You

- WESBOGY (for 20 years)

- Foothills Growth & Yield Association

- Mixedwood Mgmt Association

- Sustainable Forest Mgmt Network

- MGM & GYPSY Models

Me

- Not a growth and yield expert

- No influence over budgets or resources

- Academic

- From the east

What can I offer?

- Forest management perspective

- Some observations from our experience

- Probably nothing new

- Value in reminders on fundamentals

- 8 points

1 - Fry the Big Fish
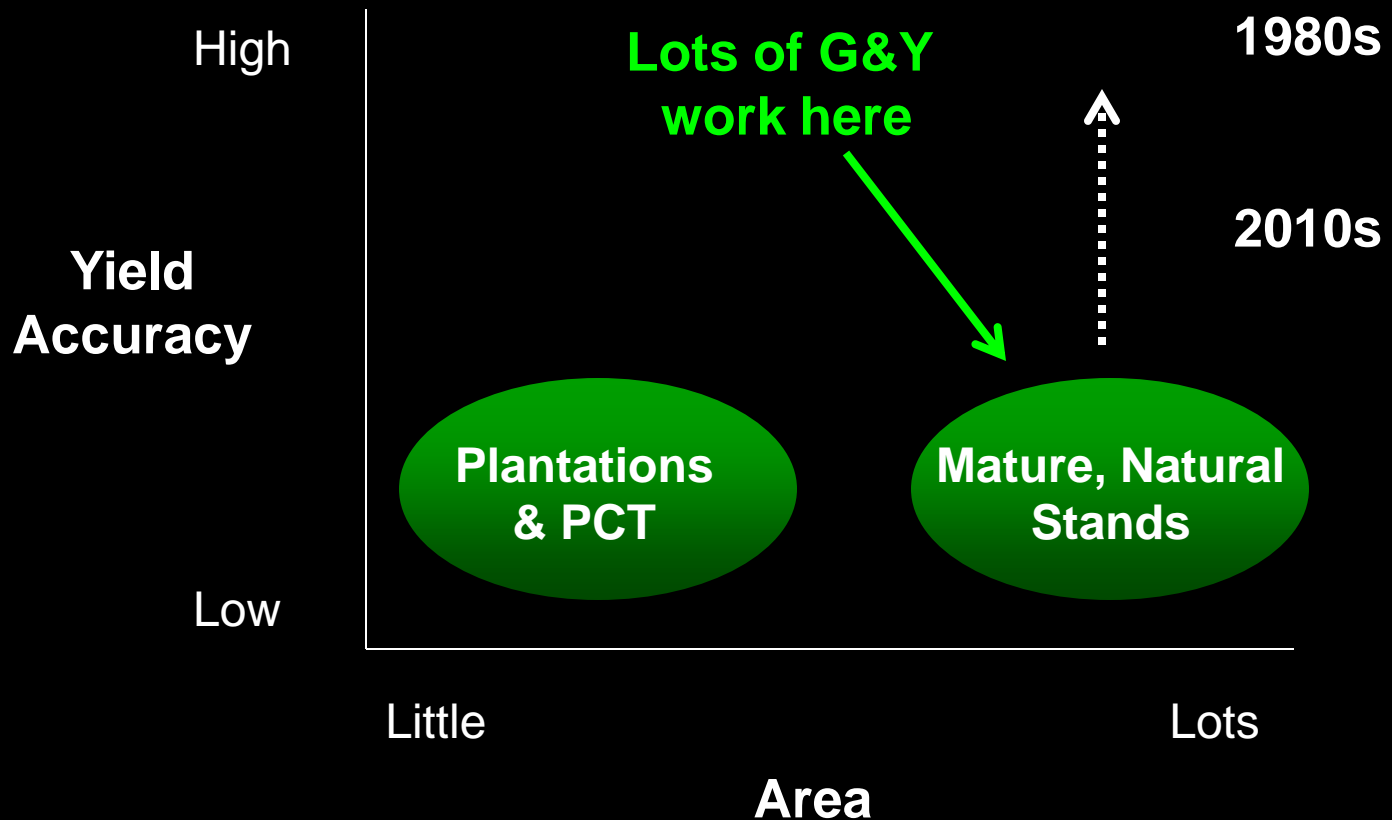
- *Limited* resources for *unlimited* questions

- What G&Y issues of *most mgt importance*?

Growth & Yield ← *input* → **Forest Estate Models**

G&Y program design
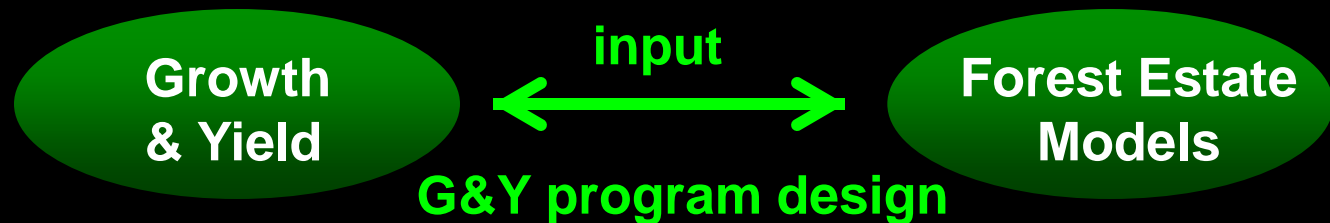
- Thorough forest-level modeling *in advance* can give much insight into G&Y *priorities*

- Including definition of *acceptable* error *tolerances*

2 - Skate to where the puck will be

High

Lots of G&Y work here

1980s

2010s

Yield Accuracy

Plantations & PCT

Mature, Natural Stands

Low

Little

Lots

Area

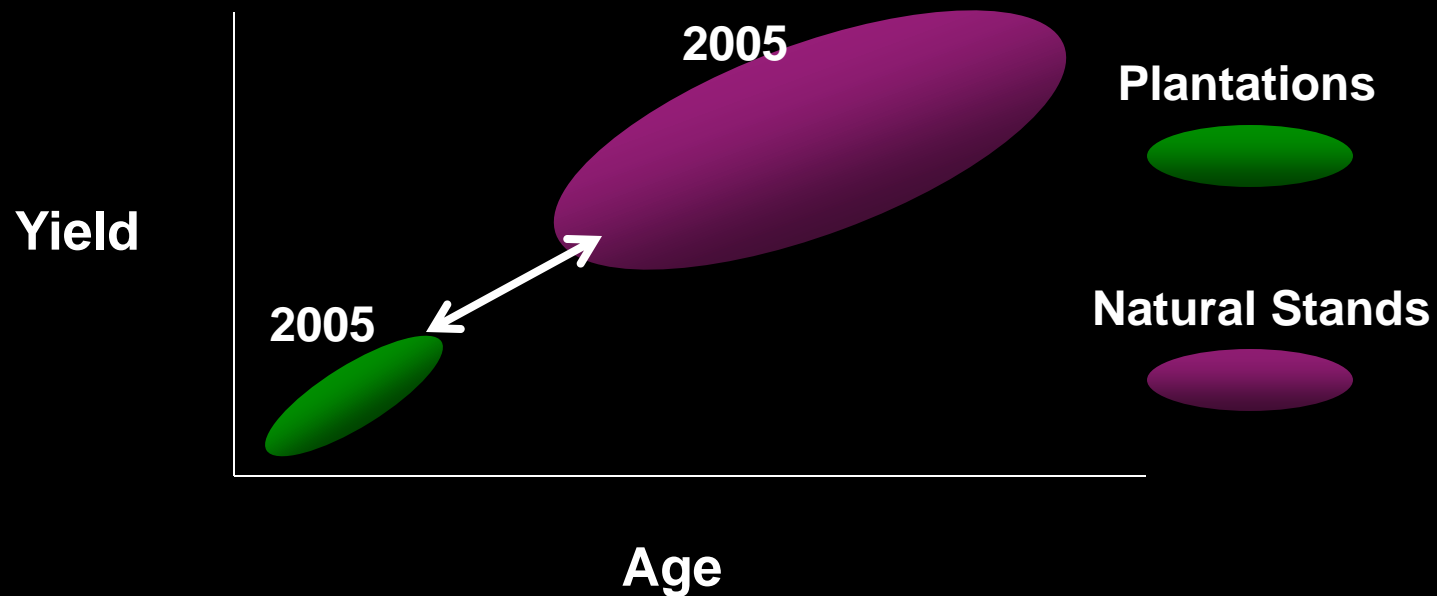Act *now* in anticipation of what our our *future requirements* will be

3 - Break the shackles of time

We will know the yield of a 50 year old plantation *50 years from now*

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We will know the yield of a 50 year old plantation 50 years from now

2005

Yield

2005

Plantations

Natural Stands

Age
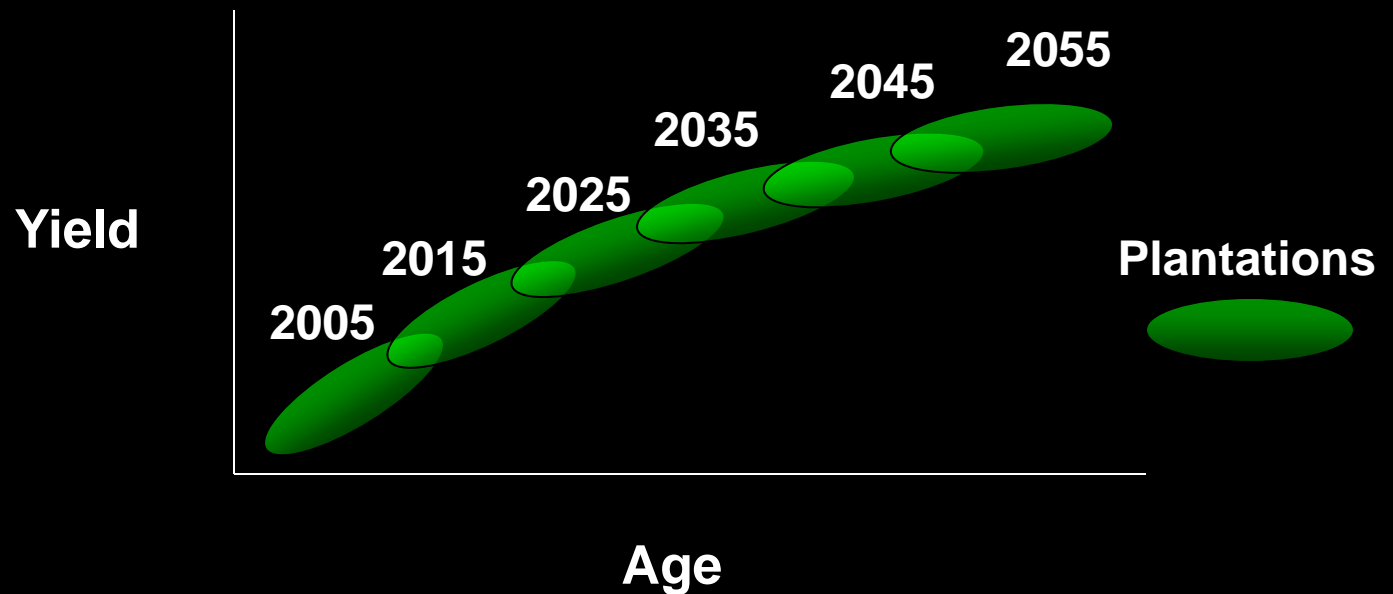
How can we use *natural stand* data *judiciously* to *replace waiting* for plantation data to become available?

4 - Put the canary in the mine

- Our growth & yield forecasts will be *wrong*

- How can we detect, diagnose & correct error at the *earliest opportunity*?

- Not just error in our models, but error in our application of them *to the forest at large*

- Error that exceeds an *acceptable tolerance*

- *Include explicitly* as part of G&Y strategy

5 - How good is "good enough"
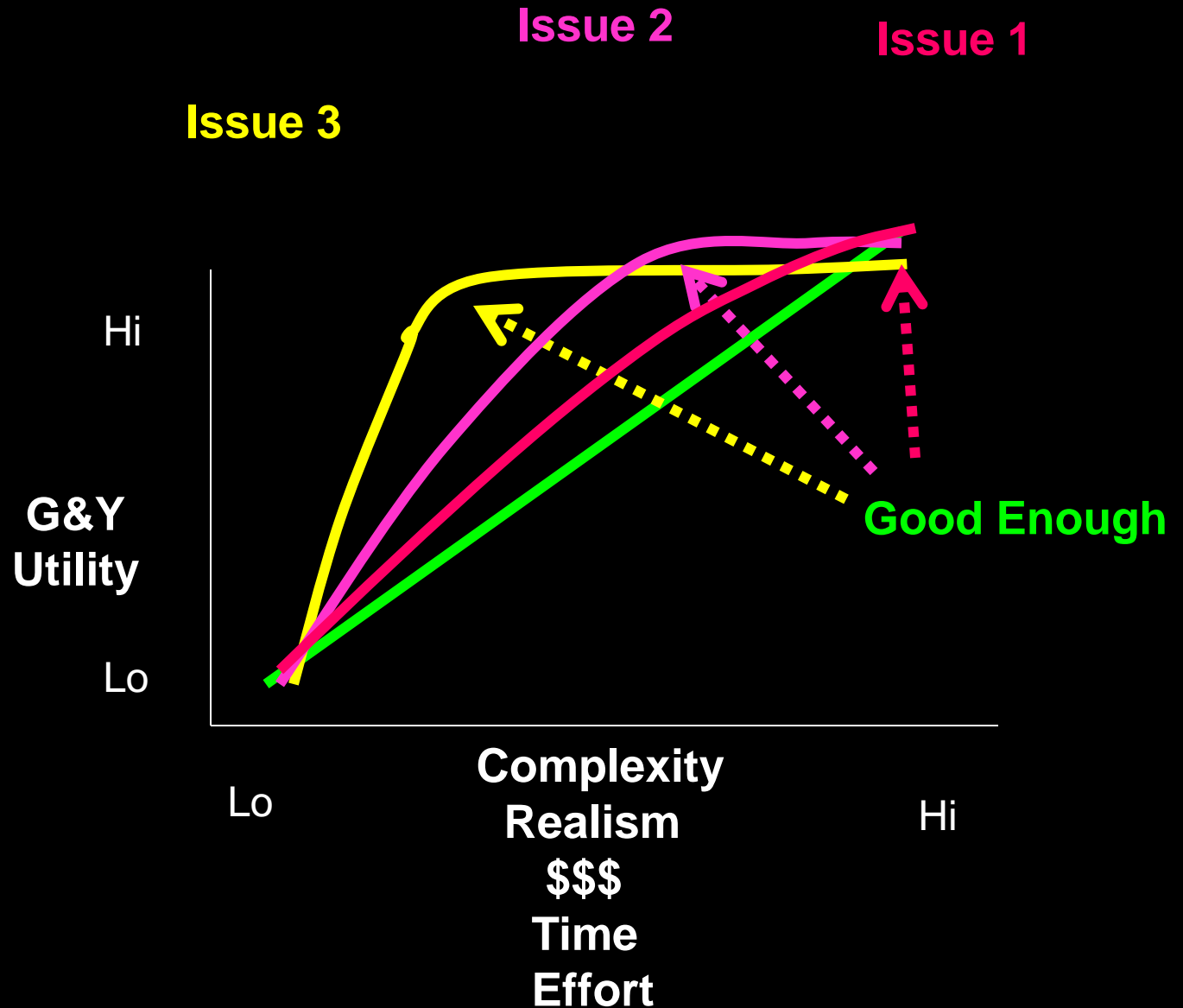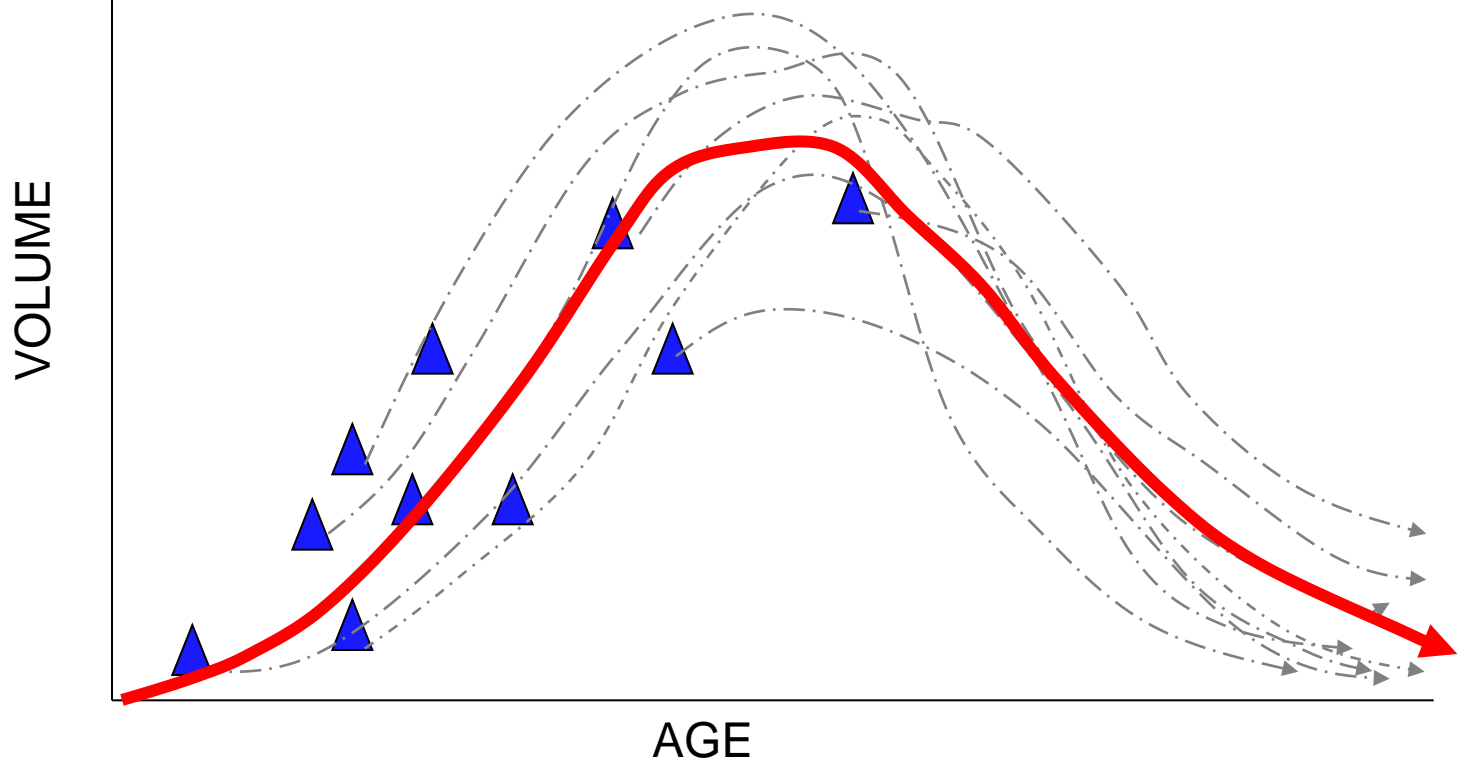
6 - Beware of partial solutions

- What if we *cure* cancer & heart disease…

- But *not* Alzheimers

- What if we *nail plantation yields*…

- But *not* their contribution to *diversity*?

- But *not* their impact on *nutrient status*?

- But *not* their value *habitat*?

- We need to *include these* other aspects in our growth and yield investigations

7 - Mind the Details of Application

- Growth & yield must be applied to the *forest at large*

- How can the inventory *initialize* growth and yield models?

- How can we *validate* against the forest at large?

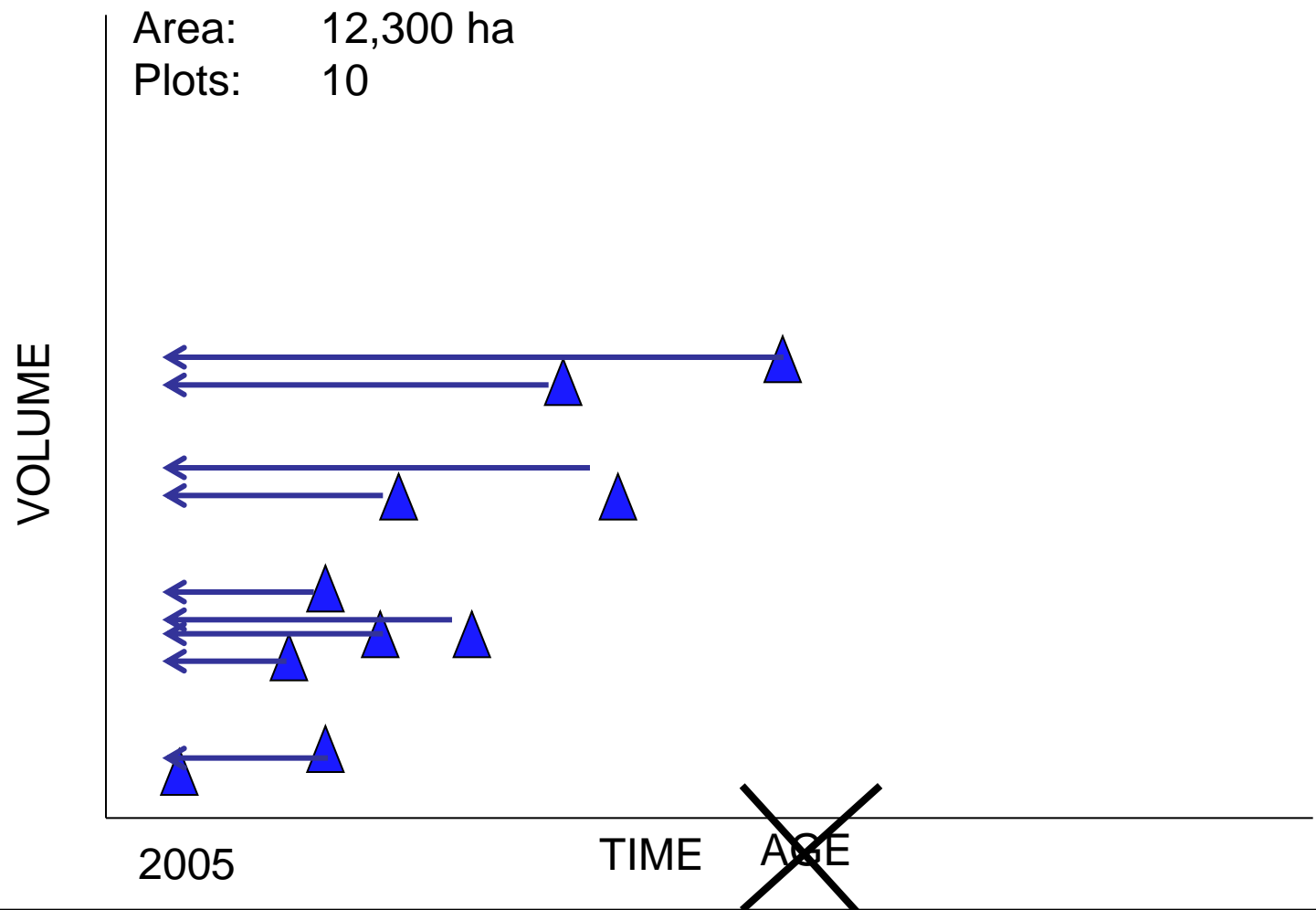- How should we *connect* the growth forecasts to forest stands?
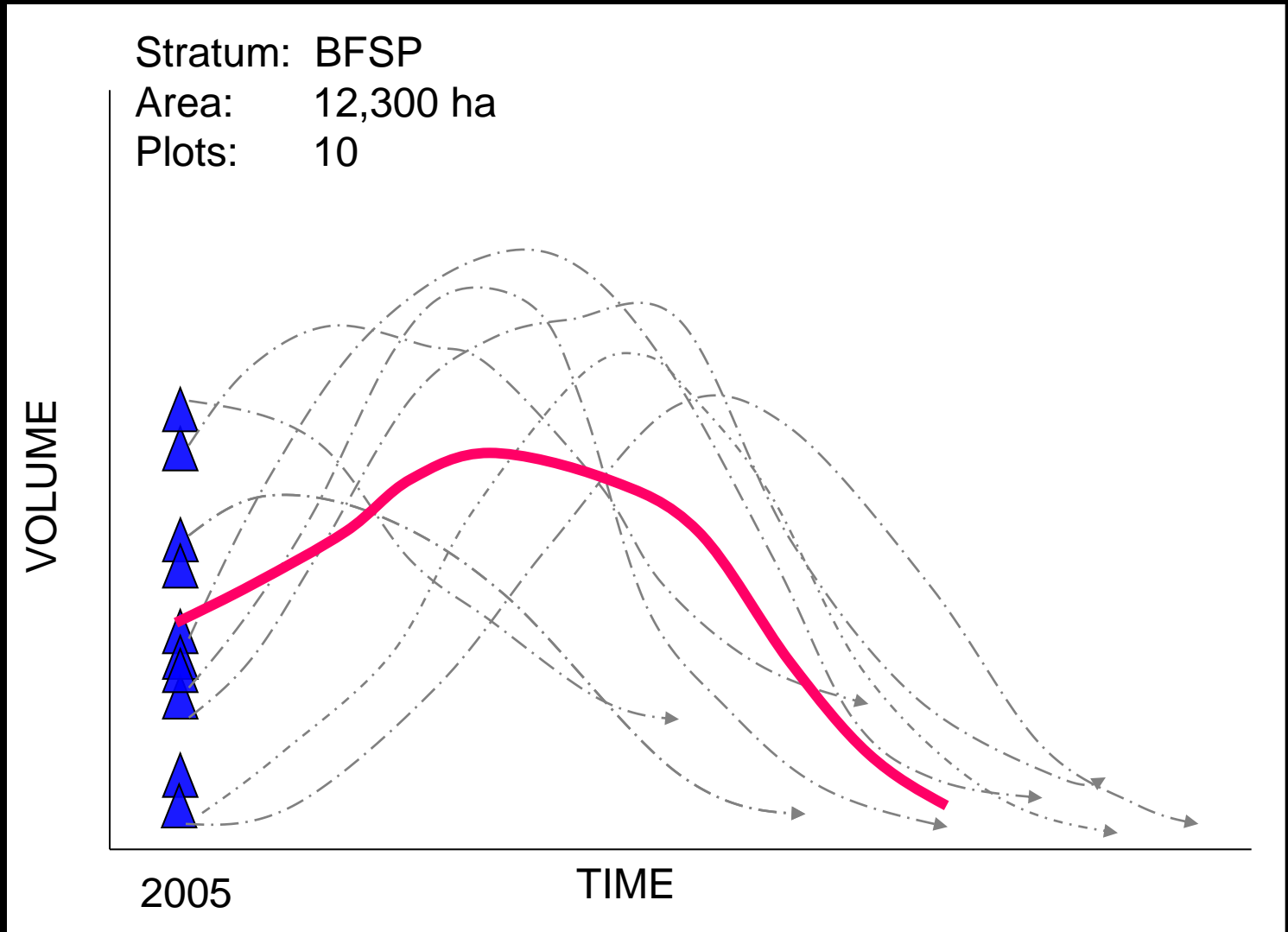
Stratum: BFSP
Area: 12,300 ha
Plots: 10

VOLUME

AGE

7 - Mind the Details of Application

Stratum: BFSP
Area: 12,300 ha
Plots: 10

VOLUME

2005

TIME   AGE

Stratum: BFSP
Area: 12,300 ha
Plots: 10

VOLUME

TIME

2005

8 - Uncertainty is a two-edged sword

high

Speed

slow

lo   **Uncertainty**   hi
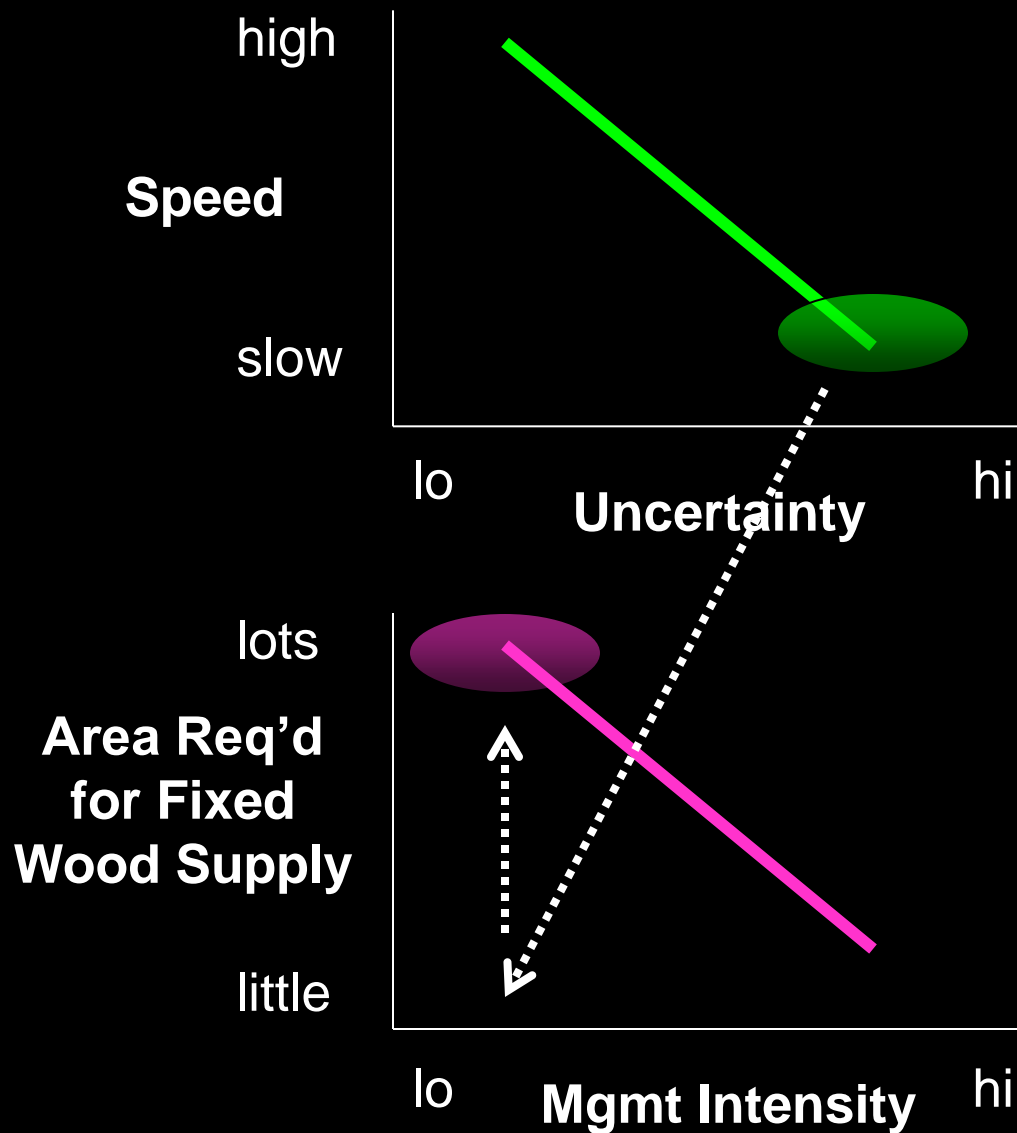
Precautionary Principle

lots

Area Req'd for Fixed Wood Supply

little

lo   **Mgmt Intensity**   hi

Enlist allies from non-timber comm'ty to support G&Y

Summary

- Use thorough, thoughtful forest level analysis in advance to:
  - **set priorities**
  - **anticipate future requirements**
  - **establish error tolerances**

- Find creative, defensible ways to apply *existing data to non-existing conditions*

- Explicitly include *diversity, habitat* and other key elements in G&Y initiatives

- Enlist *non-timber allies* & supporters

- Address up front
  - **early warning system**
  - **validation (models & application)**
  - **connection to forest-at-large**