EVALUATING REGREENING AFRICA IN ETHIOPIA: MONITORING FROM THE SKY
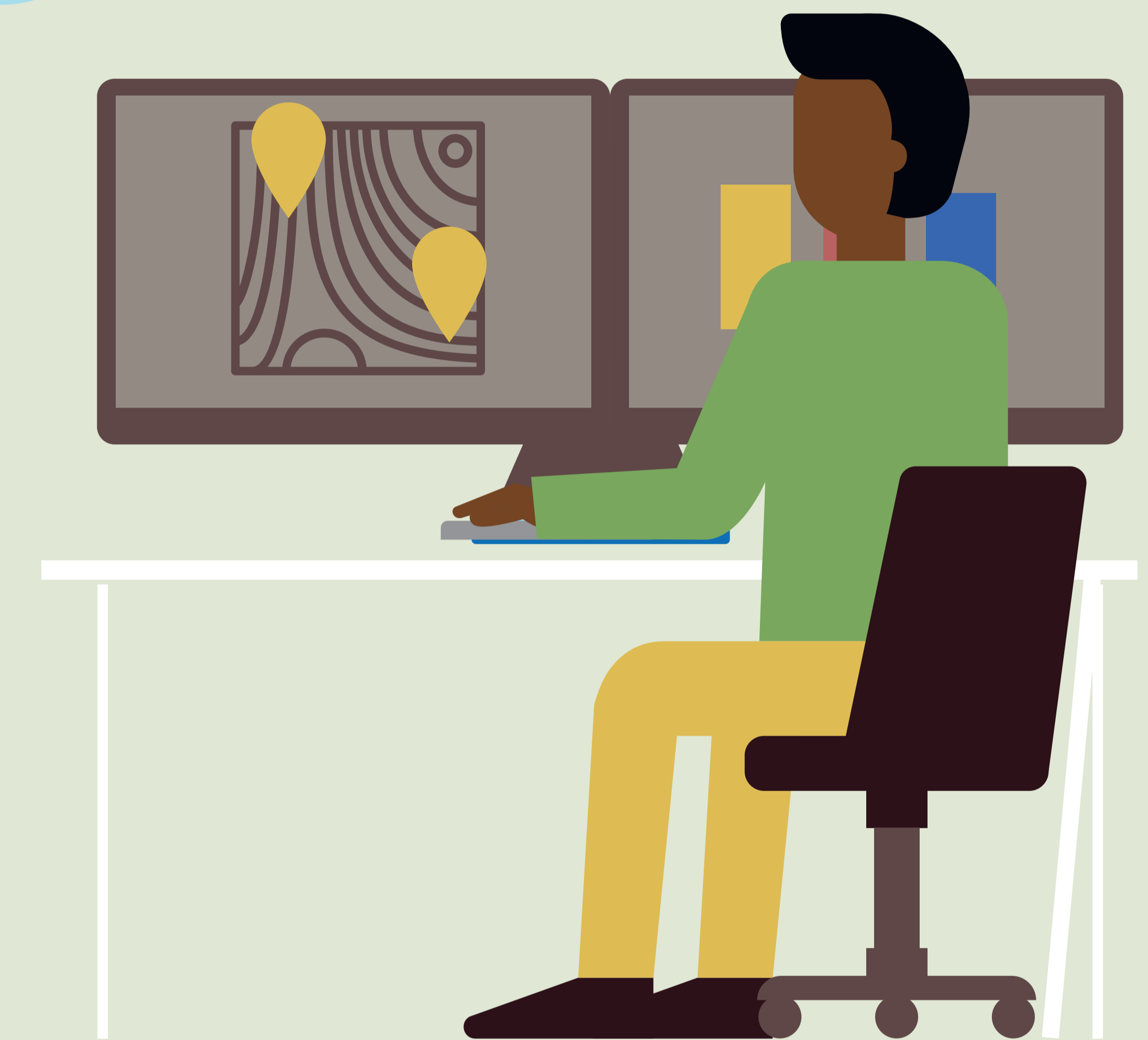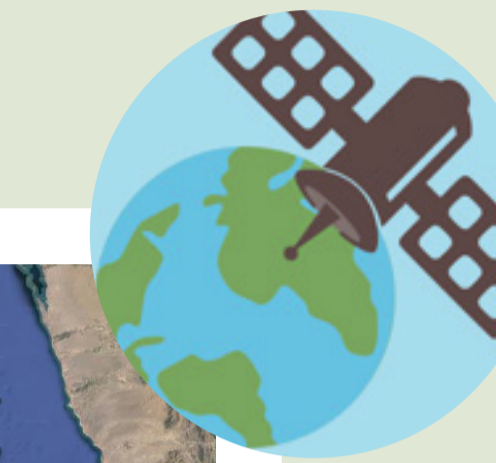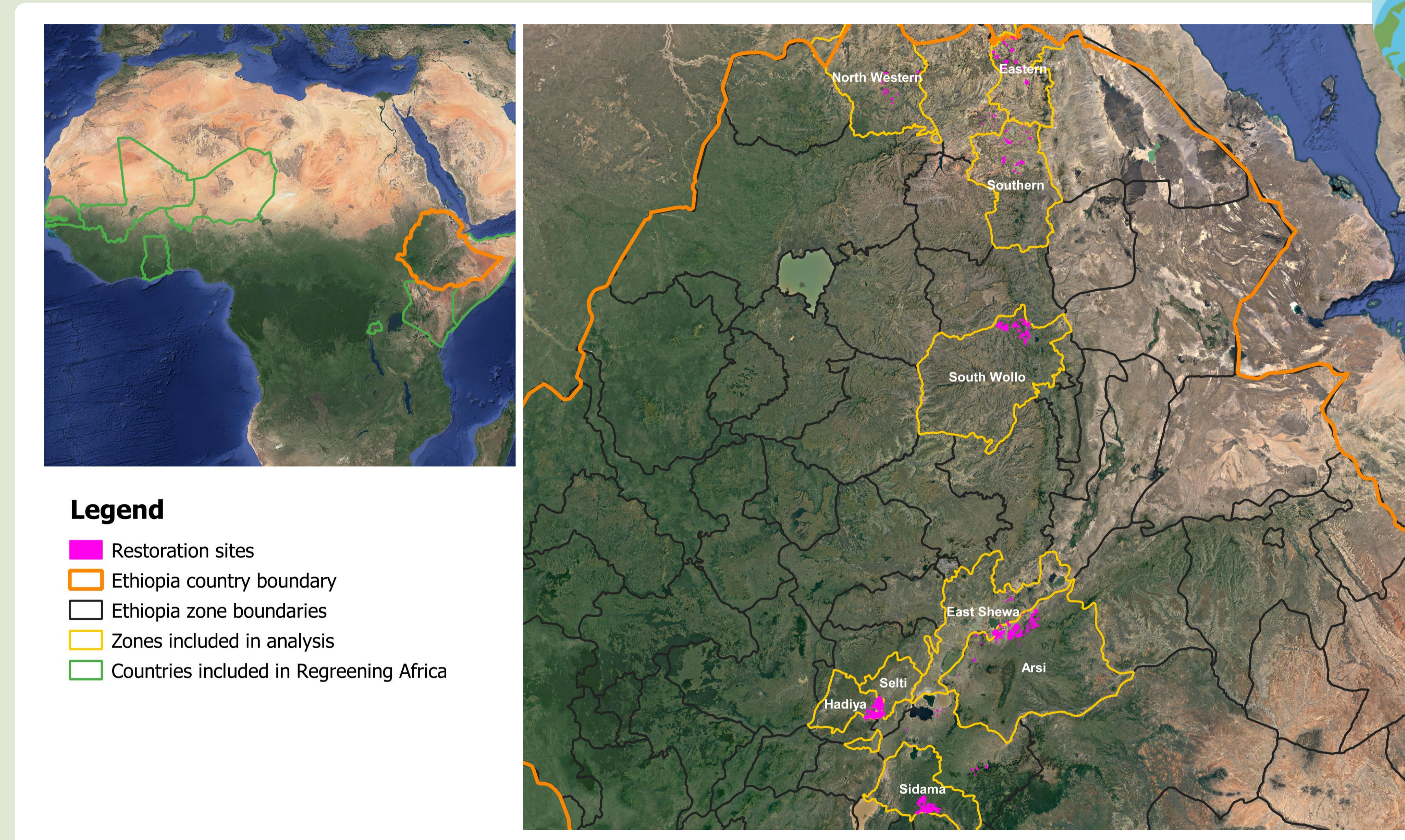
Regreening Africa

HOW IT'S DONE

Satellites provide frequent images of the earth's surface globally. This imagery is consistent over time and space. Therefore, it can be used to accurately detect changes in the earth's surface over time and in different regions. With the restoration plot GPS information from the Regreening Africa app, the restoration progress can be monitored. Together with monthly rainfall data, the vegetation at plot-level is modelled and predicted using a greenness indicator: the Normalized Difference Vegetation Index (NDVI).

Next, the predicted vegetation is compared to the actual vegetation at plot-level. The difference between the actual vegetation and the predicted vegetation is an indication of the successfulness of the restoration. In Ethiopia, we monitor 4,016 restoration sites (87,000 ha).
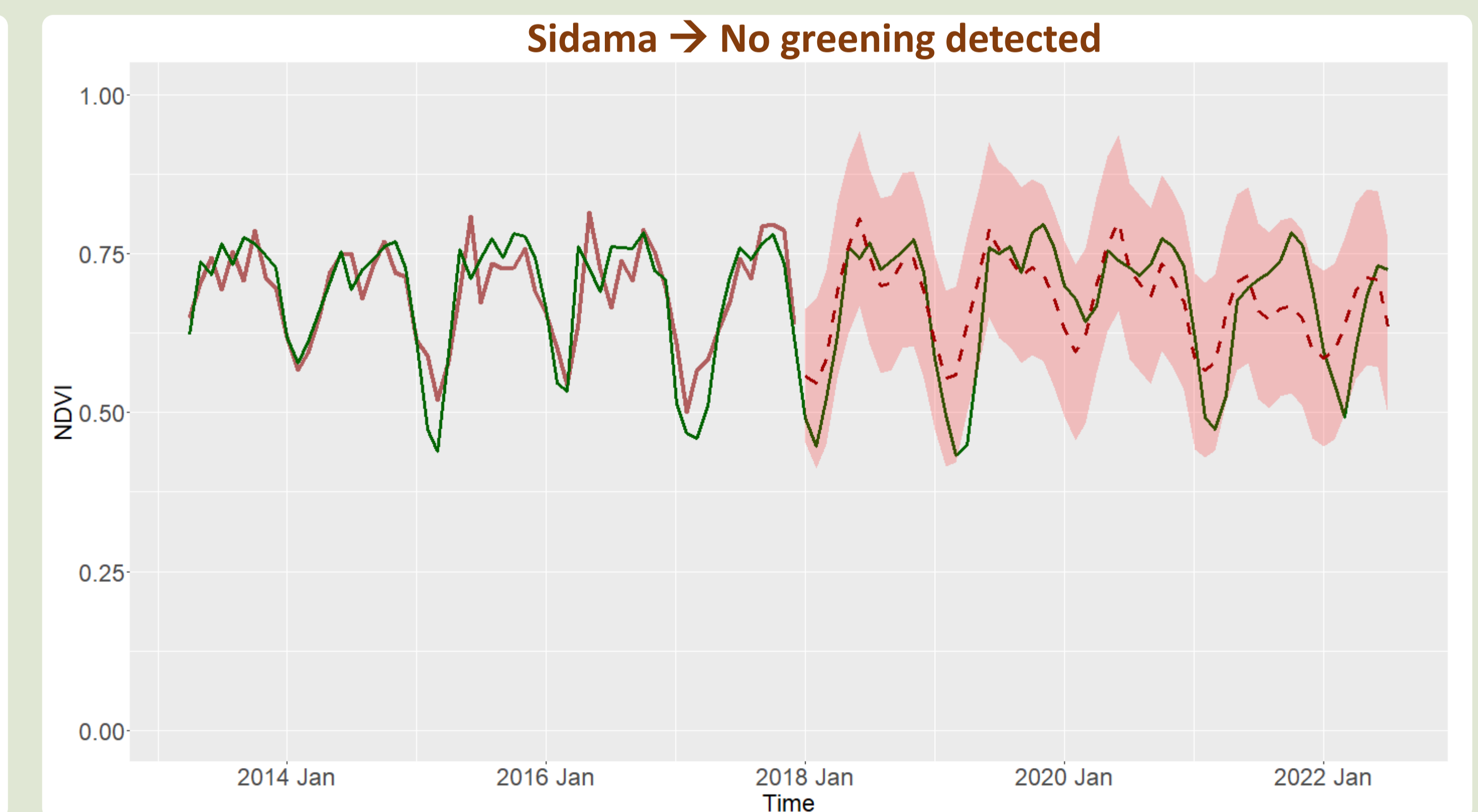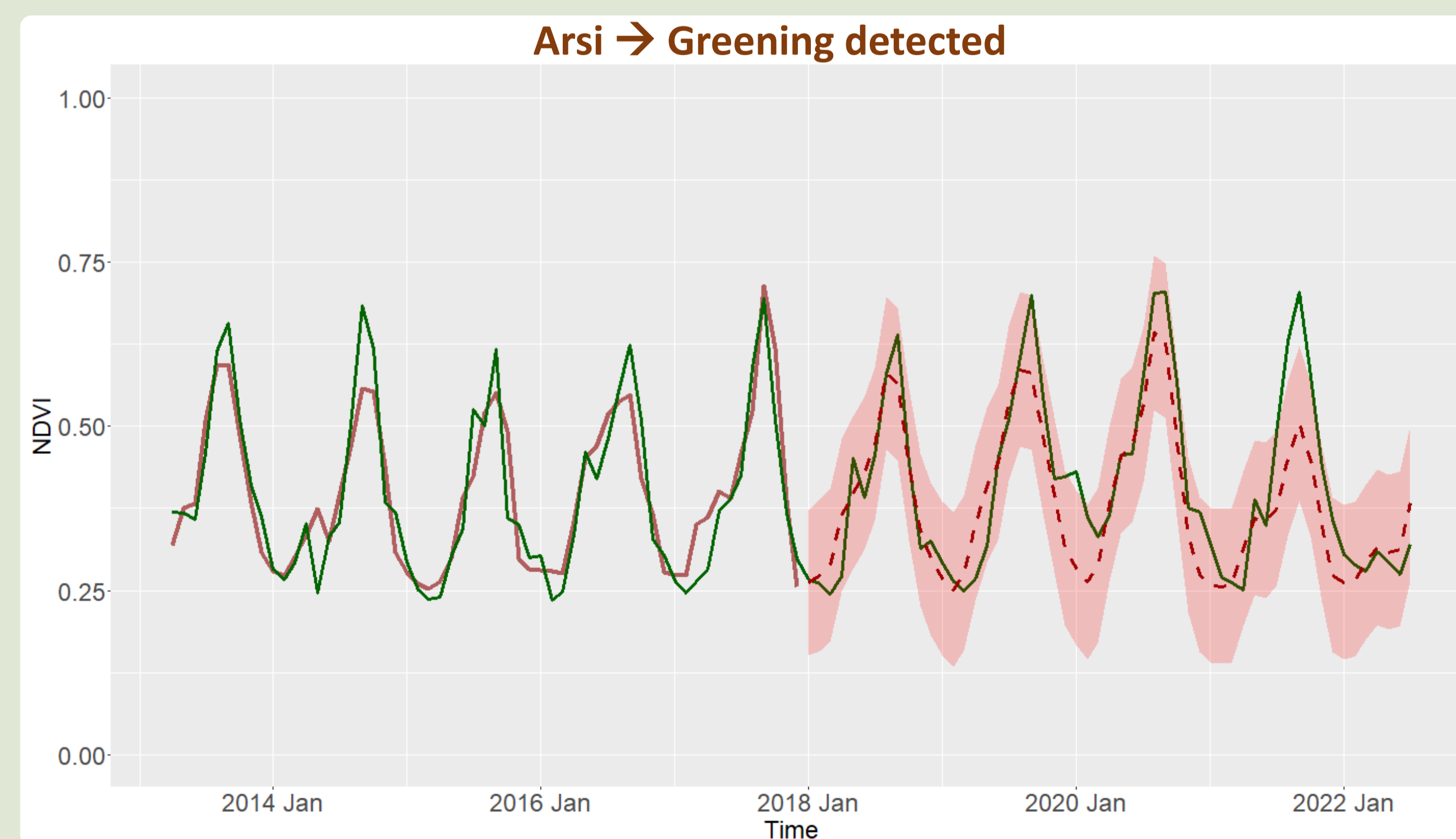
Data used:

- Landsat 8 images (2013-presence)
- Global Precipitation Measurement - GPM (2013-presence)
- Restoration plot GPS data from the Regreening Africa app

WHERE DO WE MONITOR

Legend
- ■ Restoration sites
- ▭ Ethiopia country boundary
- ▭ Ethiopia zone boundaries
- ▭ Zones included in analysis
- ▭ Countries included in Regreening Africa

ACTUAL (GREEN) VS PREDICTED (RED) VEGETATION AT ZONE-LEVEL

Arsi → Greening detected

Sidama → No greening detected

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ACTUAL (GREEN) VS PREDICTED (RED) VEGETATION AT PLOT-LEVEL

June 2016 — September 2020

Greening detected on plot-level

Source: Maxar Technologies

Plot 4768: Arsi

December 2014 — May 2021

No greening detected on plot-level

Source: Maxar Technologies

Plot 5093: North Western
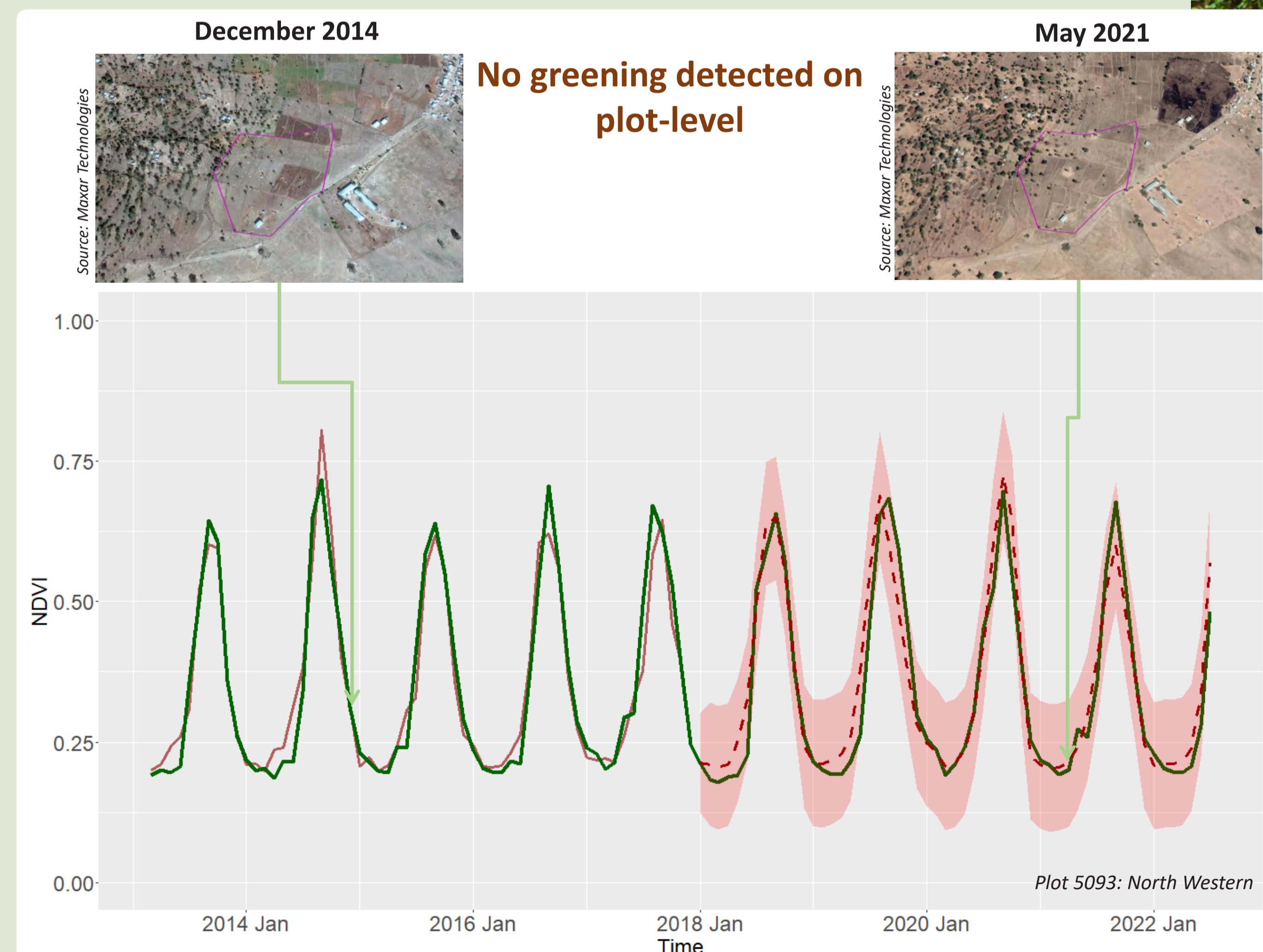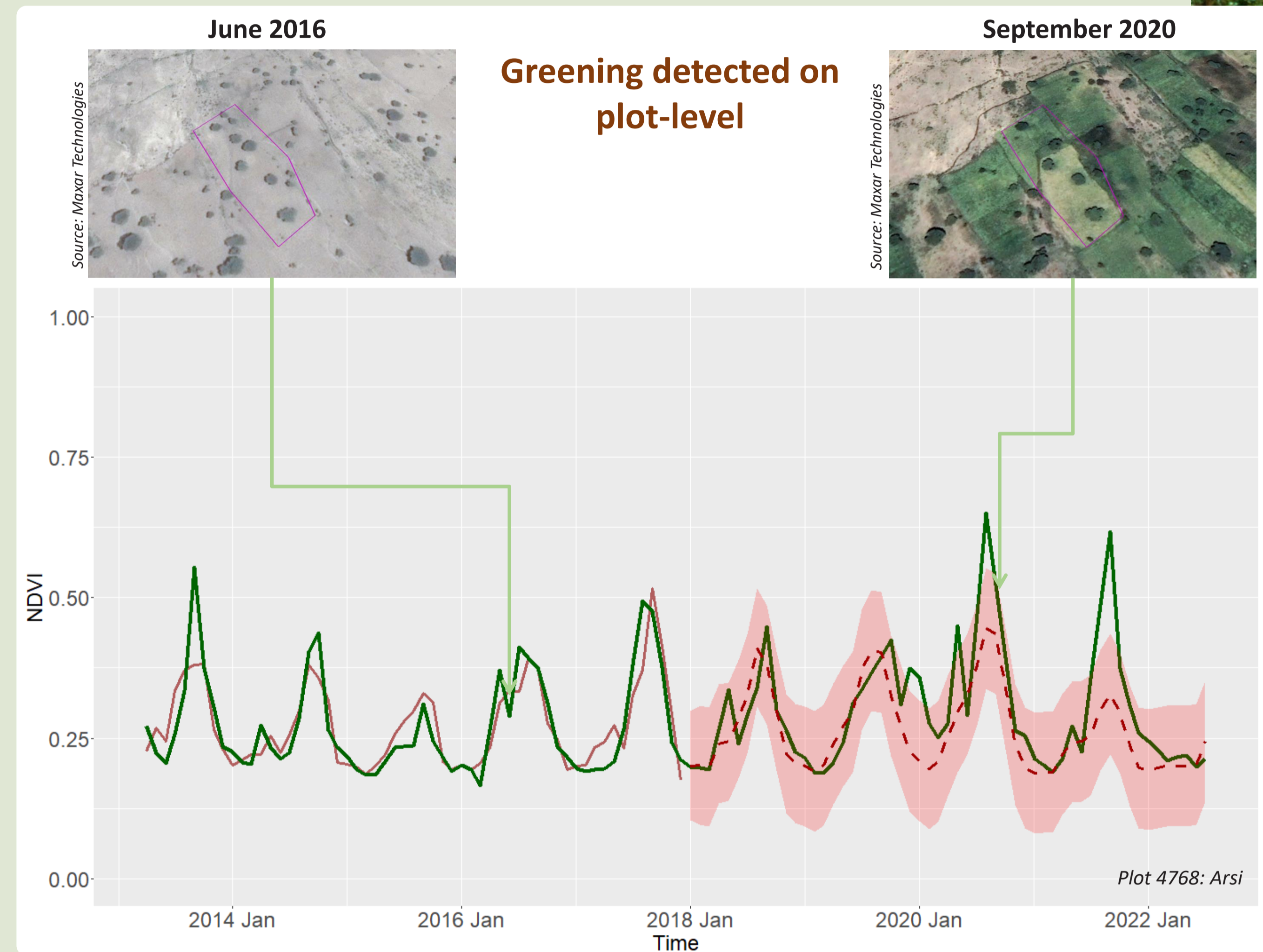
SUMMARY: TOTAL AREA MONITORED VS AREA WHERE GREENING IS DETECTED

Per Zone

Arsi 65% · East Shewa 98% · Eastern 46% · Hadiya 46% · North Western 27% · Selti 32% · Sidama 16% · South Wollo 23% · Southern 45%

Per Zone

Arsi 65% · East Shewa 98% · Eastern 46% · Hadiya 46% · North Western 27% · Selti 32% · Sidama 16% · South Wollo 23% · Southern 45%