Detecting and Mapping of Vegetation Dynamics in the Area of Hobrechtsfelde

PRESENTED
BY

AKINBODUNSE VICTOR
FIT 2012.

IN FULFILMENT OF
STUDENT RESEARCH COLLOQUIUM

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INTRODUCTION

- A means of understanding LULCC
- It requires the characterization of vegetation changes at different scales (~CD)
- LCC is the variations in the state/type of physical materials on the Earth's surface. e.g forest.
- CD methods: Pixel based, OBIA, & DM

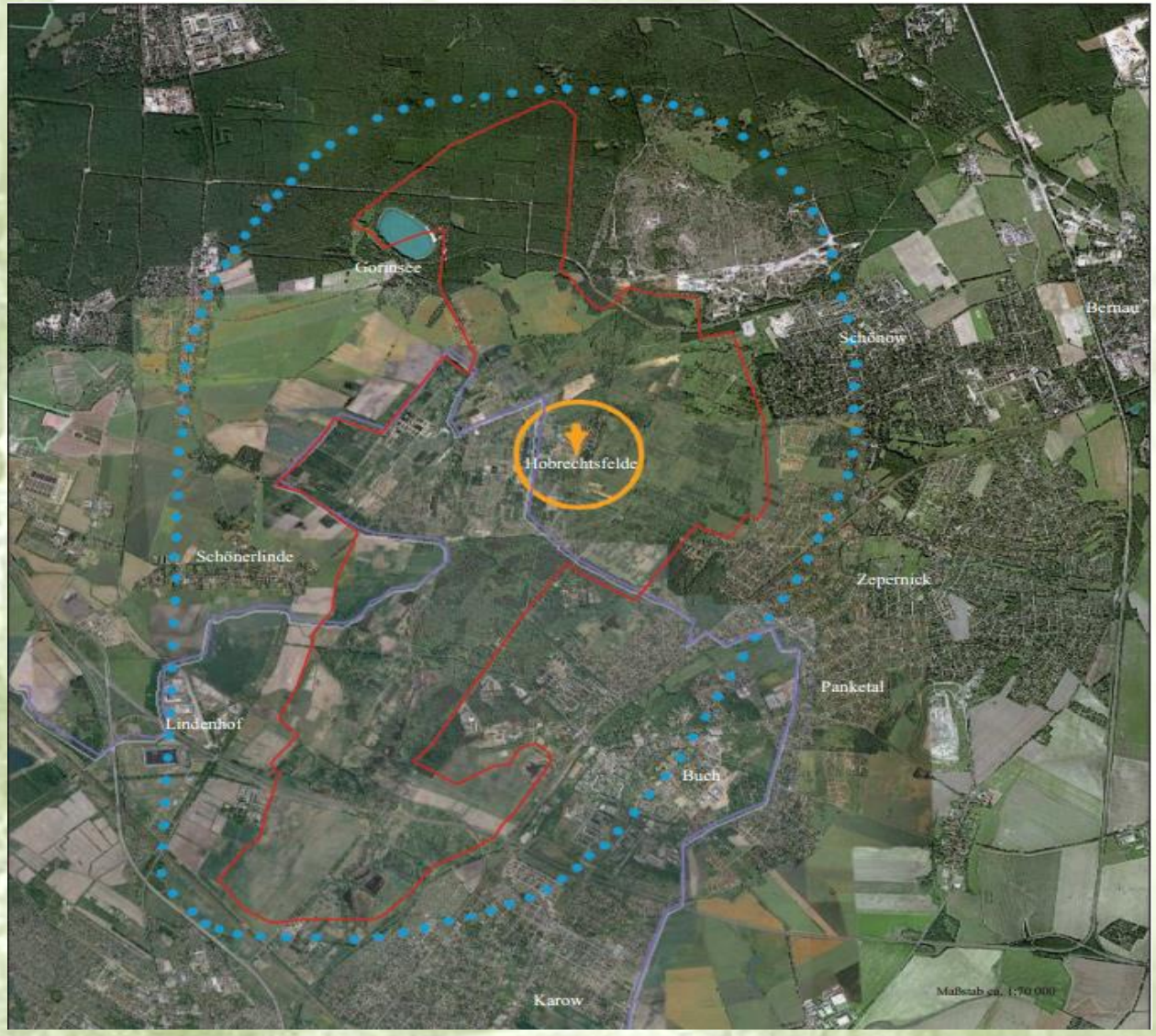
STUDY AREA

Project Area

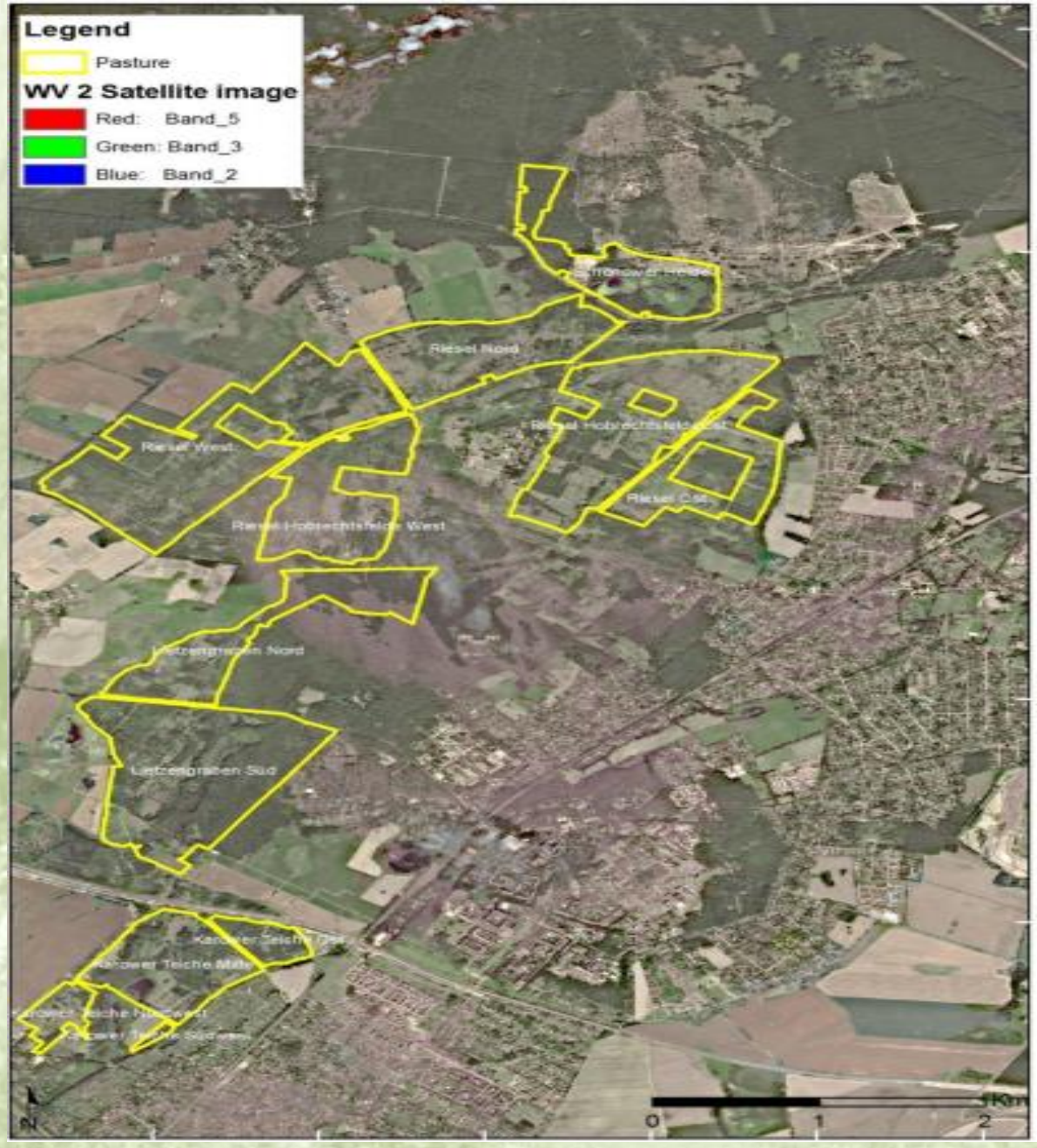
Study Area

Hobrechtsfelde

Berlin/Brandenburg Border



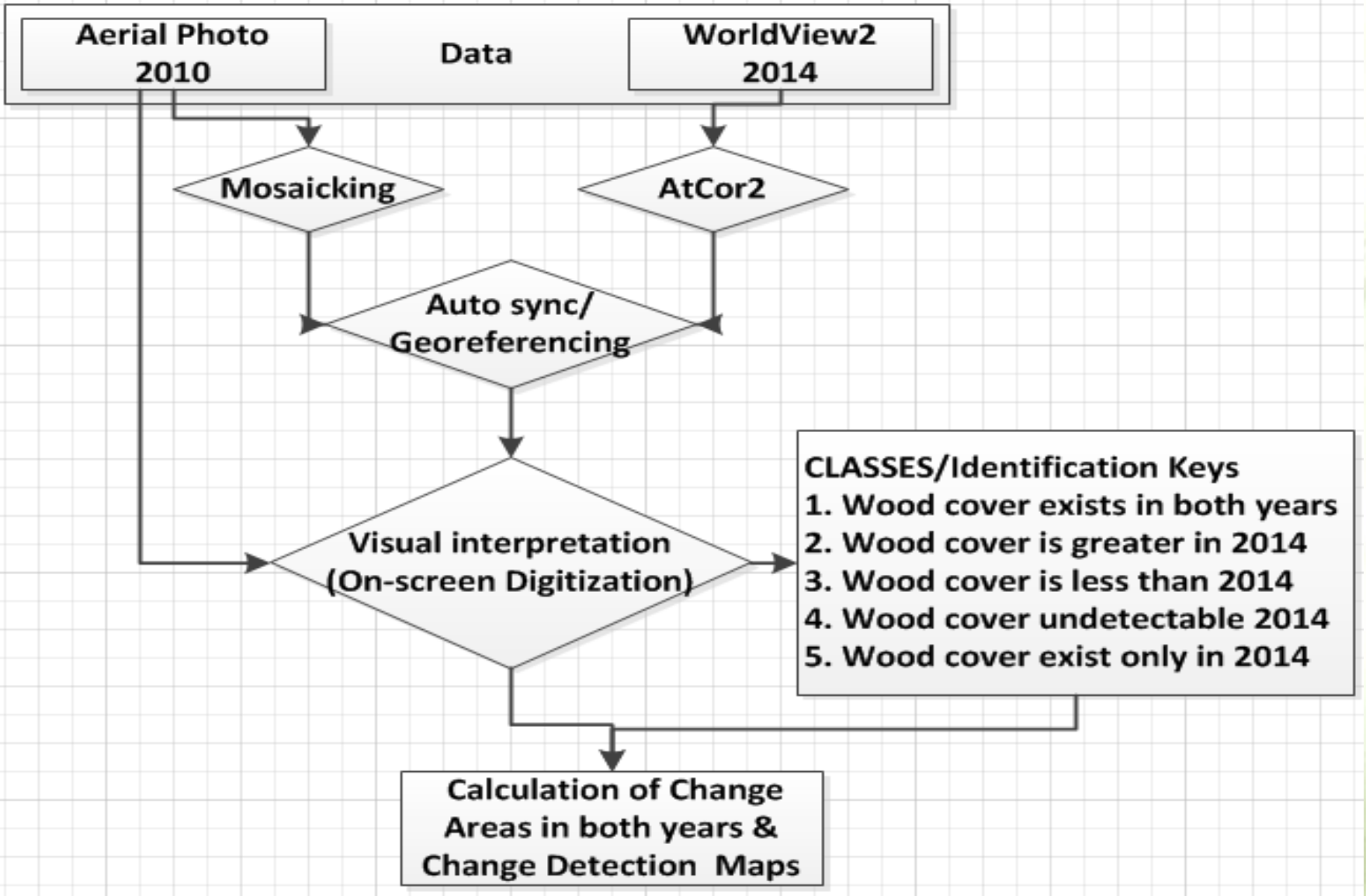
(Bundeswettbewerb IDEE.NATUR Urbane Landschaften „Rieselfeldlandschaft Hobrechtsfelde“).


Legend
Pasture
WV 2 Satellite image
Red: Band_5
Green: Band_3
Blue: Band_2
Riesel Nord
Riesel West
Riesel Ost
Riesel Hohrechtsteiche West
Lützelgraben Nord
Lützelgraben Süd
Kanower Teiche Mitte
N
0
1
2
Km

RESEARCH QUESTION/OBJECTIVES

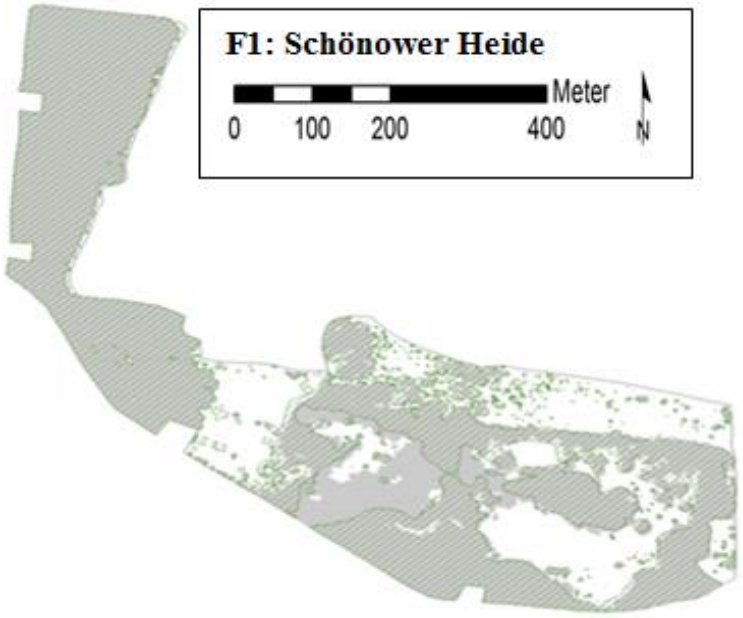
- Extent of wood cover change in the study area between 2010 & 2014
- The spatial scale effects on the two satellite imagery in the study area
- Factors influence the choice of detection technique used?

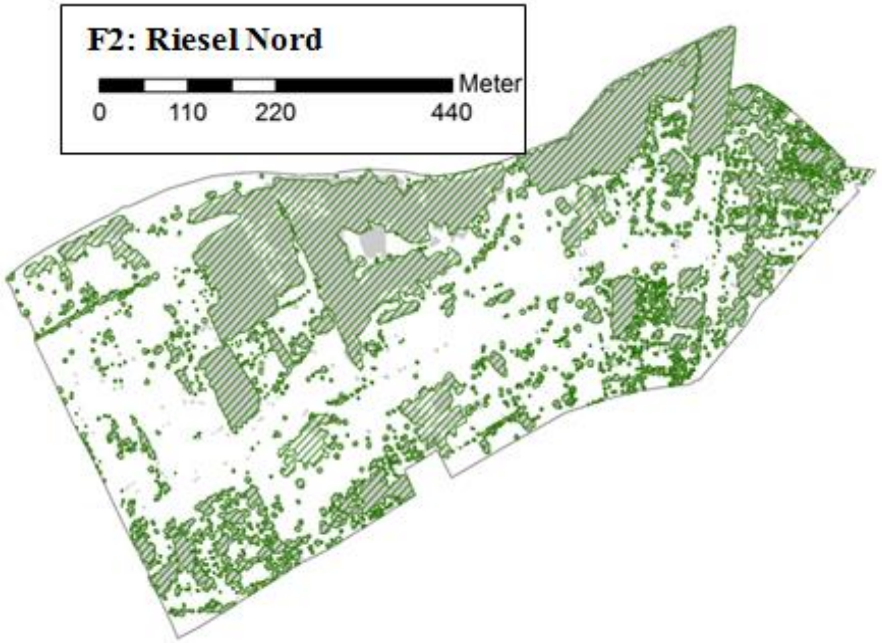
METHODS

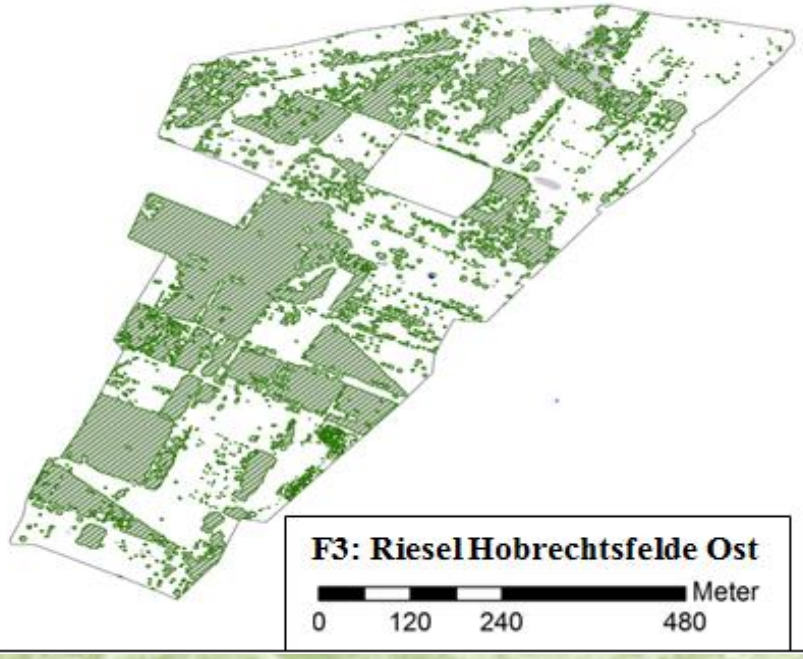

Aerial Photo 2010
Data
WorldView2 2014
Mosaicking
AtCor2
Auto sync/ Georeferencing
Visual interpretation (On-screen Digitization)
CLASSES/Identification Keys
1. Wood cover exists in both years
2. Wood cover is greater in 2014
3. Wood cover is less than 2014
4. Wood cover undetectable 2014
5. Wood cover exist only in 2014
Calculation of Change Areas in both years & Change Detection Maps

RESULTS AND DISCUSSION

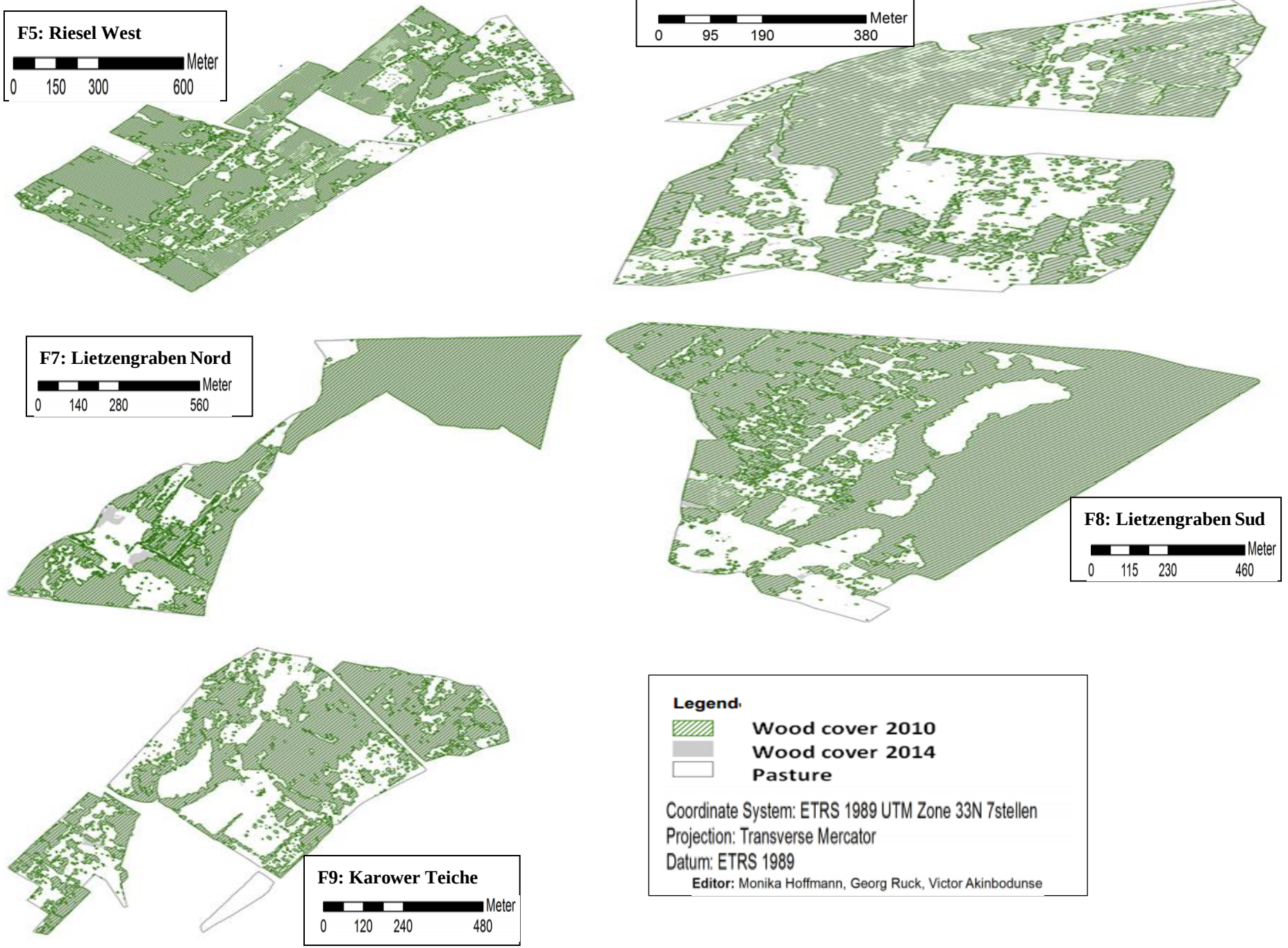
Pasture Area	Total Area (ha)	Digitized Polygon 2010	Digitized Polygon 2014	Area in 2010 (ha)	Area in 2014 (ha)	Difference (ha)
Schönower Heide	58.47	726	429	39.3	36.9	2.31-
Riesel Nord	76.43	1806	1438	25.26	27.83	2.57+
Riesel Hobrechtsfelde Ost	114.72	2003	1667	42.17	43.72	1.54+
Riesel Ost	50.25	656	573	19.36	20	0.63+
Riesel West	154.23	1879	1161	90.19	100.44	10.24+
Riesel Hobrechtsfelde West	74.72	1088	642	35.73	43.3	7.57+
Lietzengraben Nord	68.21	373	348	50.65	50.28	0.36-
Lietzengraben Süd	137.85	734	543	96.89	97.28	0.39+
Karower Teiche	94.09	816	758	48.43	48.24	0.19-
Total	828.97	10,081	7,559	447.98	468.08	20.09


F1: Schönower Heide
Meter
0 100 200 400
N


F2: Riesel Nord
Meter
0 110 220 440


F3: Riesel Hobrechtsfelde Ost
Meter
0 120 240 480


F4: Riesel Ost
Meter
0 87,5 175 350


F5: Riesel West
Meter
0 150 300 600
F6: Riesel Hobrechtsfelde West
Meter
0 95 190 380
F7: Lietzengraben Nord
Meter
0 140 280 560
F8: Lietzengraben Sud
Meter
0 115 230 460
F9: Karower Teiche
Meter
0 120 240 480
Legend
Wood cover 2010
Wood cover 2014
Pasture
Coordinate System: ETRS 1989 UTM Zone 33N 7stellen
Projection: Transverse Mercator
Datum: ETRS 1989
Editor: Monika Hoffmann, Georg Ruck, Victor Akinbodunse

Challenges & solution (Lit Review)

- Study Area Size & Techniques Used:
- Choices concerning scale, extent and resolution critically affect the type of patterns that will be observed.
- The number of bands and the amount of spectral information is different in different images.
- Different pixel sizes affect the classification as land cover is viewed differently with varying details.

CONCLUSION

- Working with different sensors is not ideal, but sometimes its unavoidable (Serra et al., 2003).
- Appropriate scale for observations is a function of the type of environment and the kind of information desired (geographic feature of interest).
- The method used is contextual, time consuming, and depends on analyst skill and familiarity with the study area.
- Study objectives should be identify first, followed by data availability and characteristics as well as available budget in change detection study.

THANK

YOU

FOR

LISTENING