



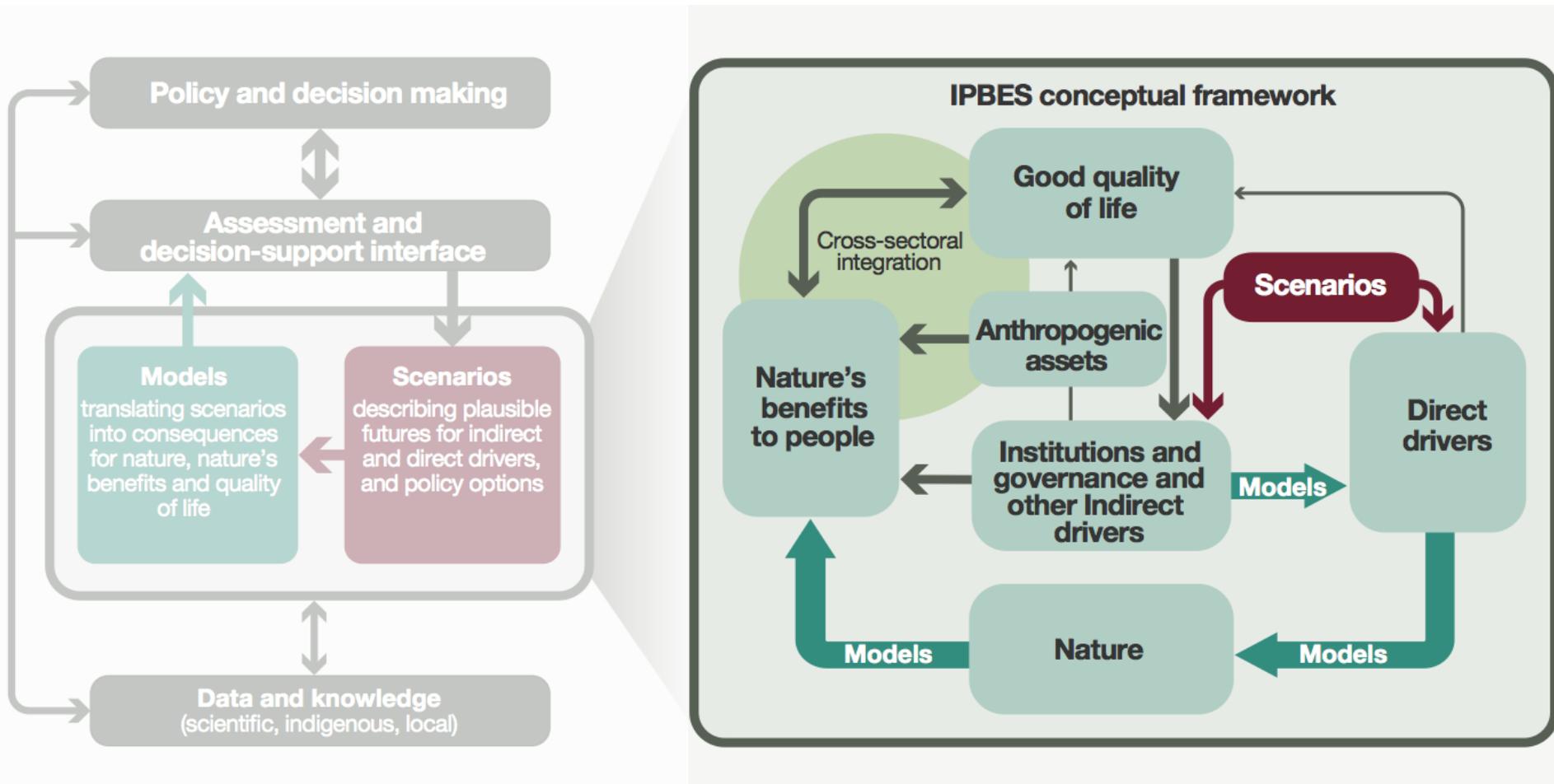
**Recommandations concernant la traitement
des incertitudes du rapport IPBES
"Scenarios et Modèles de la Biodiversité et
des Services Ecosystémiques"**

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Scenarios and models in support of decision making

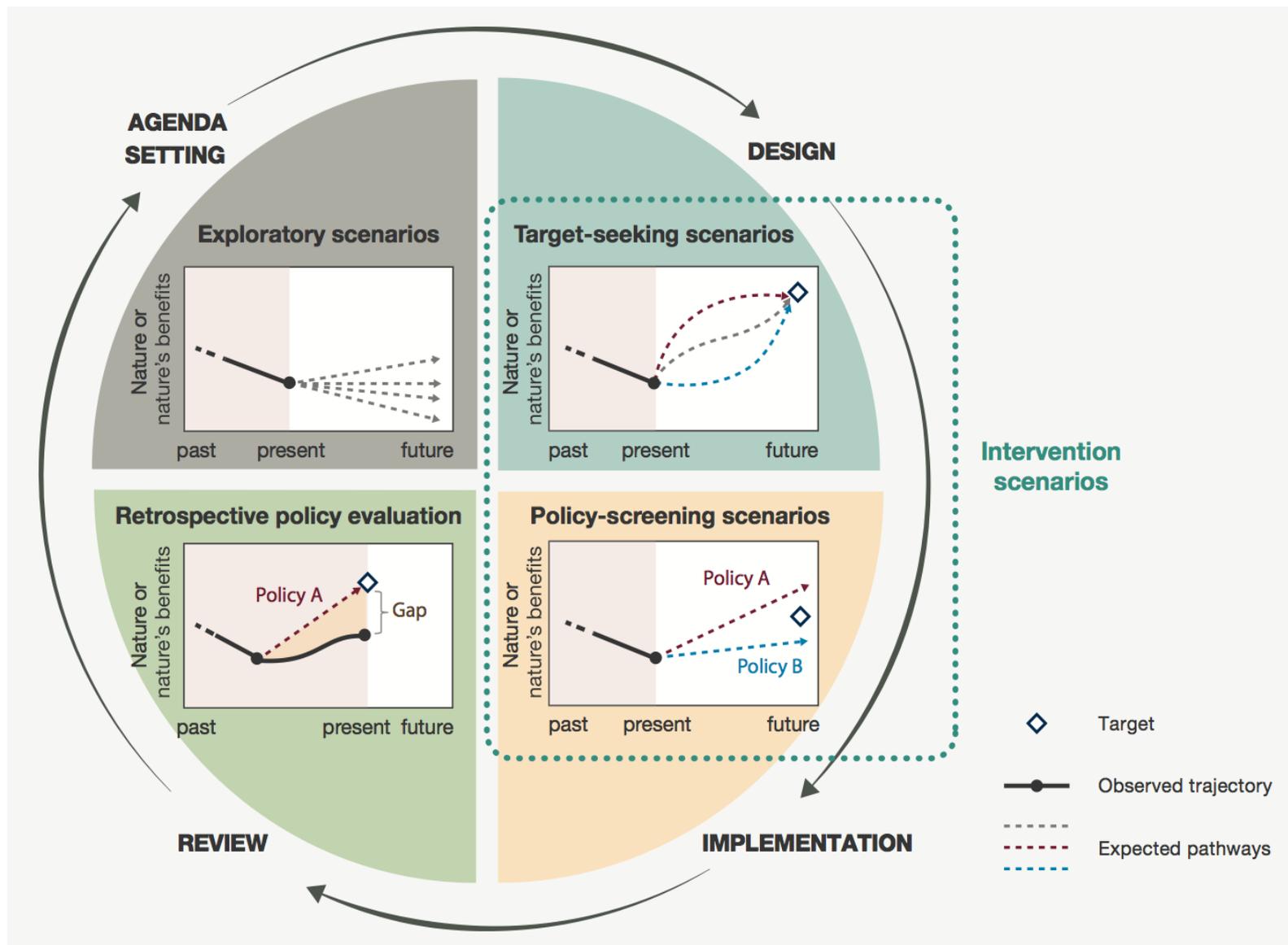


Key finding 1.4 : Several barriers have impeded widespread and productive use of scenarios and models of biodiversity and ecosystem services in policymaking and decision-making. Those barriers include ... inadequate characterization of uncertainties derived from data constraints, problems in system understanding and representation or low system predictability...

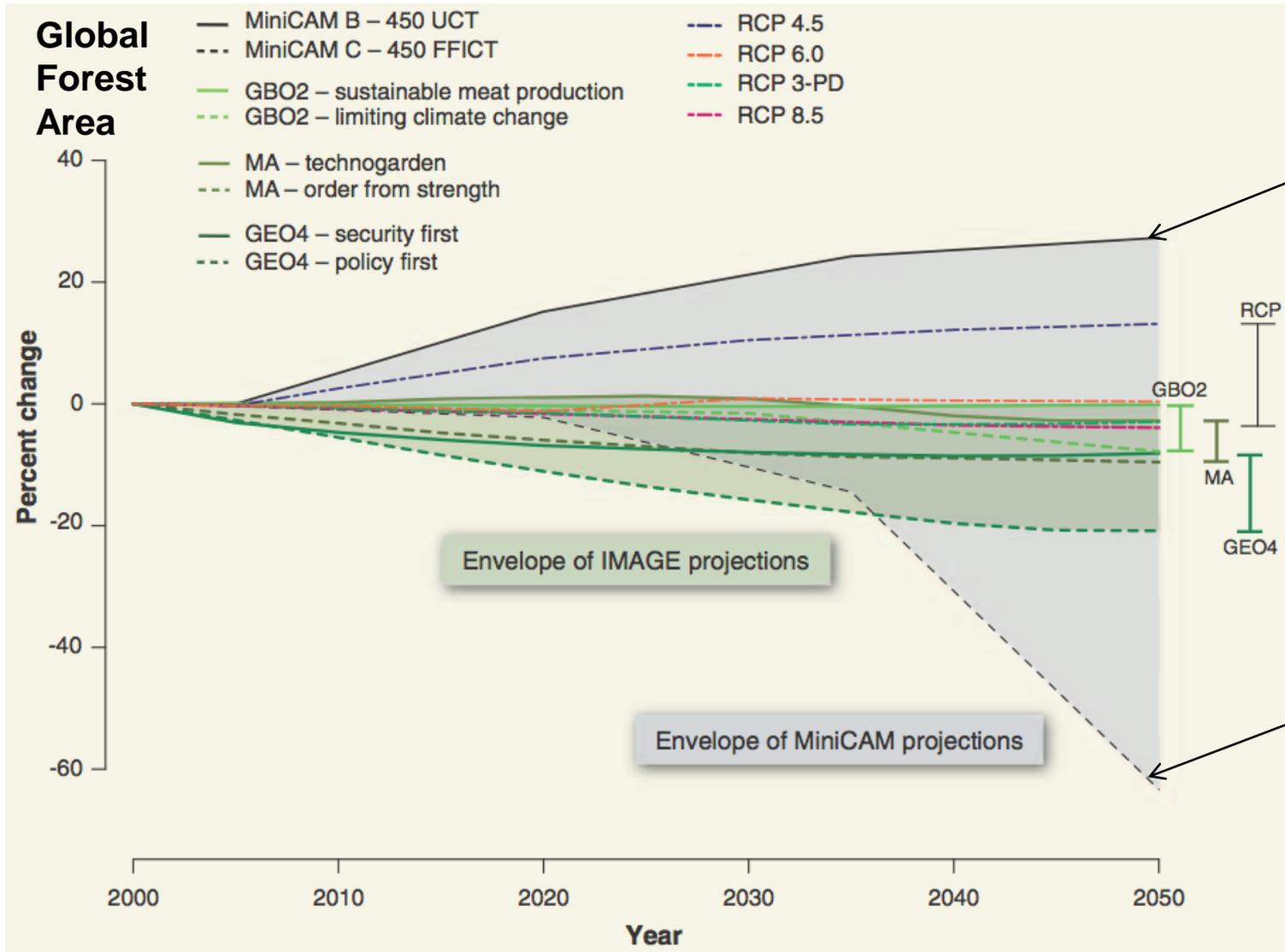
Key finding 2.5 : All scenarios and models have strengths and weaknesses, and it is therefore vital that their capacities and limitations be carefully evaluated and communicated in assessment and decision processes. Sources and levels of uncertainty should also be evaluated and communicated...

Guidance point 4 : The scientific community may want to consider developing practical and effective approaches to evaluating and communicating levels of uncertainty associated with scenarios and models, as well as tools for applying those approaches to assessments and decision making. This would include setting standards for best practices, using model-data and model-model inter-comparisons to provide robust and transparent evaluations of uncertainty and encouraging new research into methods of measuring and communicating uncertainty and its impact on decision-making...

Key finding 1.2 : Different types of scenarios can play important roles in relation to the major phases of the policy cycle, which are (i) agenda setting, (ii) policy design, (iii) policy implementation and (iv) policy review



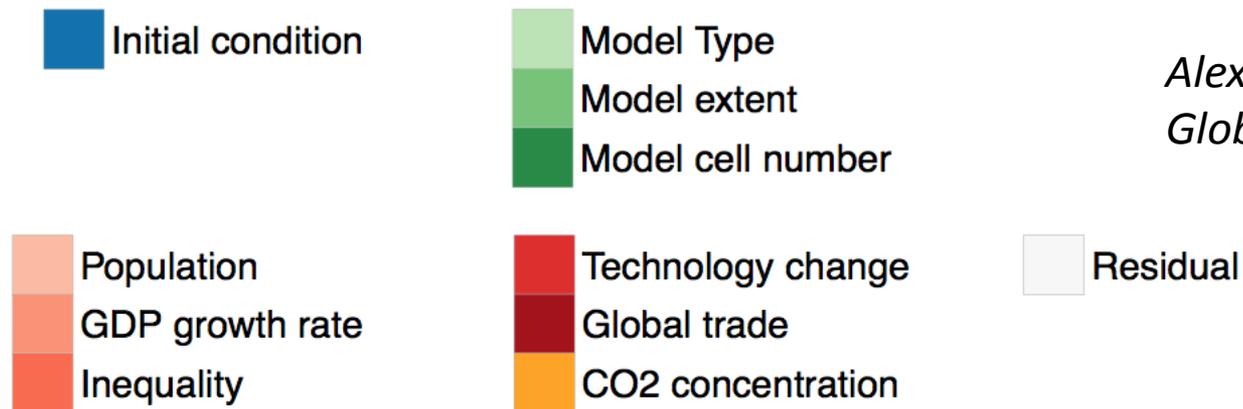
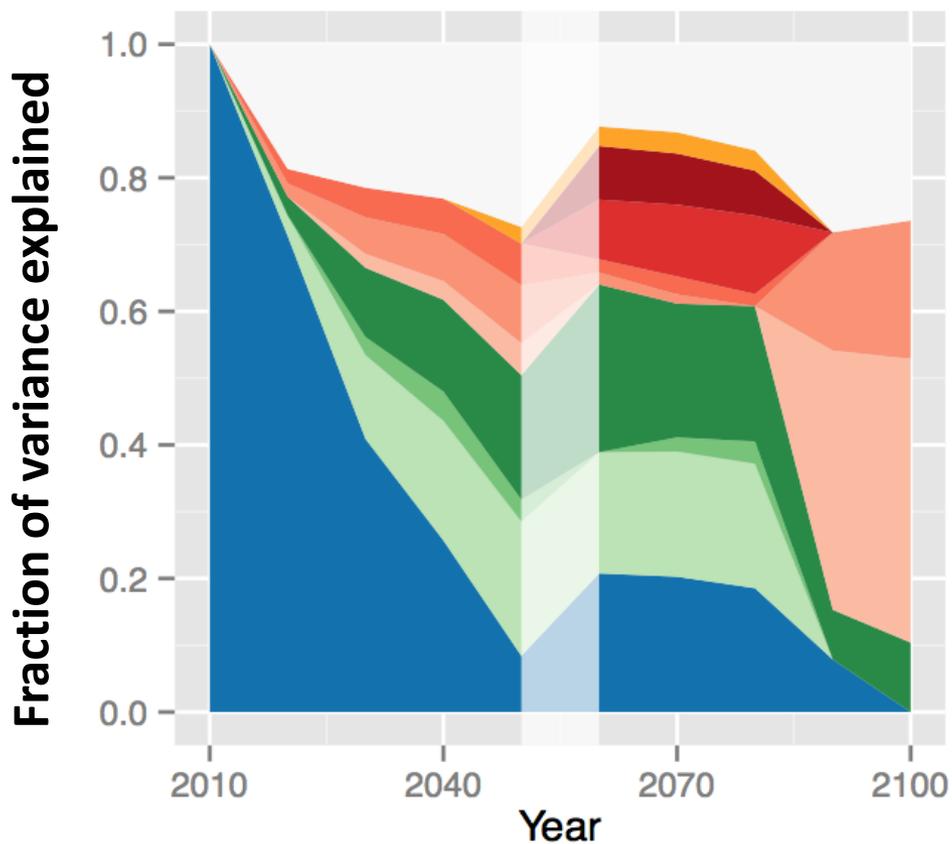
HABITAT LOSS



Tax on all sources of C emissions:
Increased agric. efficiency, limited biofuels

Tax only on fossil fuel C emissions:
little improvement in agric. efficiency, massive deployment of biofuels

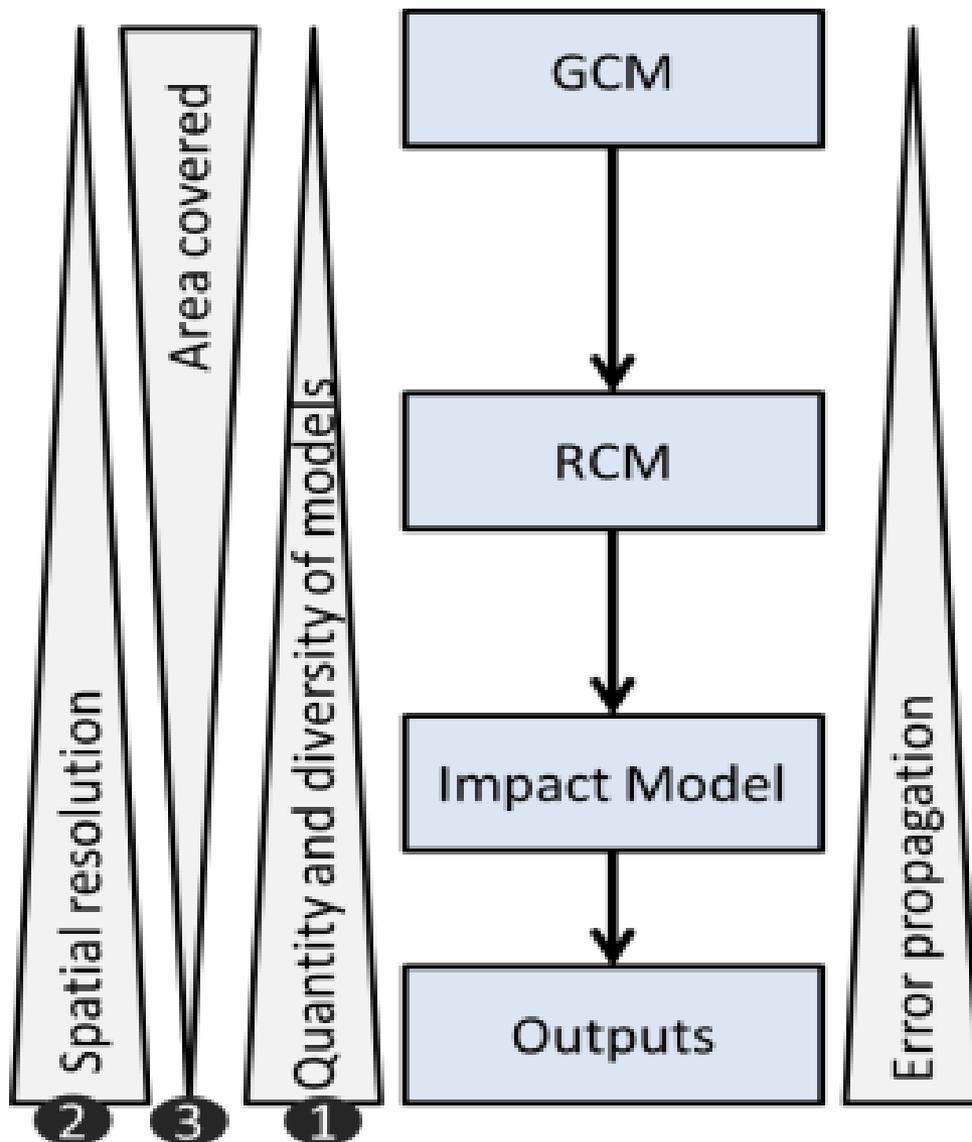
Pereira, Leadley et al. 2010



Factors contributing to variation in projections of European forest cover

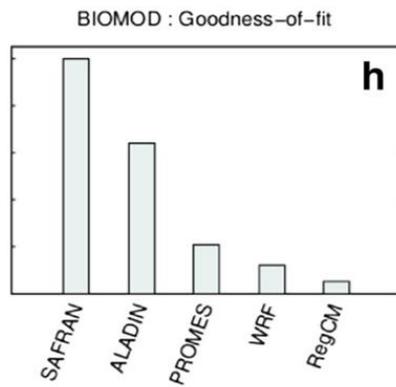
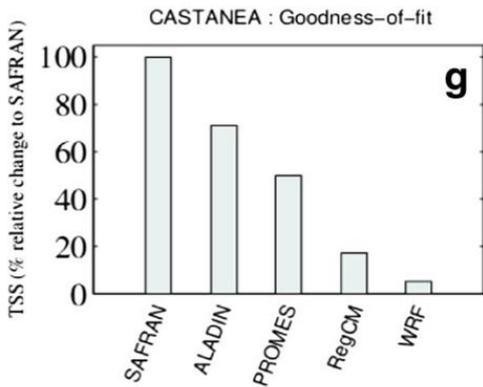
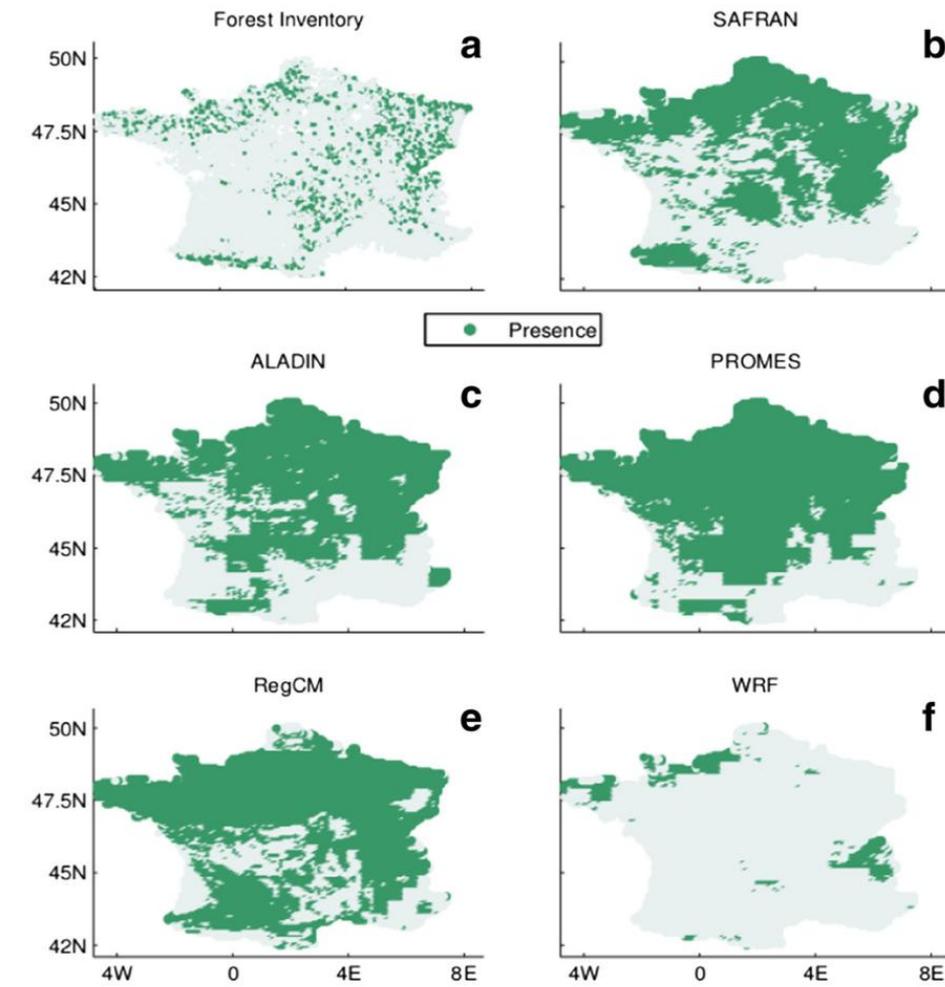


Alexander et al. (2016)
Global Change Biology



There is an urgent need to strengthen the dialog between climate scientists and ecologists concerning the benefits and limits of downscaling

Stefanon et al. 2015



Downscaling climate can improve the ability of impact models to predict species and ecosystem responses, but...

all climate downscaling methods introduce substantial new sources of uncertainty and...

bias correction is often necessary, introducing an and additional level of complexity and source of uncertainty and..

Stefanon et al. 2015

Projected climate change impacts on Scots pine for 2055

Scots pine

Current distribution



BIOMOD



N-NBM



STASH



PHENOFIT



LPJ

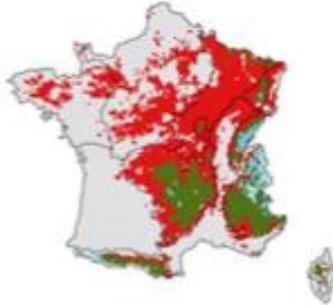


(a)

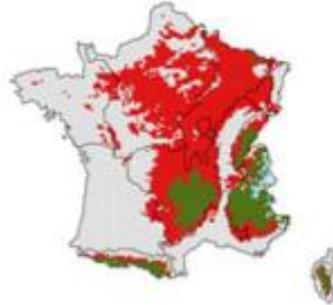


Predicted future distribution (2055)

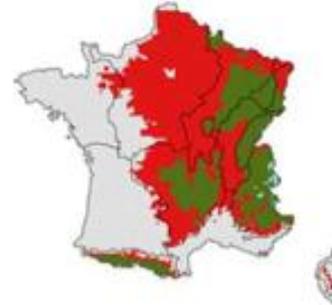
BIOMOD



N-NBM



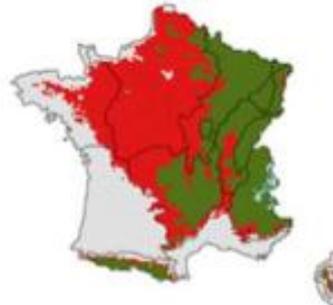
STASH



PHENOFIT



LPJ



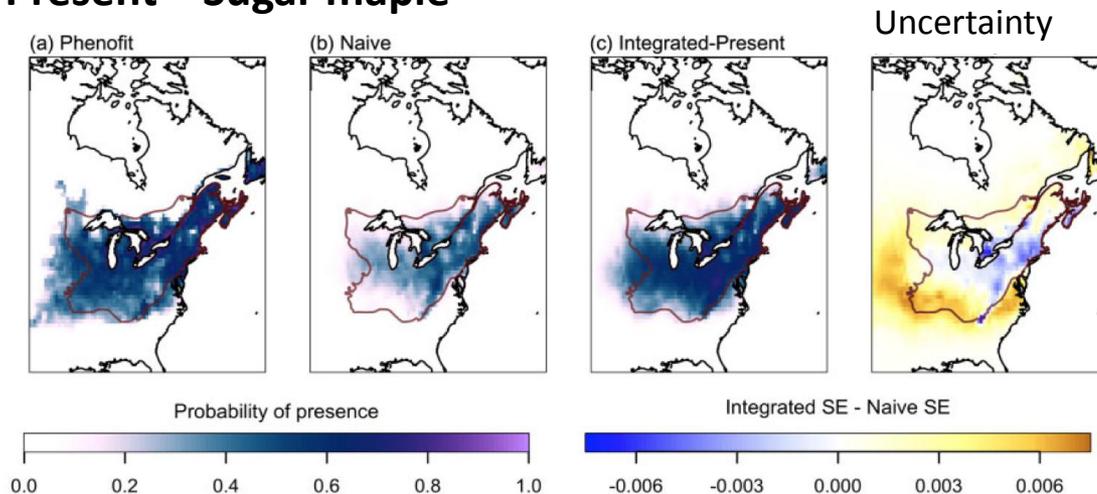
(b)

- A1b emissions
- Arpege GCM
- Statistical downscaling to 8km (CERFACS)

- Stable unsuitable area
- Stable suitable area
- Loss of suitable area
- Gain of suitable area

A wide range of new studies and methods are providing improved characterization of uncertainty

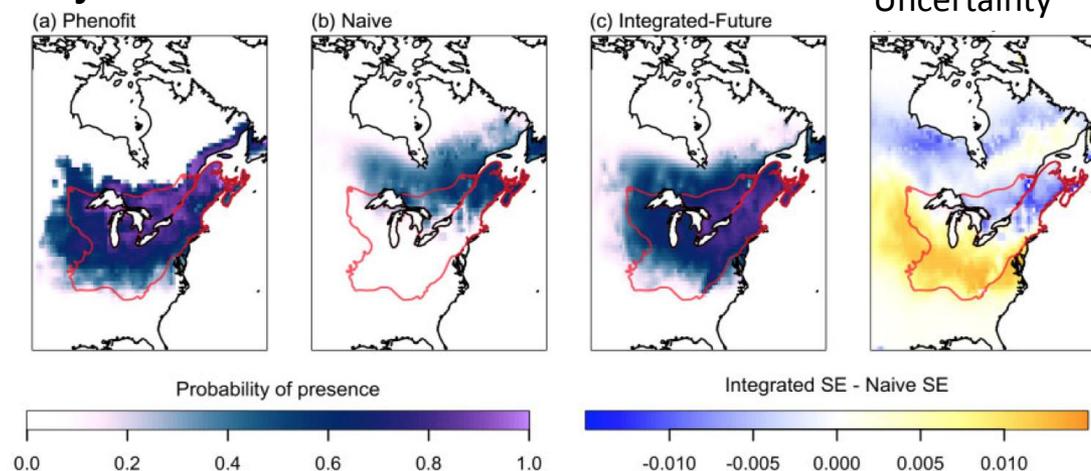
Present – Sugar maple



Example:

Integrated multi-model approaches for quantifying uncertainty in tree distributions

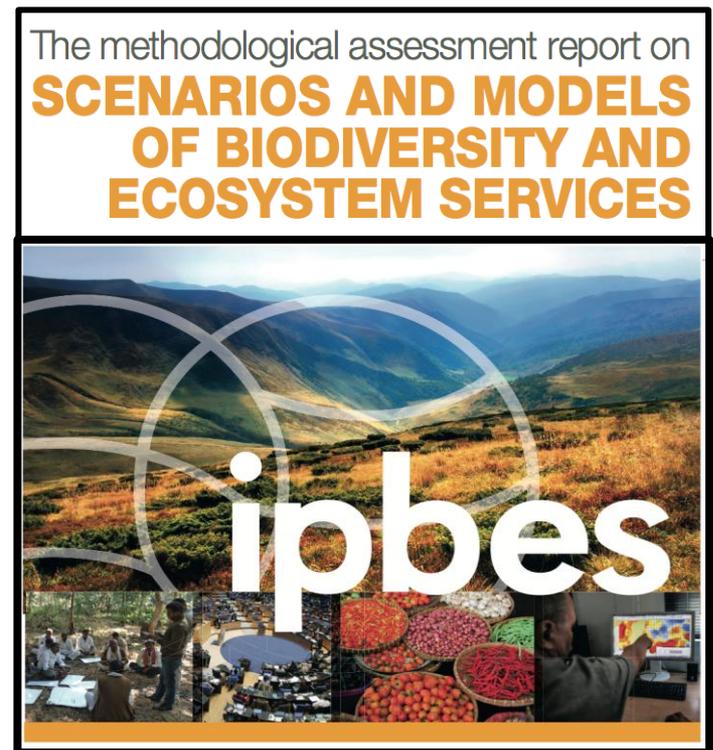
Projected future distribution



Talluto et al. 2016

- A multitude of mathematical methods exist for dealing with uncertainty ... that can be useful in policy design and implementation decisions.
- However, many environmental decision problems are characterised by high social complexity... Such problems can seldom be fully characterised and analysed with mathematical approaches to uncertainty.
- Decision support methods that address subjective and intangible uncertainties are thus critical in supporting policy in most decision contexts. Such processes often require deliberation among decision makers, [scientists] and stakeholders to allow learning throughout the decision-making process.

Chapter 2: Using scenarios and models to inform decision making in policy design and implementation



Major steps of interactions between policymakers, stakeholders and scientists, illustrating the need for frequent exchanges throughout the process of developing and applying scenarios and models



Merci!

Southern Ground-Hornbill,
South Africa,
Photo: P. Leadley

