



From early attempts to recent trends: economic simulation as an investigation tool for the forest sector

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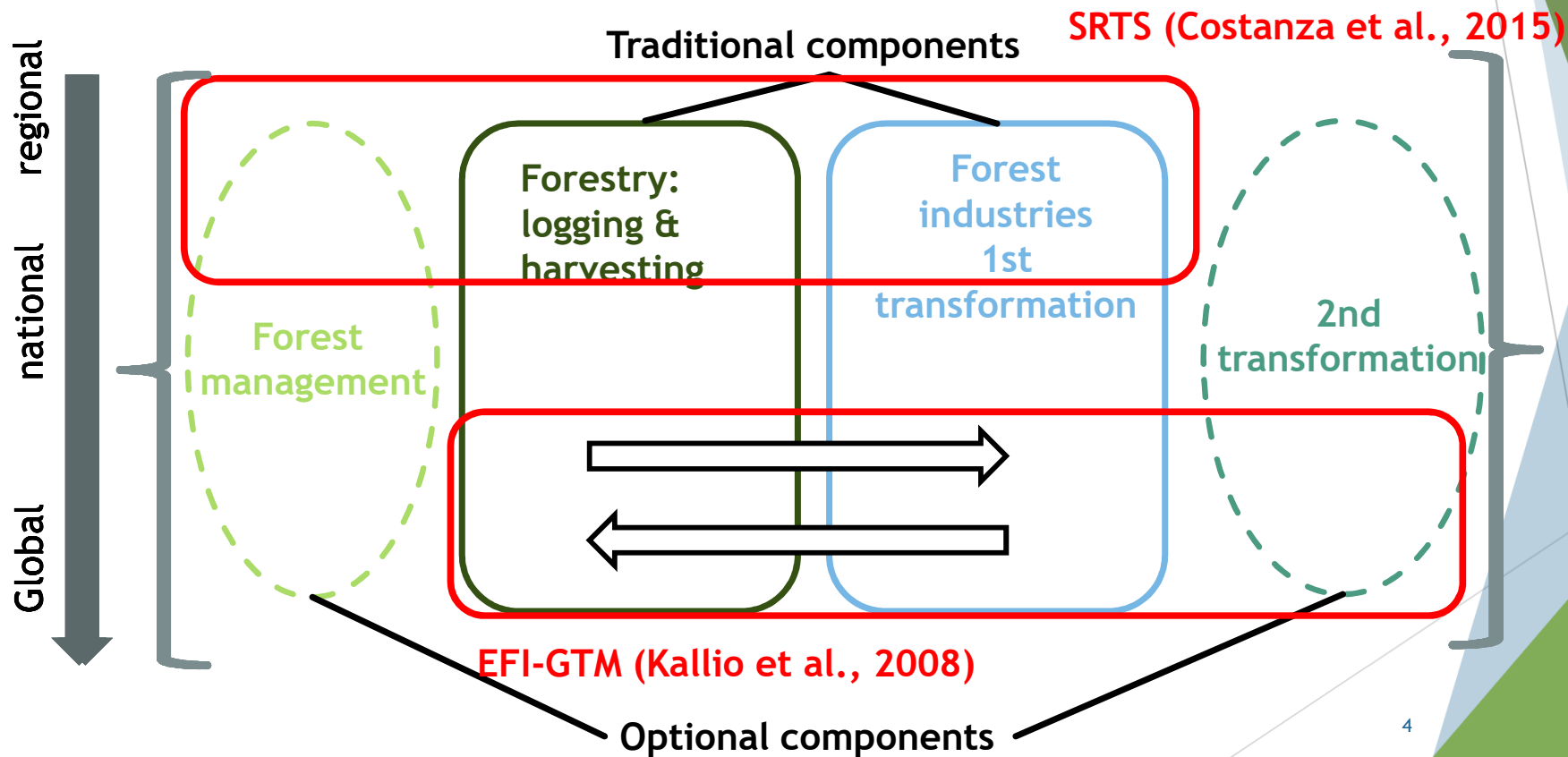
Plan

- ▶ Forest sector simulation models (FSSM): a definition
- ▶ A history of forest sector modeling
- ▶ Recent trends:
 - ▶ A map of the FSSM community
 - ▶ integrating non timber objectives into FSM
- ▶ Concluding remarks & take home messages

Forest sector simulation models (FSSM): a definition

- ▶ « A model is a representation of a target system that are geared towards a better understanding of this target » (Gräbner, 2018; Weisberg, 2013)
- ▶ « Simulations are defined as dynamic processes depicting the evolution of a system » (Frigg & Reiss, 2009)
- ▶ FSSM are representations of the forest sector based on economic theory with the **purpose of forecasting the evolution of the forest sector**

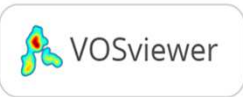
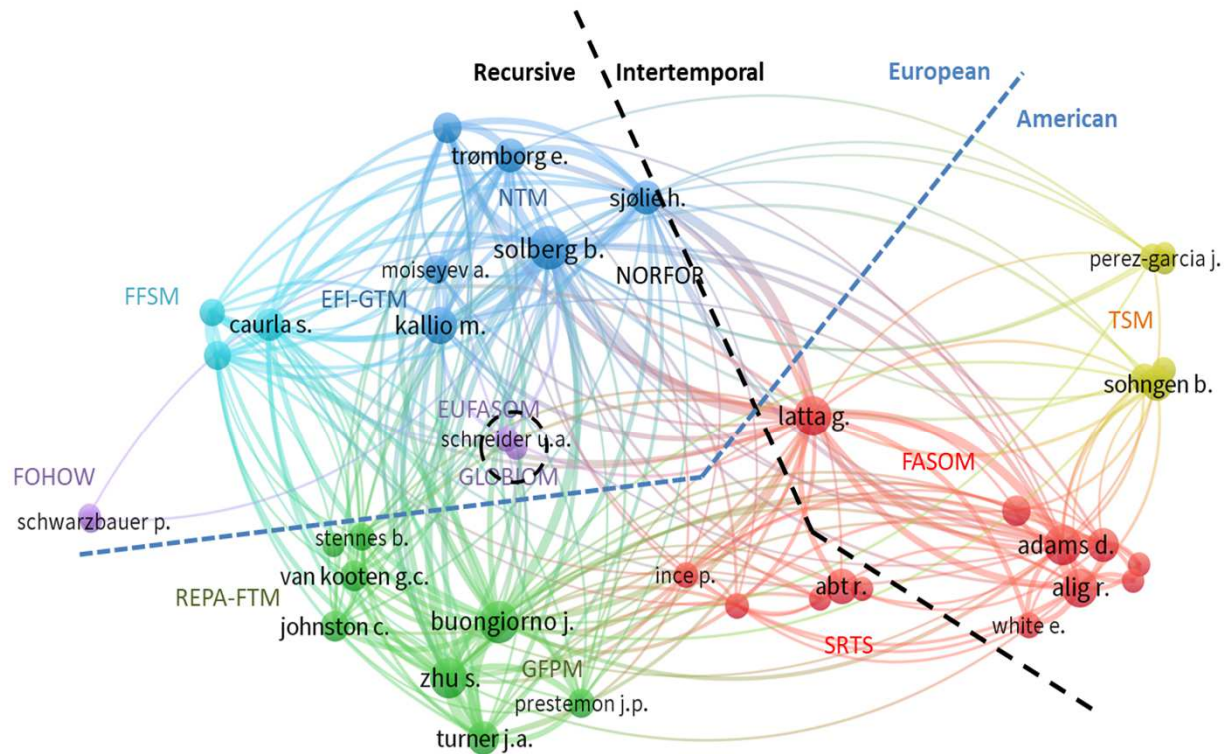
Forest sector simulation models (FSSM): core components & diversity



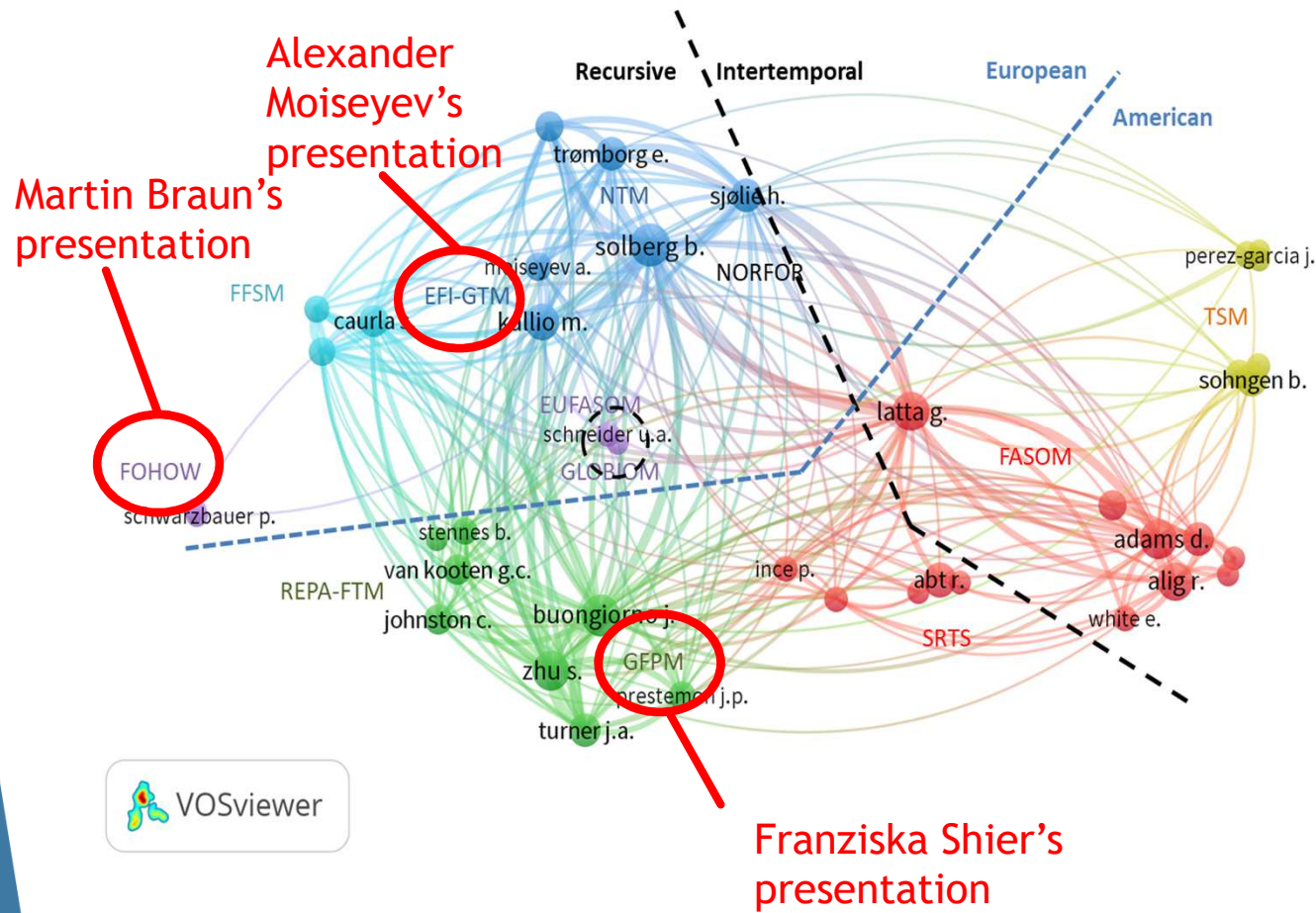
A list of recently active Forest Sector Simulation models

Model name	Scope	Reference
SF-GTM	National, Finland.	(A. M. I. Kallio et al., 2008)
NTM	National, Norway.	(Trømborg, Bolkesjø, & Solberg, 2007)
NorFor	National, Norway.	(Sjølie, Latta, & Solberg, 2014)
FOHOW	National, Austria.	(Peter Schwarzbauer, Weinfurter, Stern, & Koch, 2015)
FASOM	National, USA.	(D. Adams, Mccarl, & Murray, 2005)
LURA	National, USA.	(Latta, Baker, & Ohrel, 2018a)
STIMM	National, Sweden.	(Guo & Gong, 2017)
SRTS	Regional, sub-national (South-Eastern USA).	(Galik, Abt, Latta, & Vegh, 2015)
Models of the Canadian Provinces	Regional, sub-national (Western and central Canada)	(Peter & Niquidet, 2016)
Models of the Pacific North-West	Regional, sub-national (North-Western USA)	(Darius M. Adams & Latta, 2004)
REPA-FTM	Regional, supra-national (Canada and trade partners)	(C. M. T. Johnston & Van Kooten, 2014)
EFI-GTM	Regional, supra-national (European Union)	(Moiseyev, Solberg, & Kallio, 2014)
NFSM	Regional, supra-national (Nordic countries)	(W. F. Mustapha et al., 2017)
EUFASOM	Regional, supra-national (European Union)	(Lauri, Kallio, & Schneider, 2012)
GFPM	Global	(Buongiorno, Johnston, & Zhu, 2017)
TSM	Global	(R. Sedjo, Sohngen, & Mendelsohn, 2001)
FFSM	National, France.	(Lobianco, Delacote, Caurla, & Barkaoui, 2016)

A map of FSSM community



A map of FSSM community

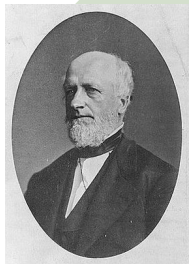


Before that: a history of FSSM

End 19th
century

1958: 1st Forest
Foresight Report

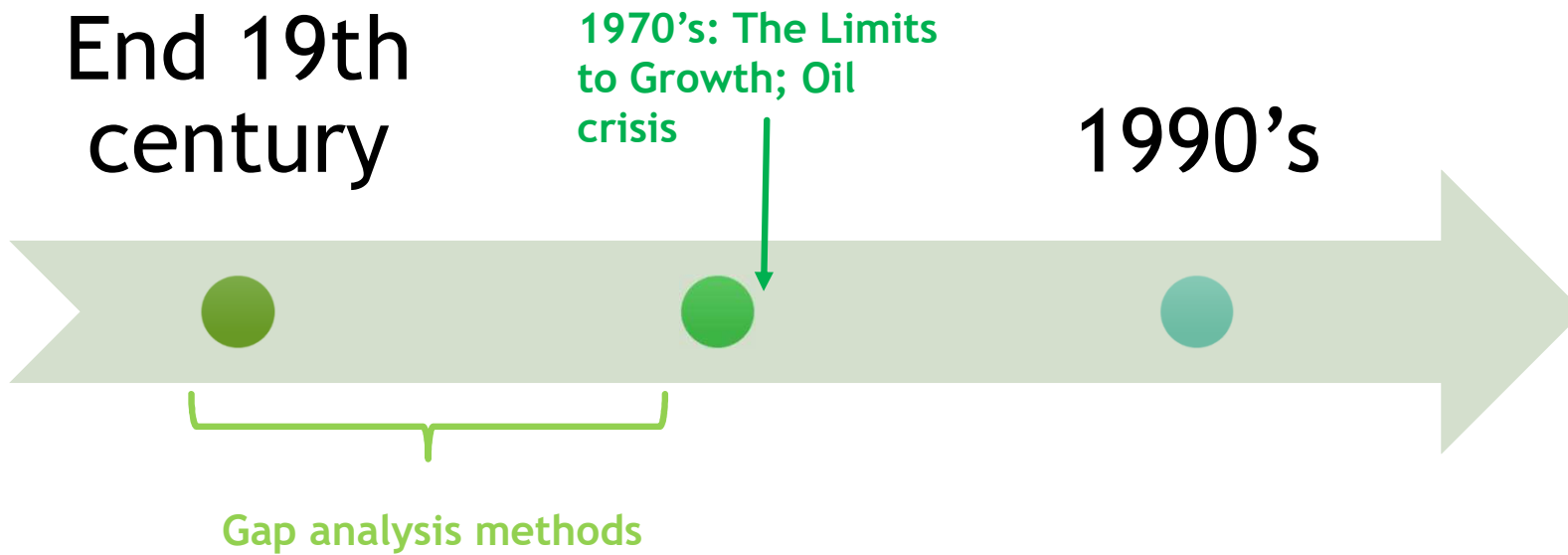
1990's



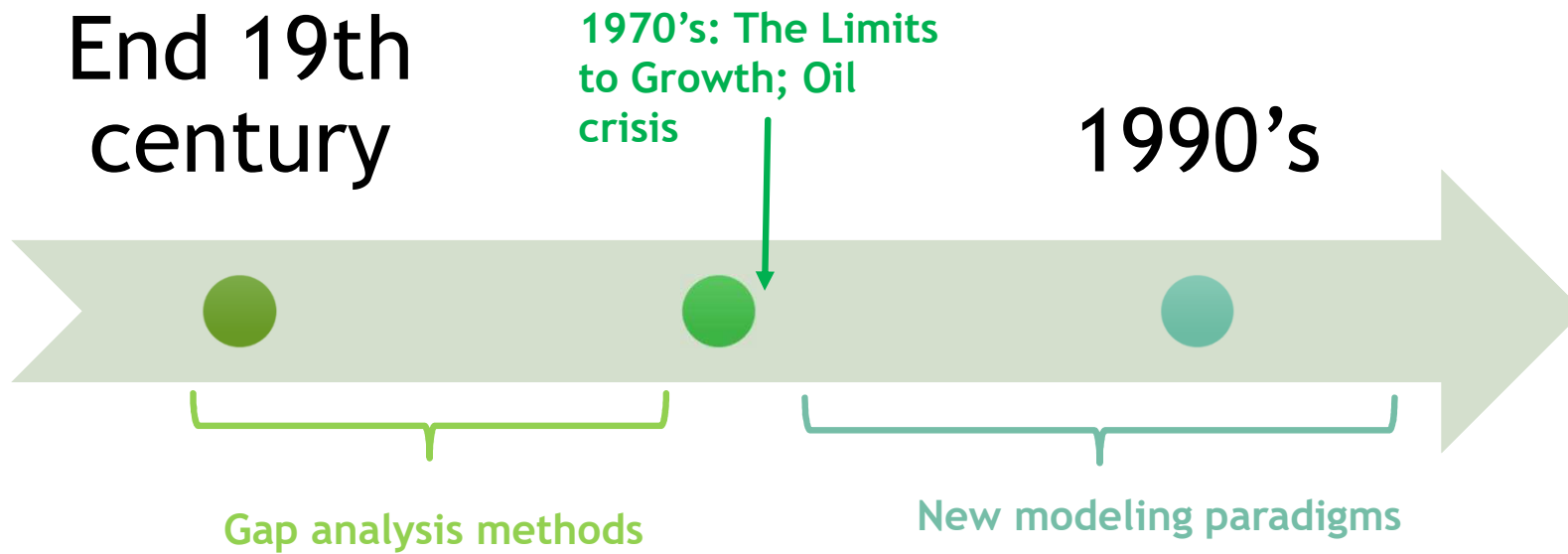
Franklin B. Hough

1970's
Gap analysis methods

A history of FSSM



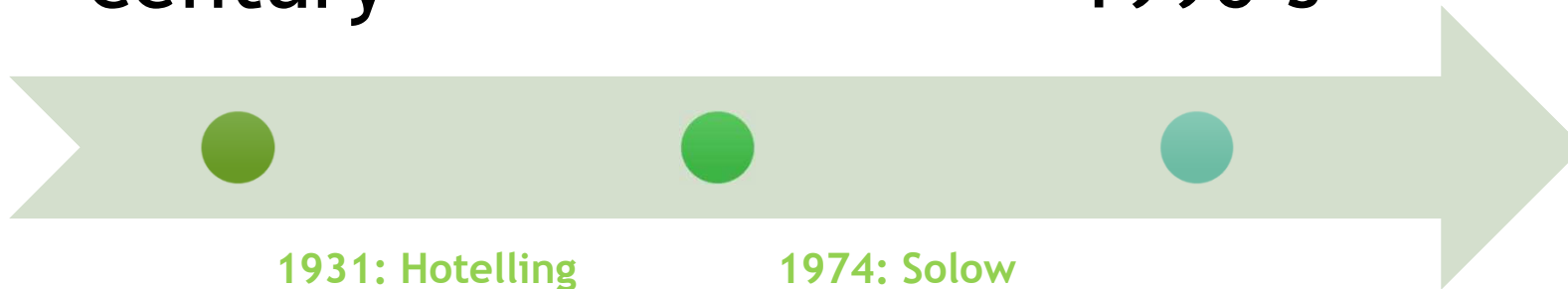
A history of FSSM



A history of FSSM

End 19th
century

1990's



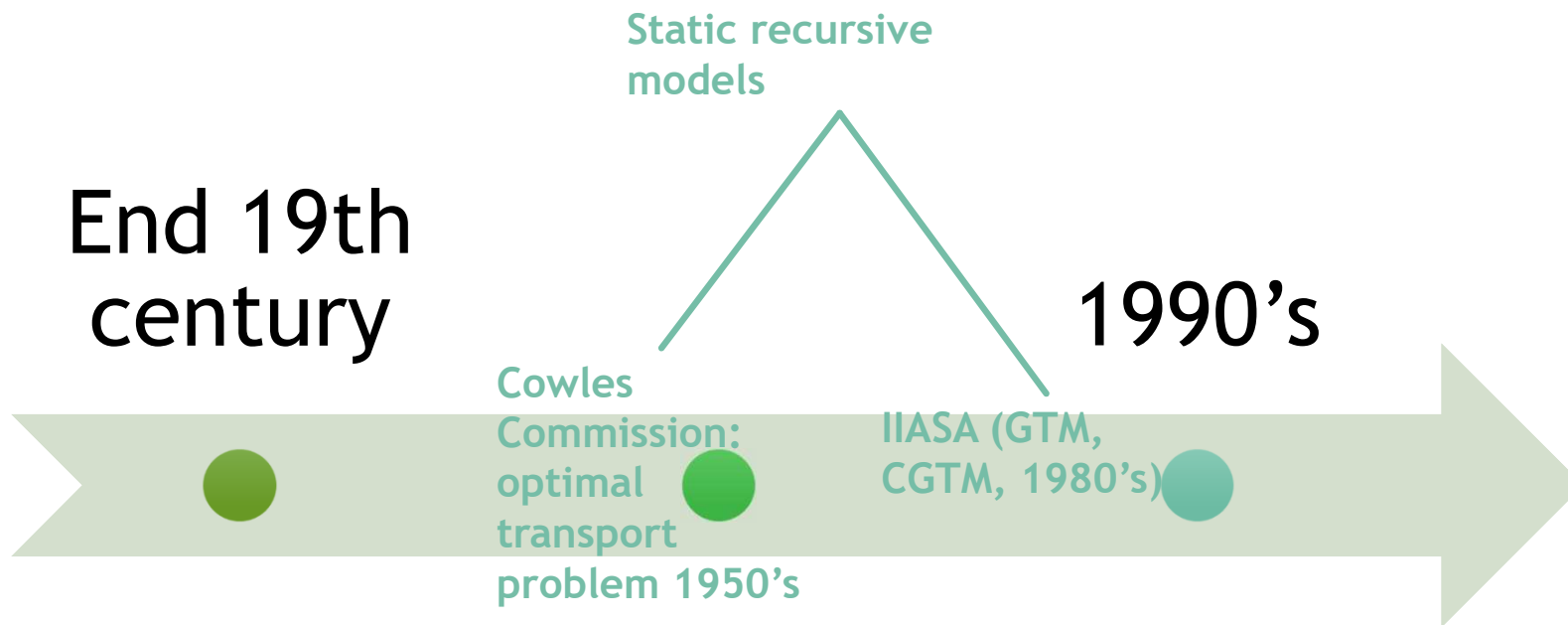
1931: Hotelling

1974: Solow

Timber Supply Model
(Sedjo and Lyon,
1989) FASOM
(1990's)

Intertemporal models

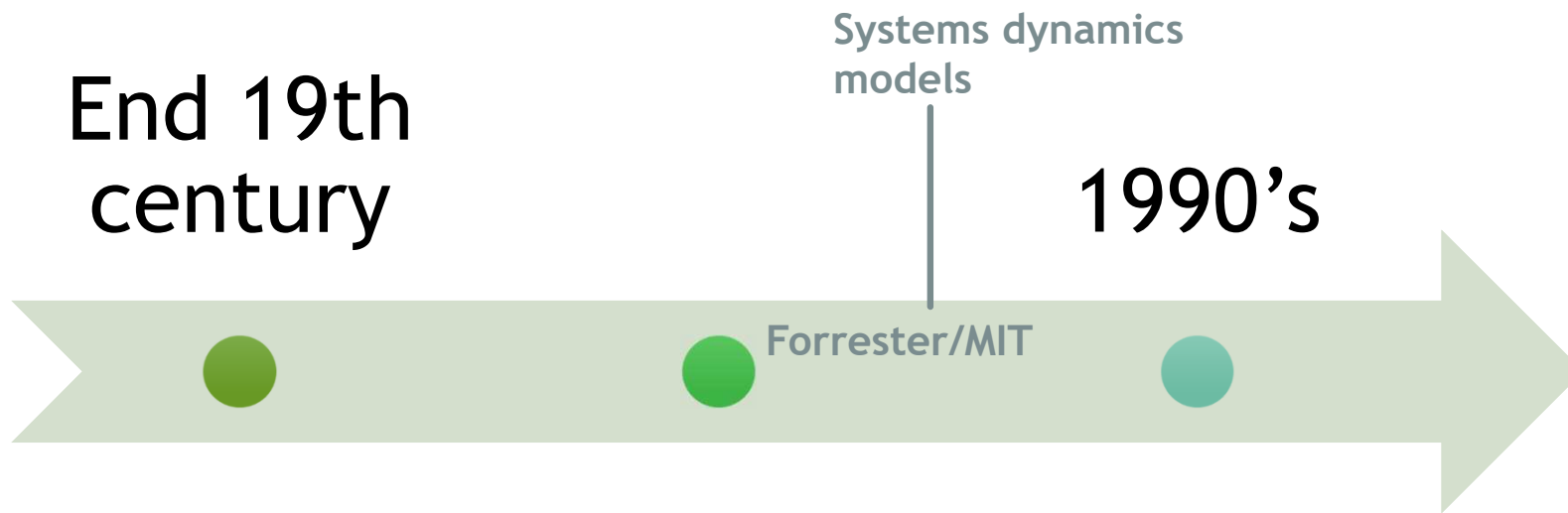
A history of FSSM



Timber Supply Model
(Sedjo and Lyon,
1989) FASOM
(1990's)

GTM (1987)
Timber Assessment Market
Model (TAMM 1982)

A history of FSSM



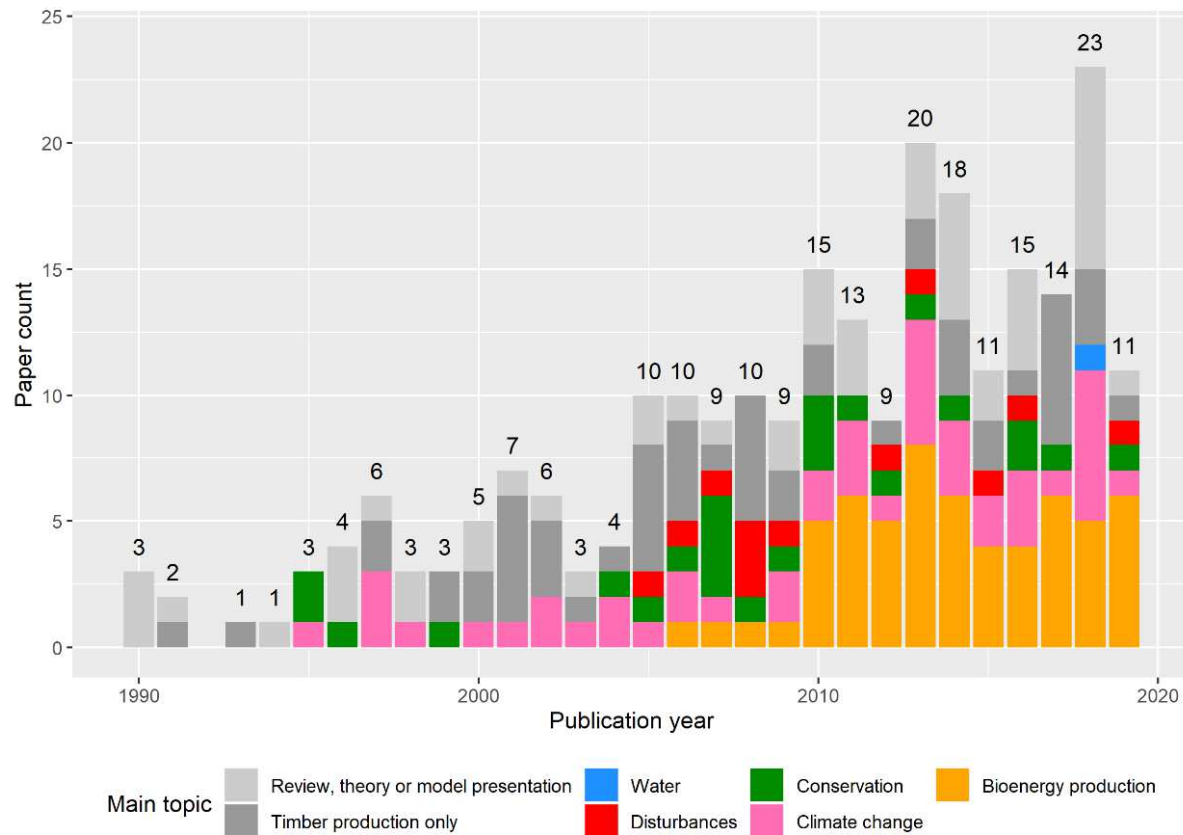
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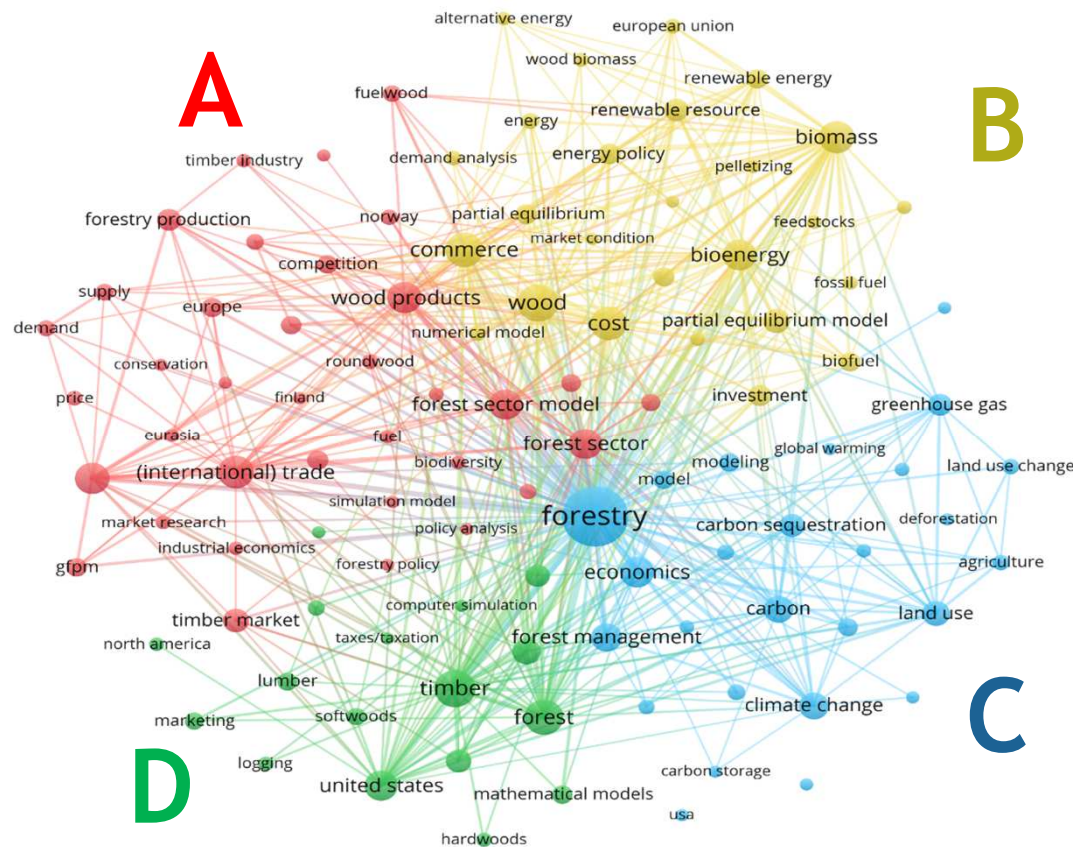
Forest Sector
Prototype Model
(FSPM,
Lönstedt,
1983)

Recent trends: integrating non timber objectives into FSSM

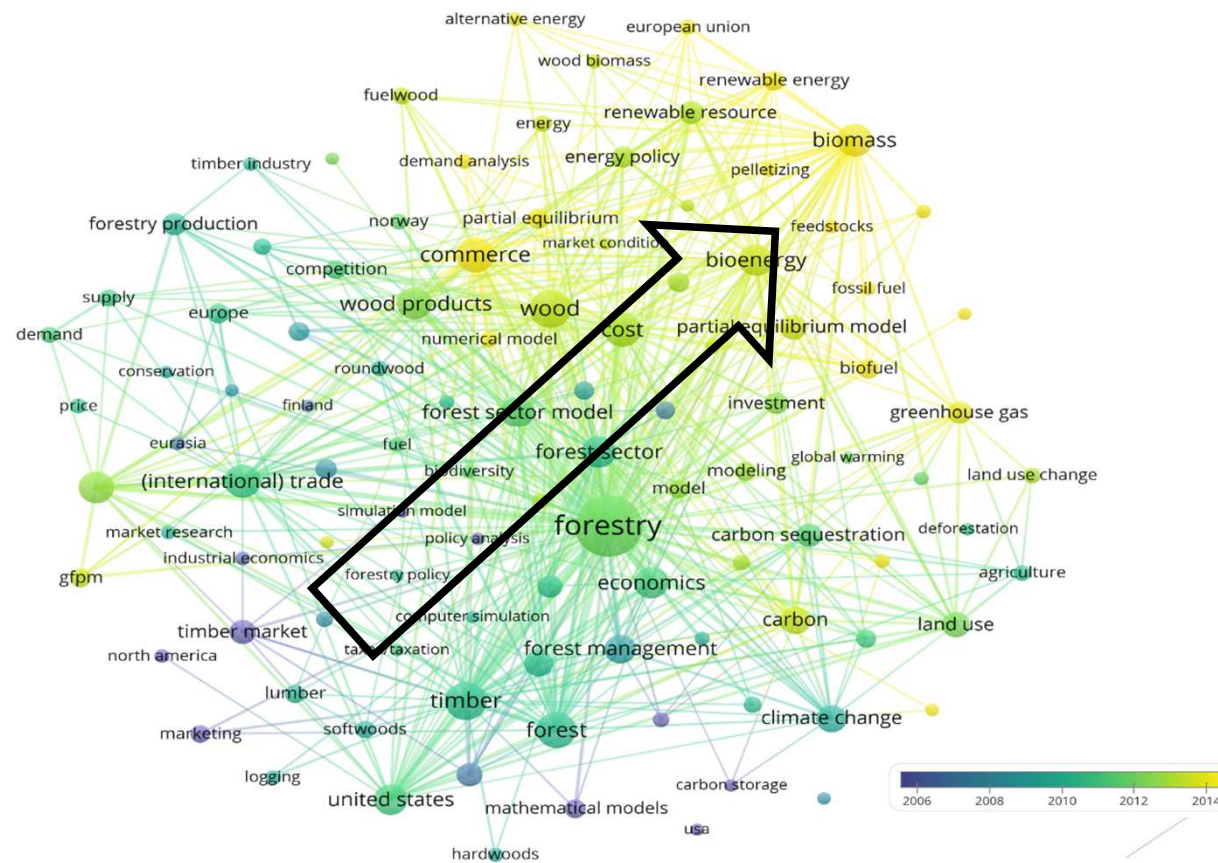
Riviere & Caurla, in revision



Bibliometric network analysis: clustering based on keyword relatedness



Bibliometric network analysis: temporal trends in keywords uses



Conclusion and take-home messages

- ▶ Research within the field of FSSM has been very dynamic for the past 50 years.
- ▶ Today, FSSM research is structured around few clusters, most of which correspond to historical modelling teams.
- ▶ Simulation methods continue to evolve, and latest avenues for research seem to concentrate on (1) the combination of FSSM with other tools and (2) applications to issues going beyond analysis of timber product markets.
 - ▶ Bioenergy is the main concern in FSSM research today
 - ▶ FSSM research also becomes more transversal
 - ▶ But forest recreation & other cultural services have not been investigated
 - ▶ The treatment of uncertainties is a recent focus in FSSM research and should be further investigated