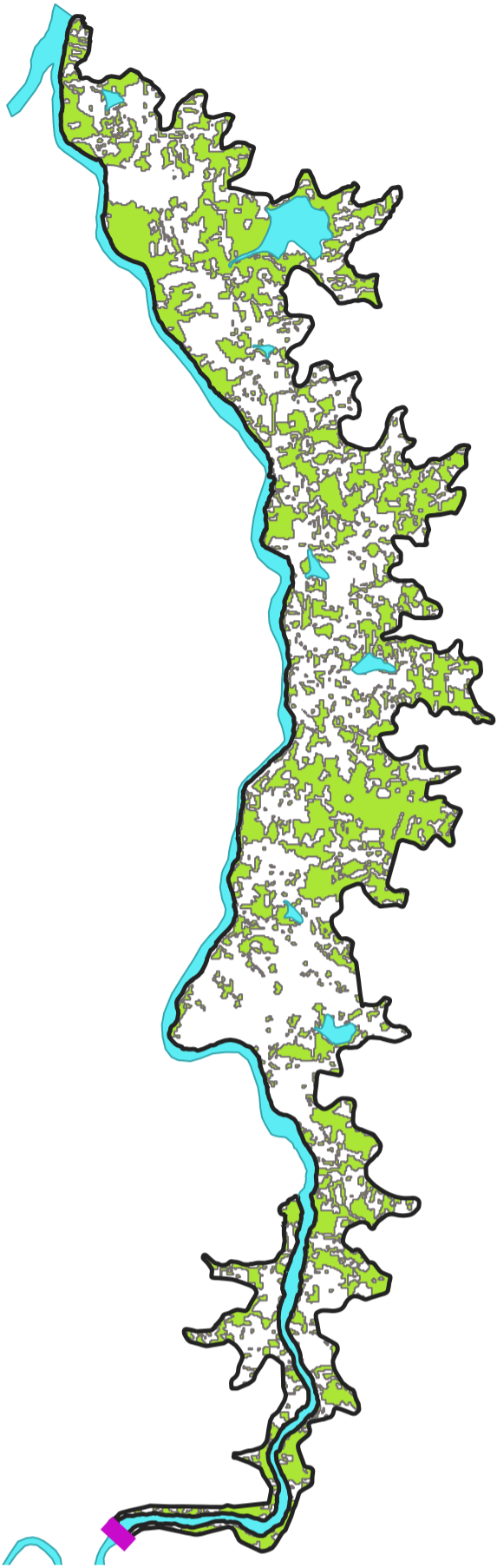
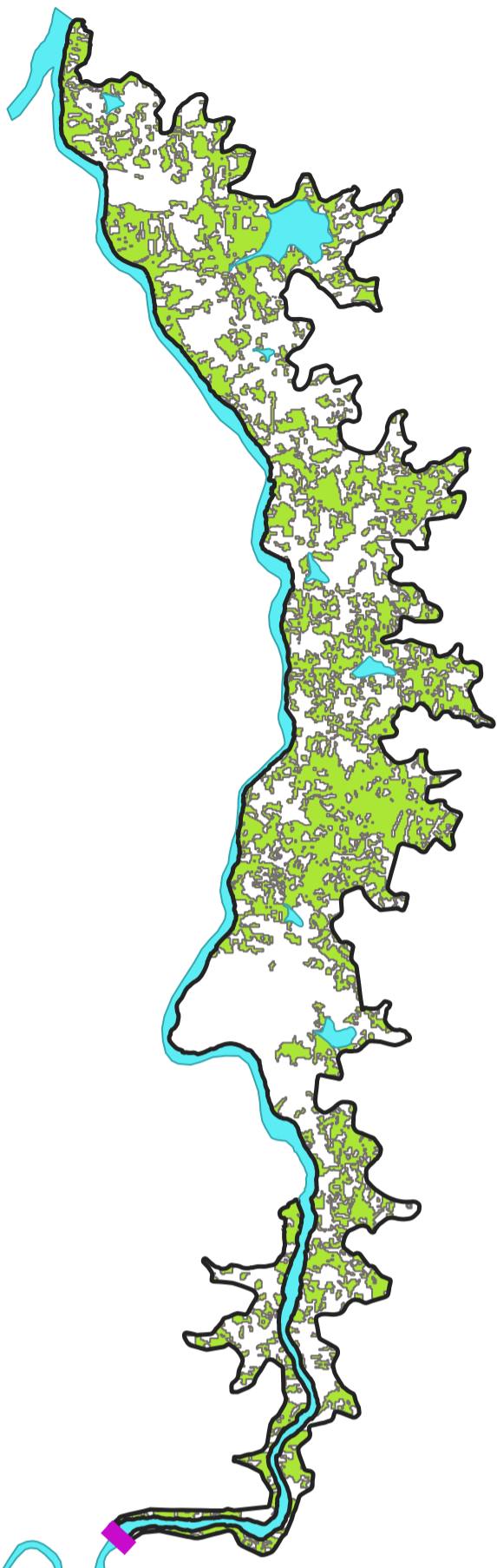




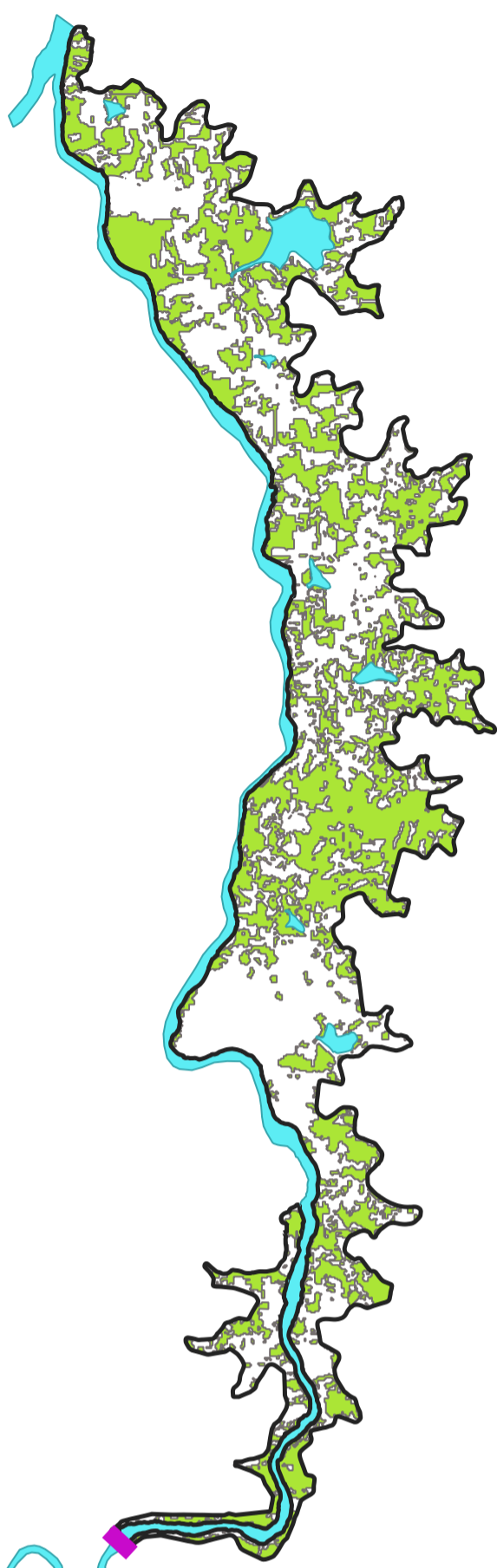
Year 2011



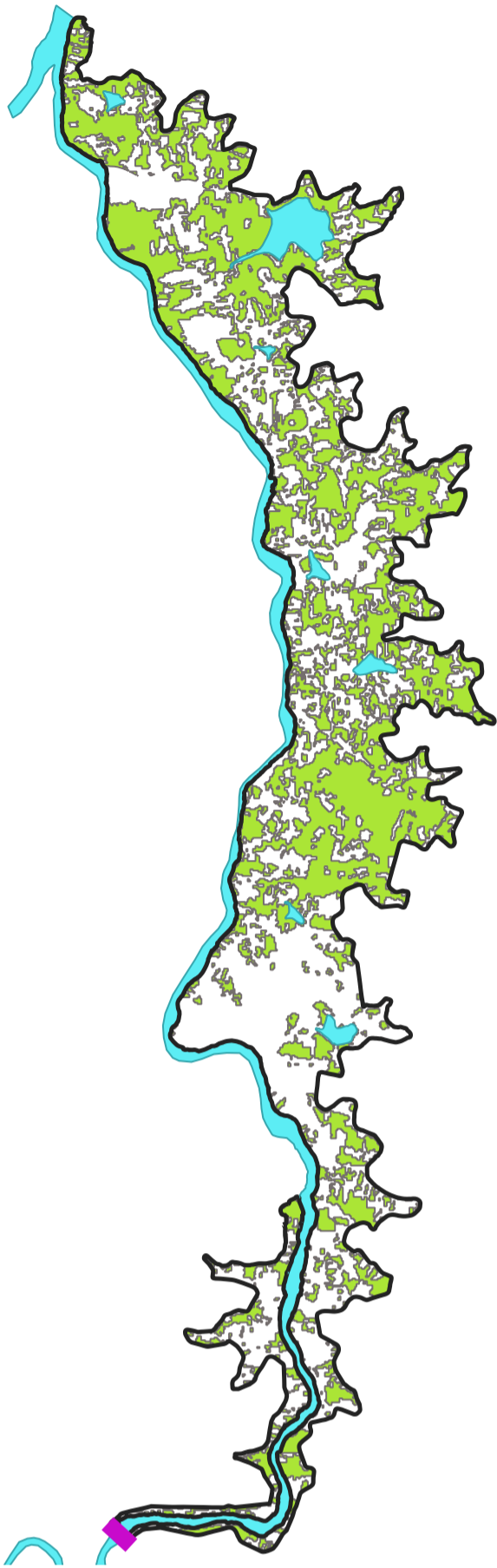
Year 2012



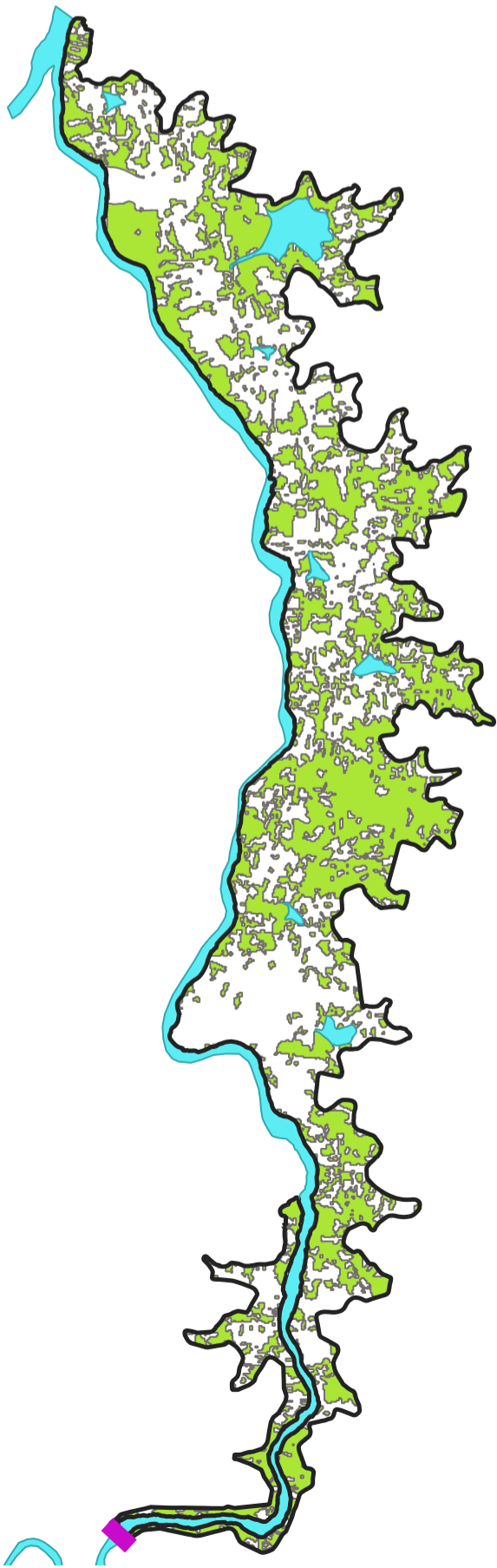
Year 2013



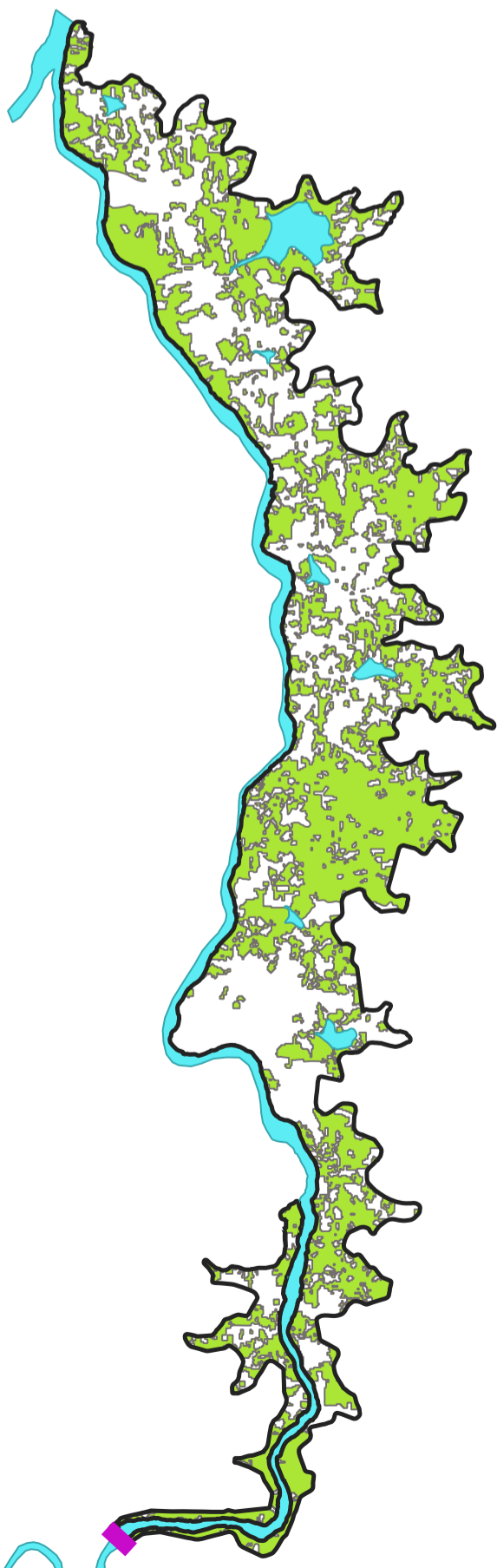
Year 2014



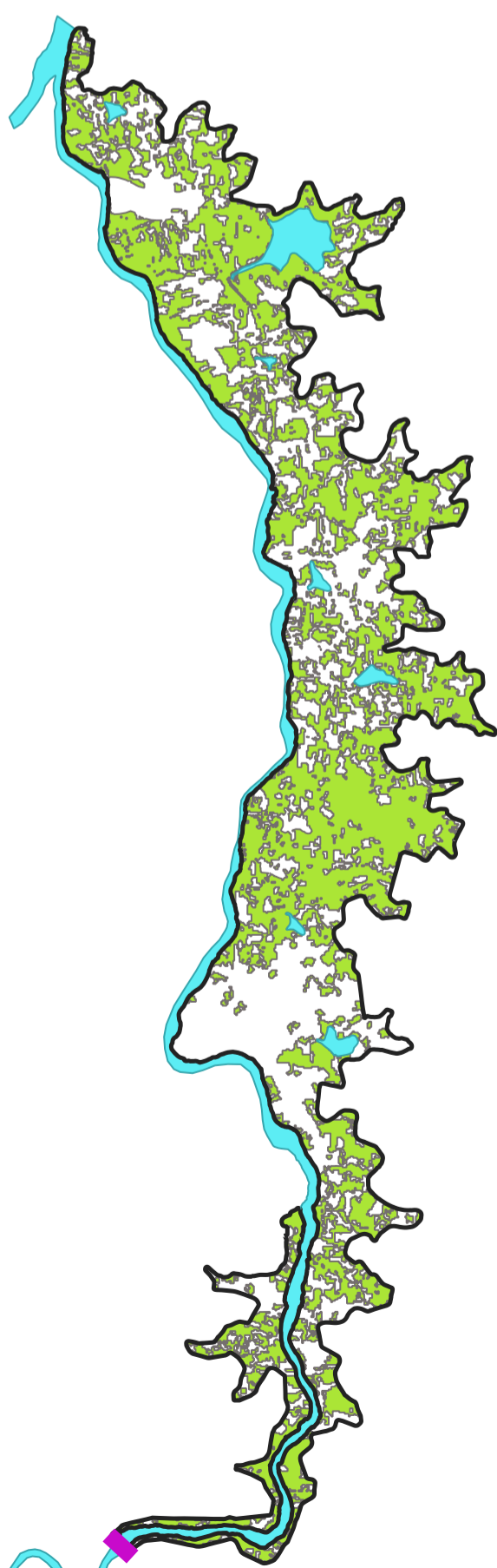
Year 2015



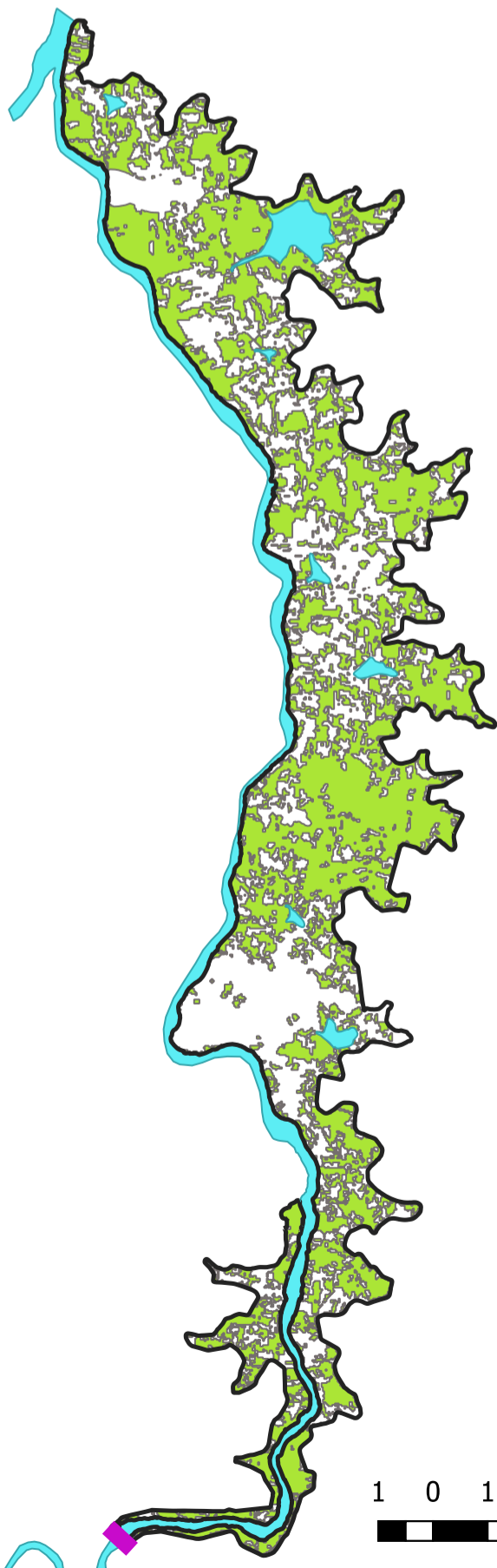
Year 2016



Year 2017



Year 2018



Methodology :

1. Image Selection

Arecanut being a perennial plantation, can be easily distinguished during the period from December to January as other irrigated field crops are normally absent. In Gondi Project, the first crop season starts from July and the canal closes by November. The second season start of canal flow is from end of January and closes by March – April. Main crops irrigated are paddy, sugarcane and other field crops besides arecanut. As the command area would not have field crops between December to January, arecanut can be distinguished. Details of the toposheet coverage of the Gondi Irrigation Command area and the date of image acquisition are listed in Table below:

Details of LISS III Images Used for the Study					
Sl. No	Toposheet No.	Bounding Box	Toposheet No.	Bounding Box	Date of Pass
1	D43J12	75.5E14.0N-75.75E14.25N	D43P09	75.5E13.75N-75.75E14N	17-Dec-11
2	D43J12	75.5E14.0N-75.75E14.25N	D43P09	75.5E13.75N-75.75E14N	27-Feb-12
3	D43J12	75.5E14.0N-75.75E14.25N	D43P09	75.5E13.75N-75.75E14N	04-Jan-13
4	D43J12	75.5E14.0N-75.75E14.25N	D43P09	75.5E13.75N-75.75E14N	23-Jan-14
5	D43J12	75.5E14.0N-75.75E14.25N	D43P09	75.5E13.75N-75.75E14N	20-Dec-15
6	D43J12	75.5E14.0N-75.75E14.25N	D43P09	75.5E13.75N-75.75E14N	13-Jan-16
7	D43J12	75.5E14.0N-75.75E14.25N	D43P09	75.5E13.75N-75.75E14N	19-Jan-17
8	D43J12	75.5E14.0N-75.75E14.25N	D43P09	75.5E13.75N-75.75E14N	14-Jan-18

2. Base layer preparation

Base layers are prepared using Bhuvan web site (<https://bhuvan.nrsc.gov.in/>).Using the menu for high resolution satellite image and Draw tools, the Command area boundary, extent of Built-up area and water bodies were digitized. The base map was kept as reference for other processes.

3. Downloading of LISS III data (Resourcesat-1/ Resourcesat-2)

The satellite data are downloaded using the Bhuvan website (<https://bhuvan.nrsc.gov.in/>). With the help of Open Data Archives, LISS III images from Resourcesat-1/Resourcesat-2 were identified and using the Bounding Box and / Map sheet/Tiles/Interactive drawing tools the selected image tiles were downloaded.

4. Supervised Classification for extracting the Arecanut Plantation using QGIS

QGIS 3.4 GIS was used for processing of the LISS III images. Standard FCC were generated for all the years using appropriate image enhancement techniques. Later all the FCCs were subjected to supervised classification using the Semi-Automatic Classification Plugin (SCP) for the QGIS. Limited ground validation of the arecanut plantation was made and the training sets were refined and the process was adopted for the images of all the years. The classified data was directly converted in vector format and area estimates were tabulated. The area statistics are provided only for arecanut plantation for different years.

Year wise extent of Arecanut Plantation

Sl. No.	Year	Area in ha
1	2011	2691
2	2012	2791
3	2013	2829
4	2014	2907
5	2015	3012
6	2016	3333
7	2017	3394
8	2018	3458

Source: Resourcesat-1/Resourcesat-2 LISS III from Bhvan website



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