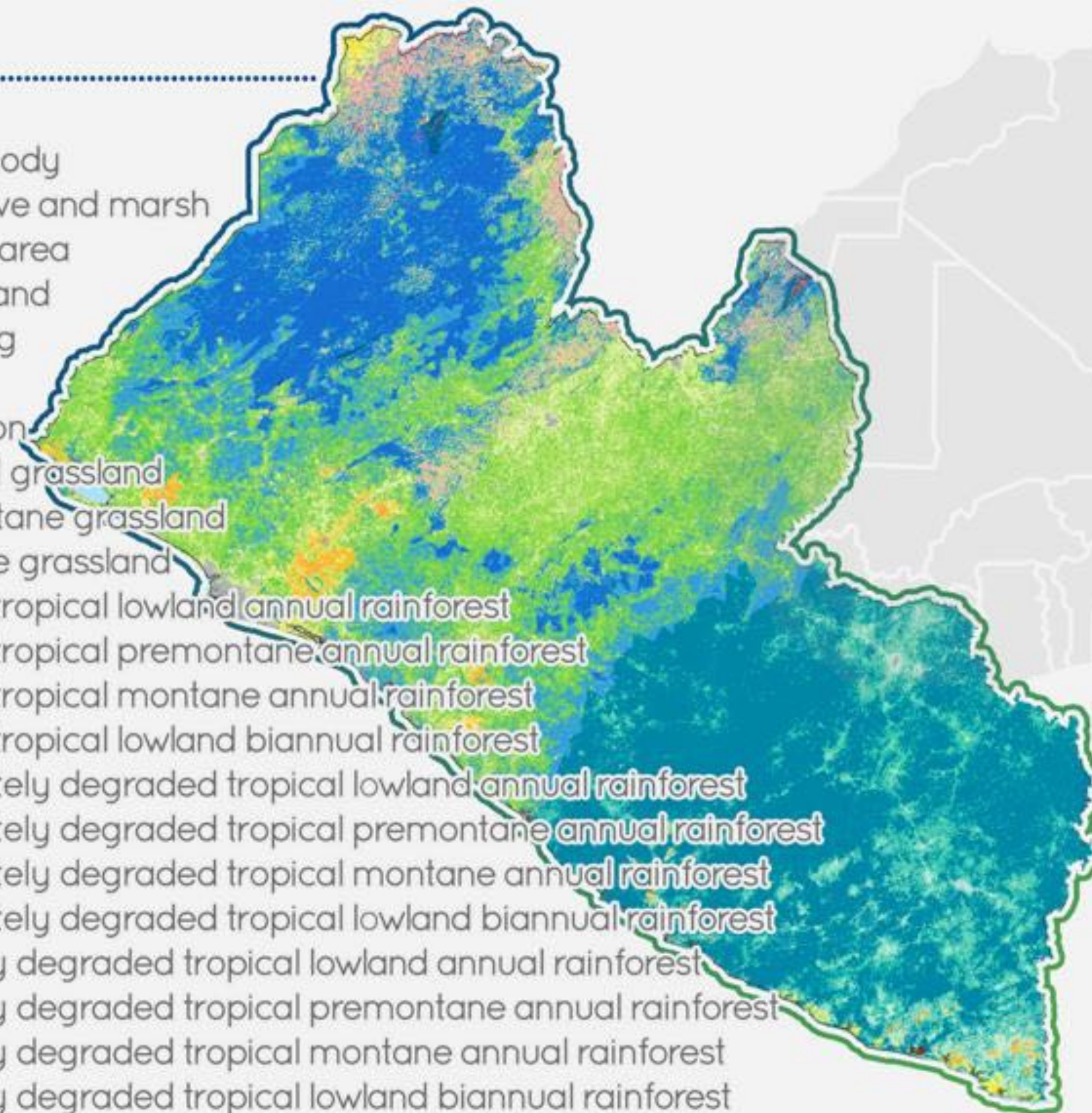
Resulting Ecosystem Extent Map



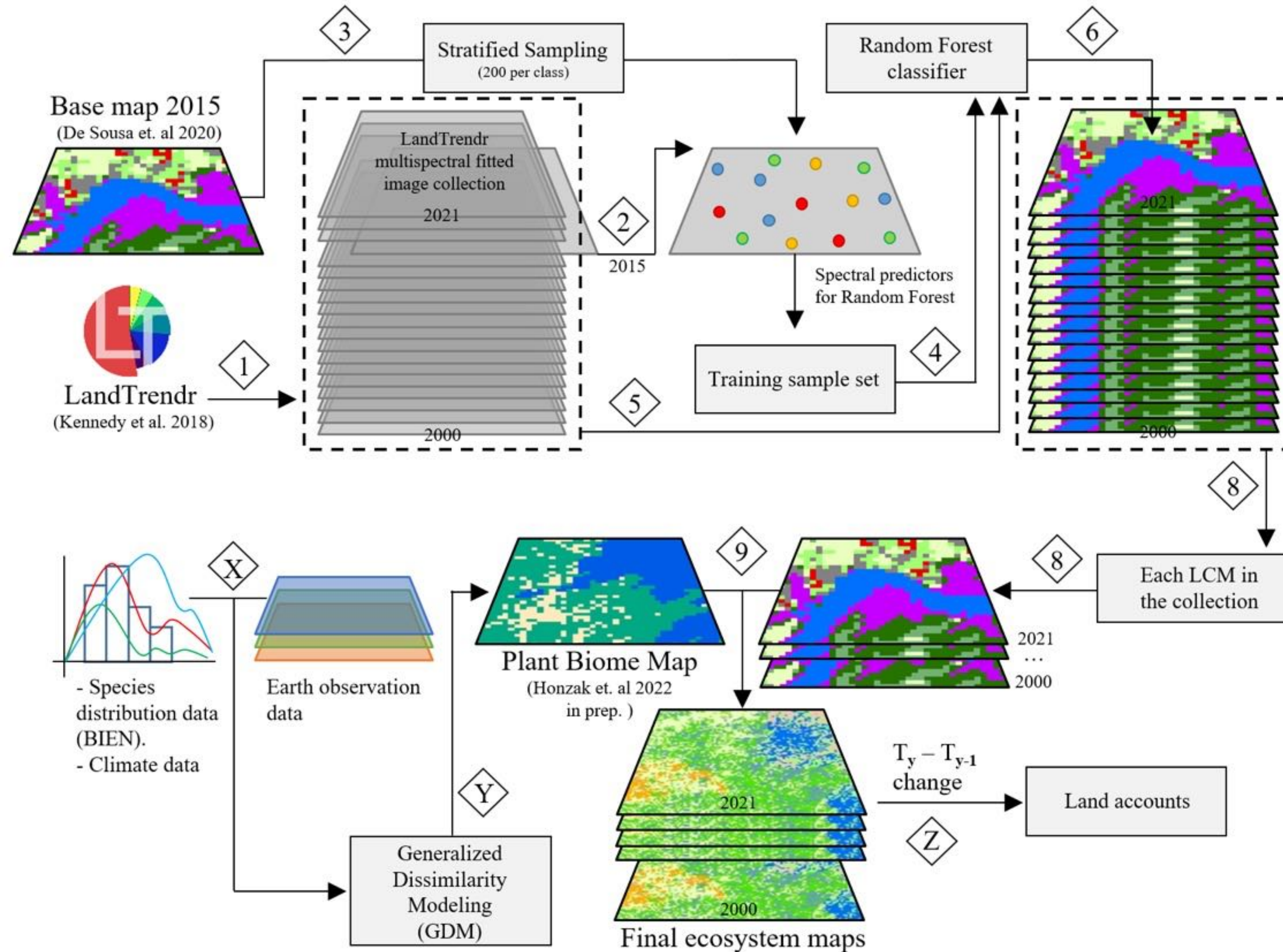
ECOSYSTEM EXTENT 2015

The final ecosystem extent map with 22 classes. The classified map of biotic plant dissimilarity was integrated with the land cover map to produce this up-to-date ecosystem extent map for Liberia. We developed and applied a simple overlay combination that aggregates values from the two input maps.

- Water body
- Mangrove and marsh
- Built-up area
- Barren land
- Inselberg
- Shore
- Plantation
- Lowland grassland
- Premontane grassland
- Montane grassland
- Mature tropical lowland annual rainforest
- Mature tropical premontane annual rainforest
- Mature tropical montane annual rainforest
- Mature tropical lowland biannual rainforest
- Moderately degraded tropical lowland annual rainforest
- Moderately degraded tropical premontane annual rainforest
- Moderately degraded tropical montane annual rainforest
- Moderately degraded tropical lowland biannual rainforest
- Severely degraded tropical lowland annual rainforest
- Severely degraded tropical premontane annual rainforest
- Severely degraded tropical montane annual rainforest
- Severely degraded tropical lowland biannual rainforest



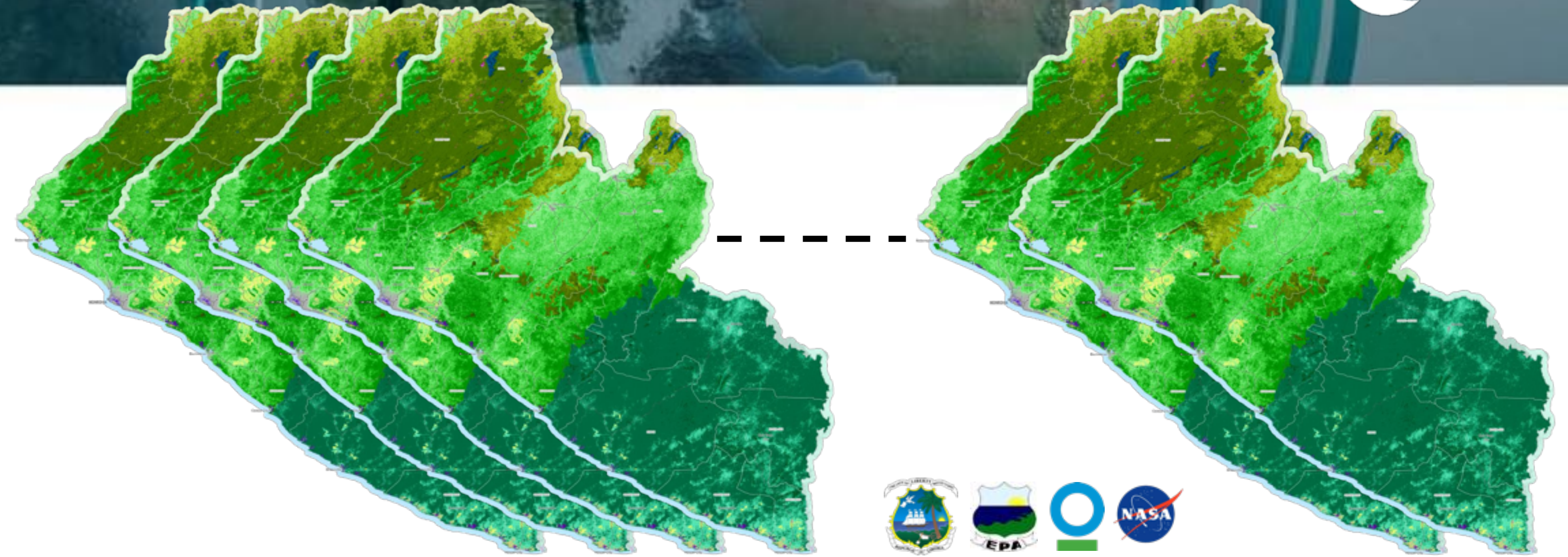
Annual Time Series of Ecosystem Maps



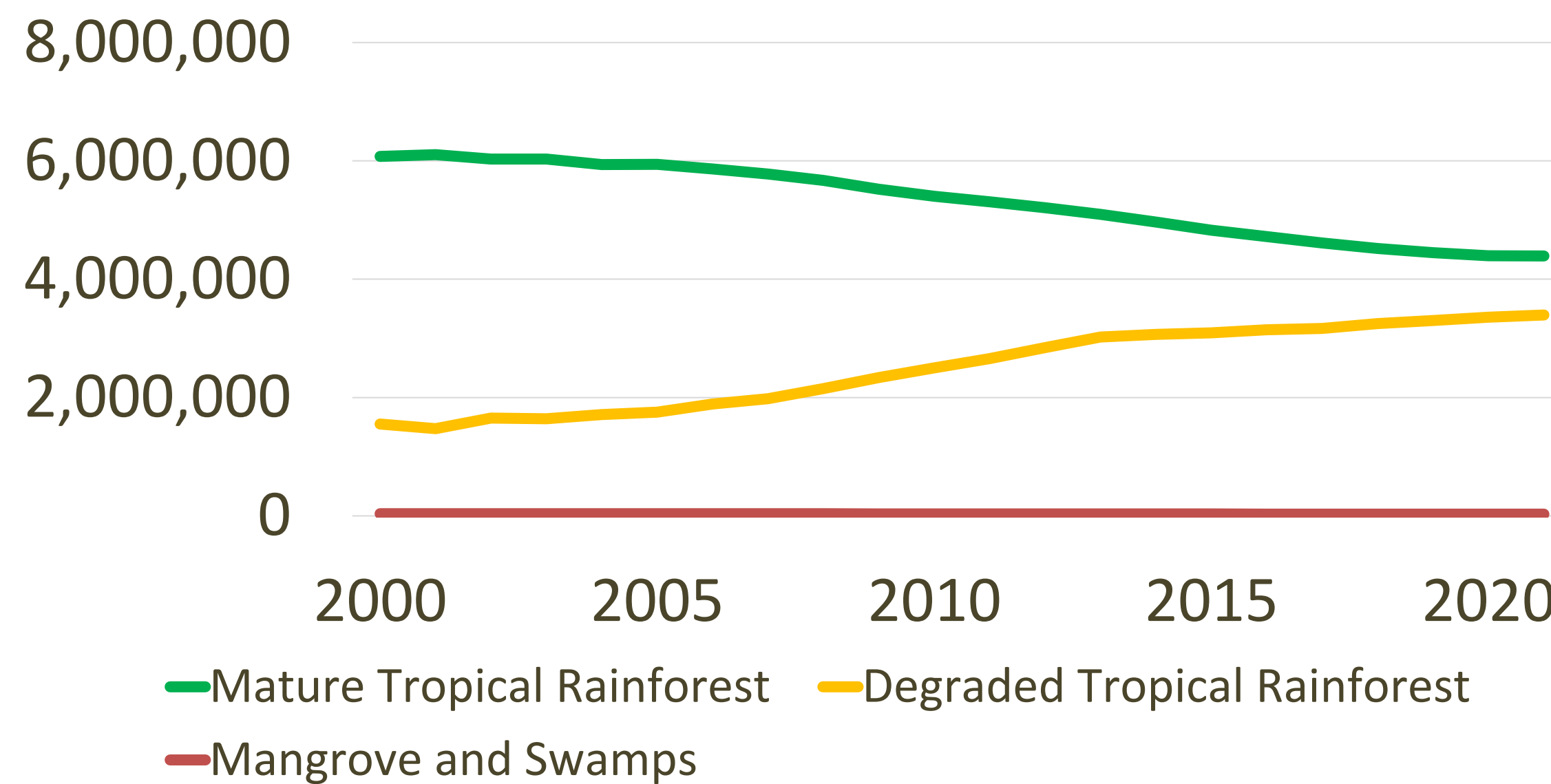
Ecosystem Extent Account

2000 2001 2002 2003

2020 2021



Forest Area (ha)



4.4

MILLION

hectares of **mature tropical rainforest** in Liberia in 2021

28

PERCENT

of mature tropical rainforest **degraded and converted** between 2000-2021





Google Earth Engine

GEE's computing infrastructure revolutionizes time-consuming remote sensing processes, facilitates access to a large catalogue of Earth observation data, and paves a new way forward for rapid land cover classification.



R Statistical Package

R is by far one of the most comprehensive statistical analysis software available. It is free, open-source and it has over 10,000 packages in the CRAN repository which are constantly growing.



Low cost

GEE and R are 100% free!
No need for expensive software, computers and servers.



Replicability

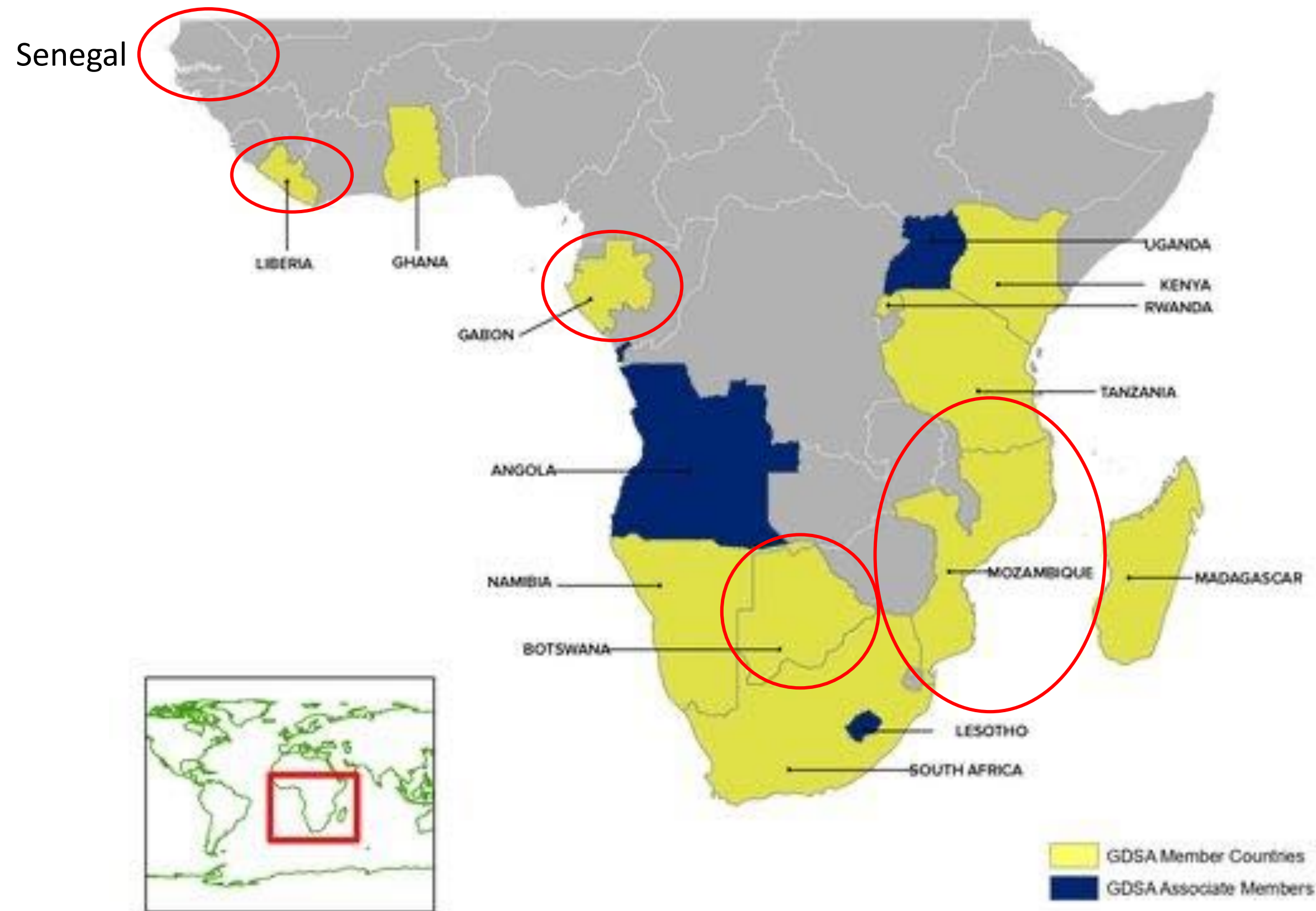
A more streamlined methodology which facilitates its replication and transfer.



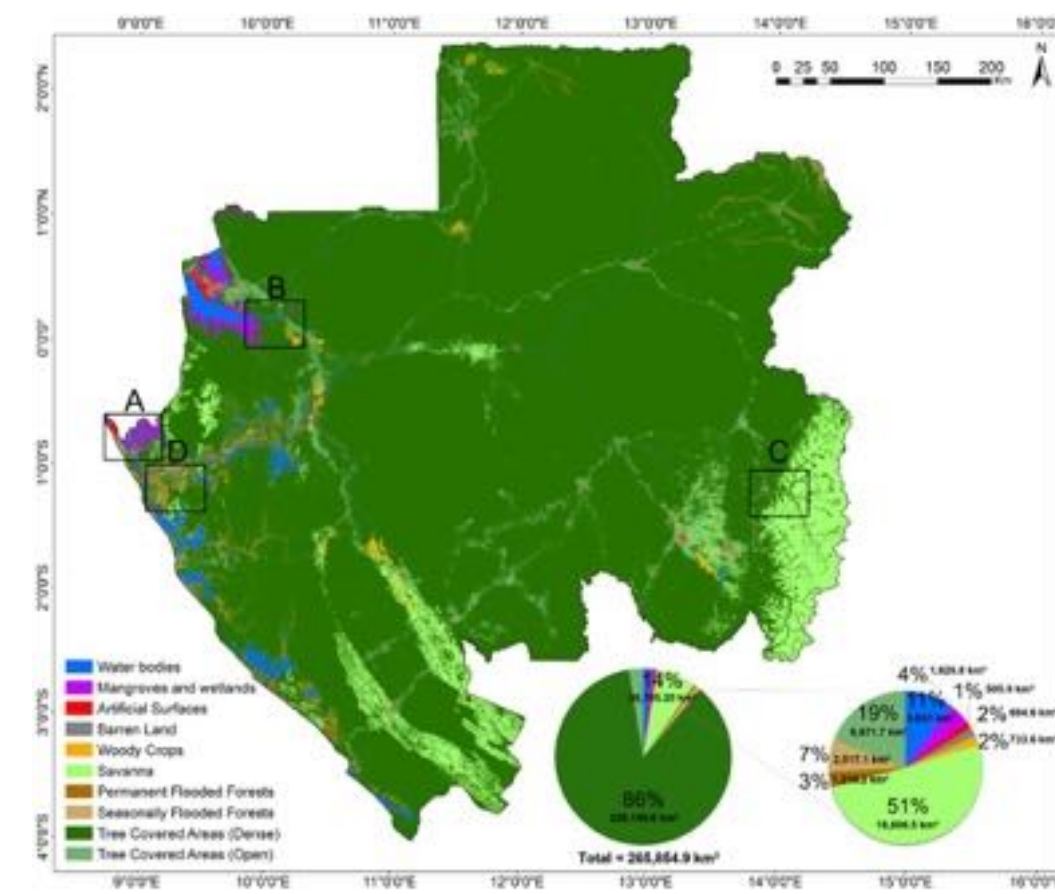
Accuracy

State of the art algorithms and classifiers ensure accurate and high quality maps.

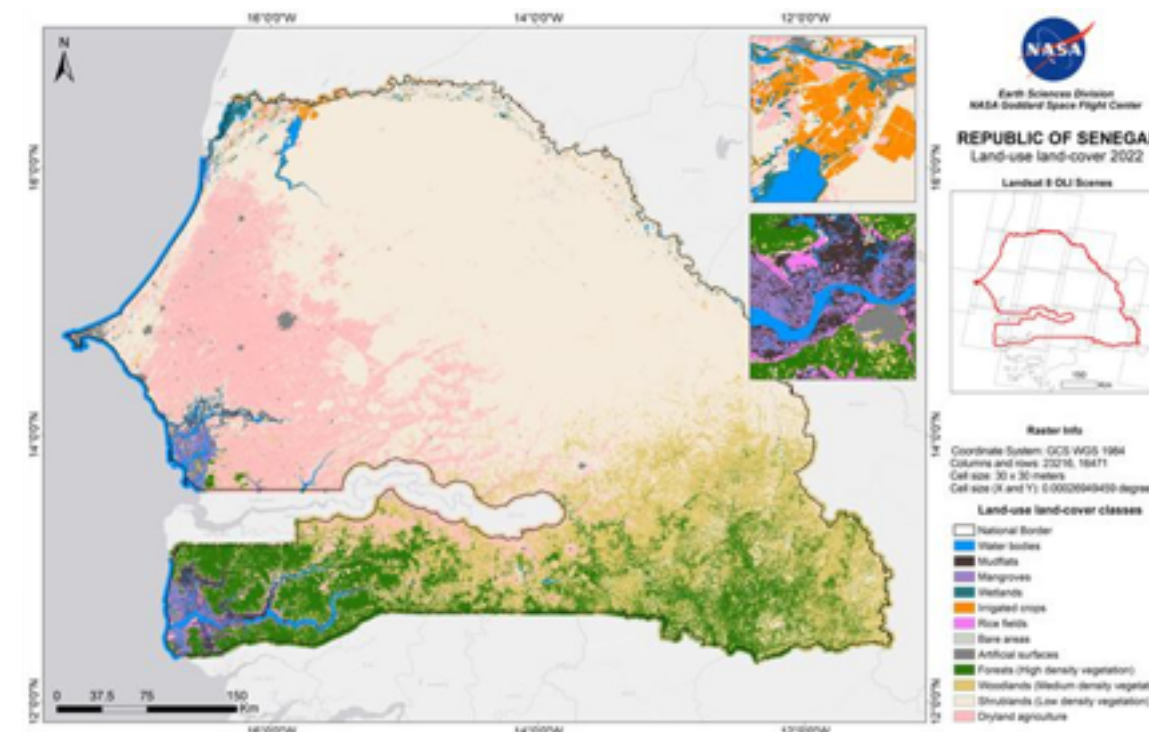
GDSA Countries



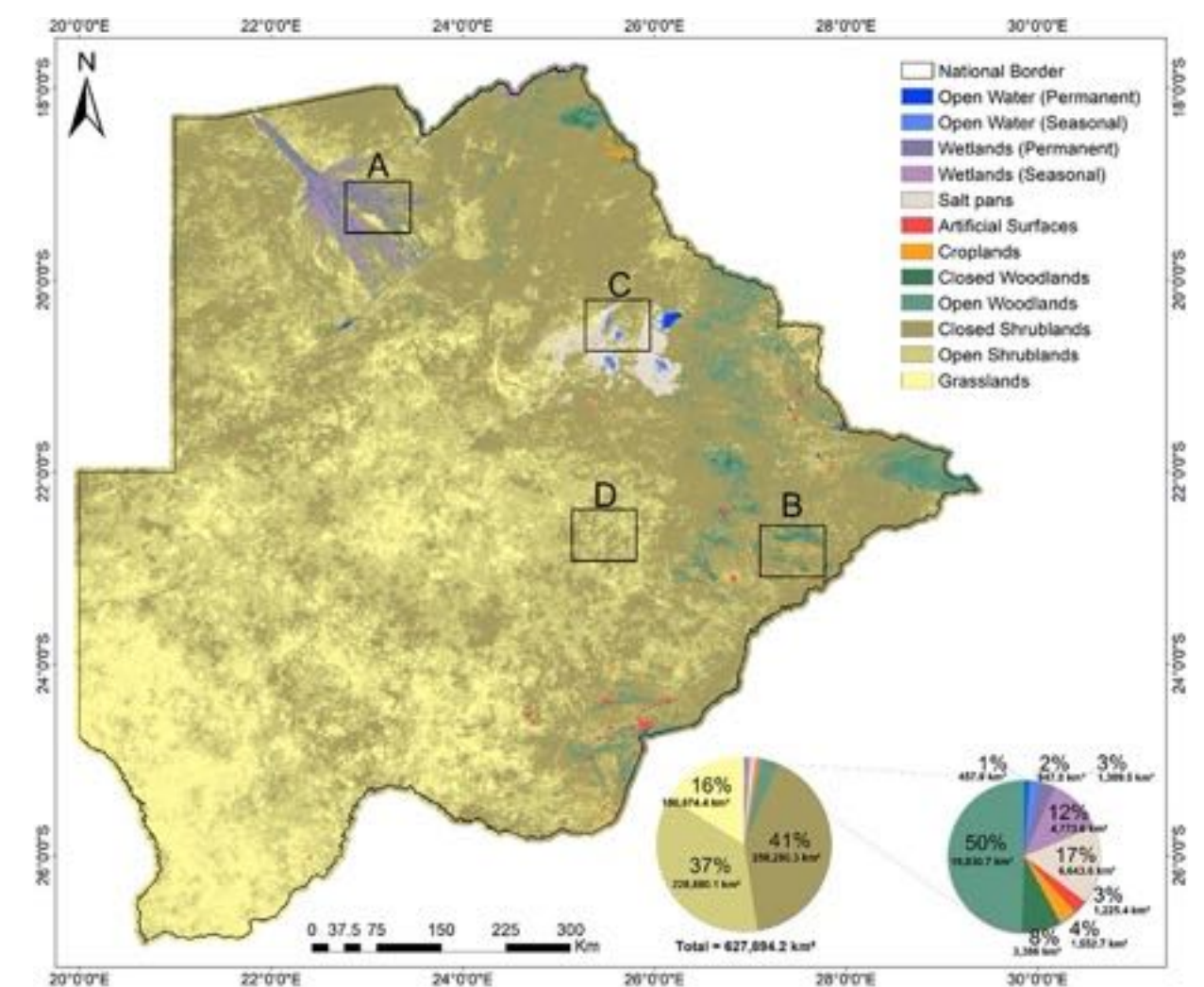
Gabon



Senegal



Botswana



Acknowledgements

This presentation features products that were developed as part of partnerships between Conservation International and the U.S. National Aeronautics and Space Administration (NASA). The NASA – Conservation International Space Act Agreement seeks to share technical expertise and data for designing and informing the framework for natural capital and ecosystem accounting.

The information shared here is the result of the implementation of the System of Environmental-Economic Accounting Ecosystem Accounting in Liberia. Conservation International and its partners have made every effort to ensure the accuracy and reliability of the information provided in this presentation. Please note that these findings are preliminary results intended purely for discussion. Results may contain inconsistencies due to the input data that were sources from different sources. Do not cite or circulate the contents of this document without obtaining a permission from Conservation International.

The following people directly or indirectly contributed to the development of the presented products: Miroslav Honzák (CI), Celio de Sousa (NASA), Trond H. Larsen (CI), Timothy Wright (CI), Christopher Neigh (NASA), Temilola Fatoyinbo (NASA), Patrick Roehrdanz (CI), Rosimeiry Portela (CI), Daniel Juhn (CI), Zargou E. Whapoe (EPA of Liberia), Keith Gaddis (NASA), Woody Turner (NASA), Roger Sayre (USGS), Andrew Skowno (SANBI), Andrew Hoskins (CSRIO), Simon Ferrier (CSRIO).

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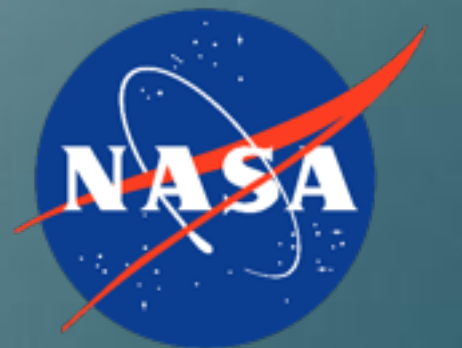
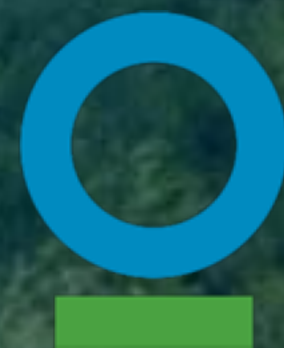
Thank You!



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