

VISUALIZING AND COMMUNICATING **'DECISION SPACE' –** **THE ROLE OF RISK ASSESSMENTS IN** **INFORMING MANAGEMENT DECISIONS**

Society of Decision Professionals
Natural Resources – Innovation

April 17, 2024



Jonathan Cummings, Biologist
US Fish and Wildlife Service

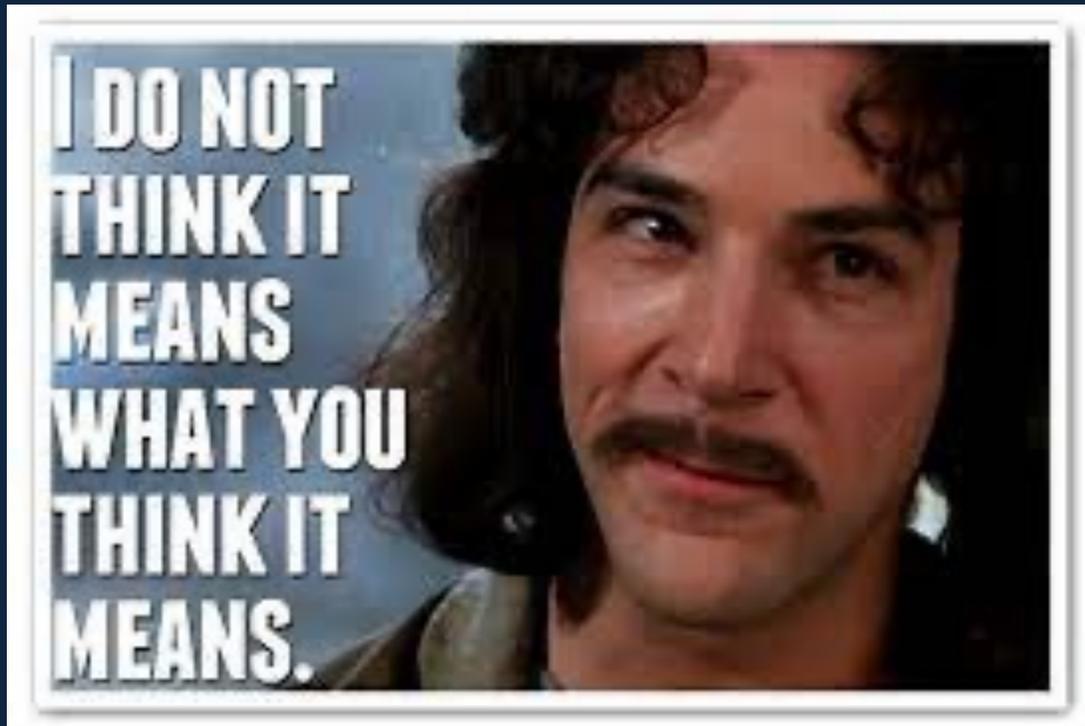
Branch of SSA Science Support, Headquarters

Travel Funding Based Apology



My struggle with 'decision space'...

Different connotations



Decision context

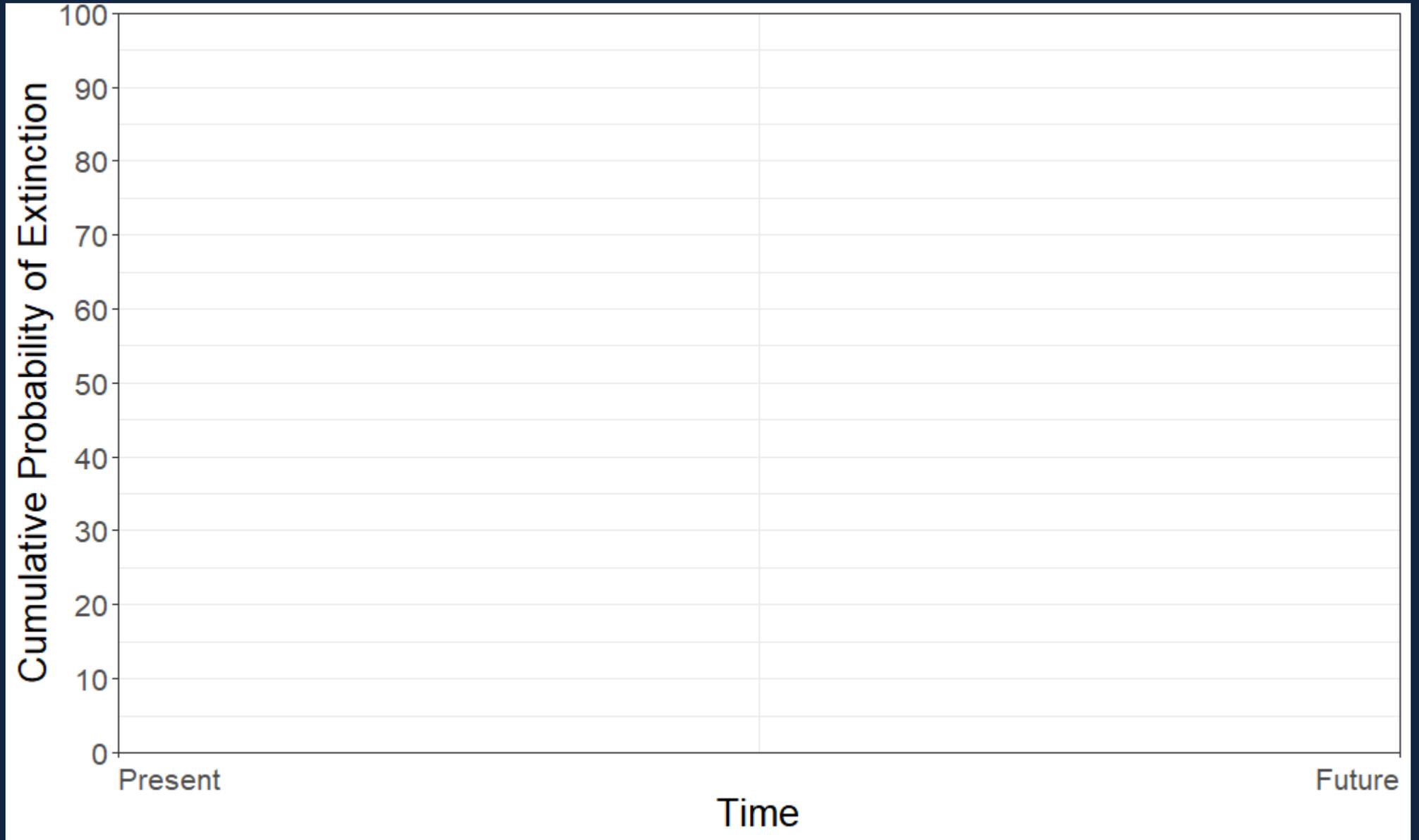
My role:

Help deliver a rigorous scientific risk assessments to inform Endangered Species Act decisions.

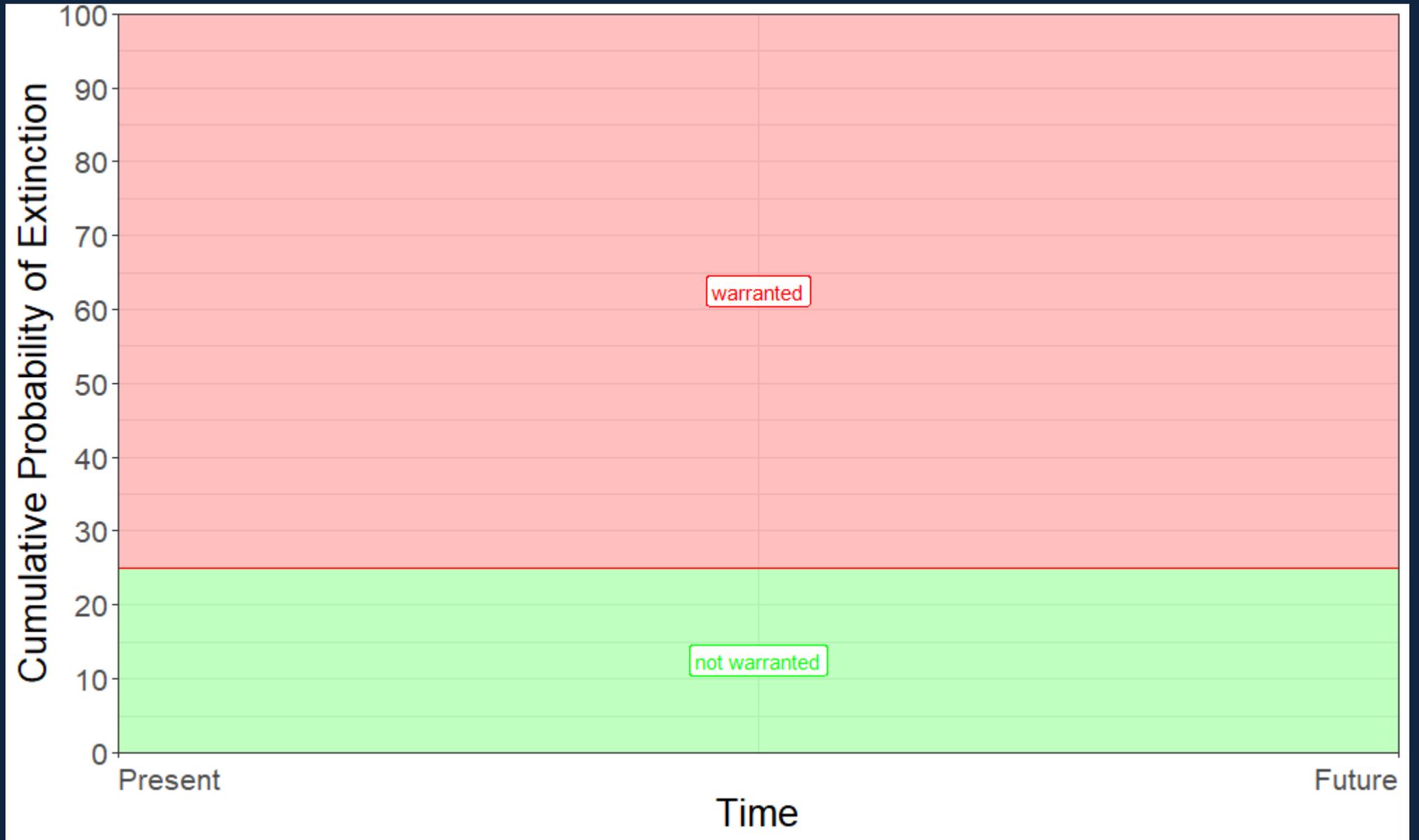


Science – Policy
Interface

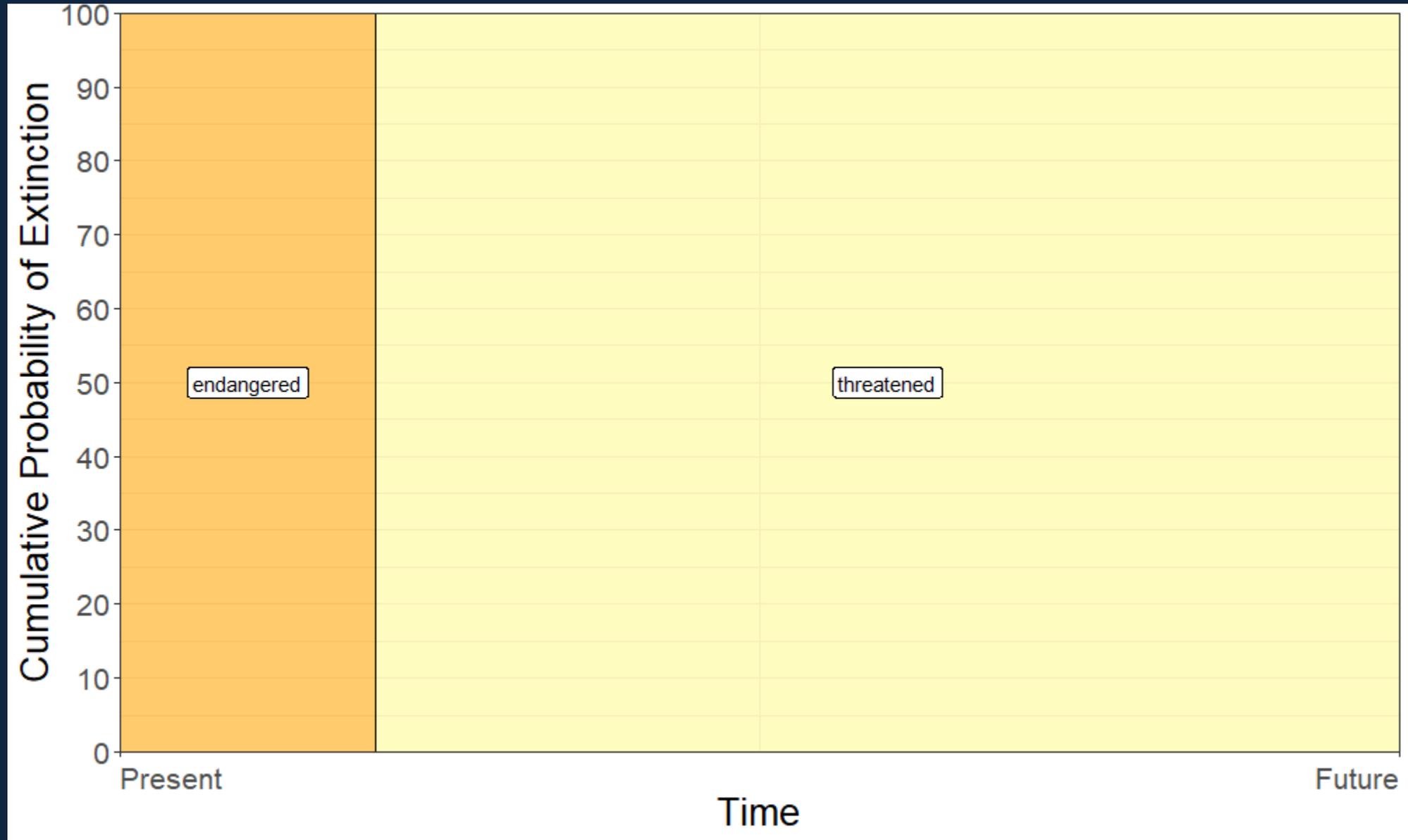
As a Coordinate System



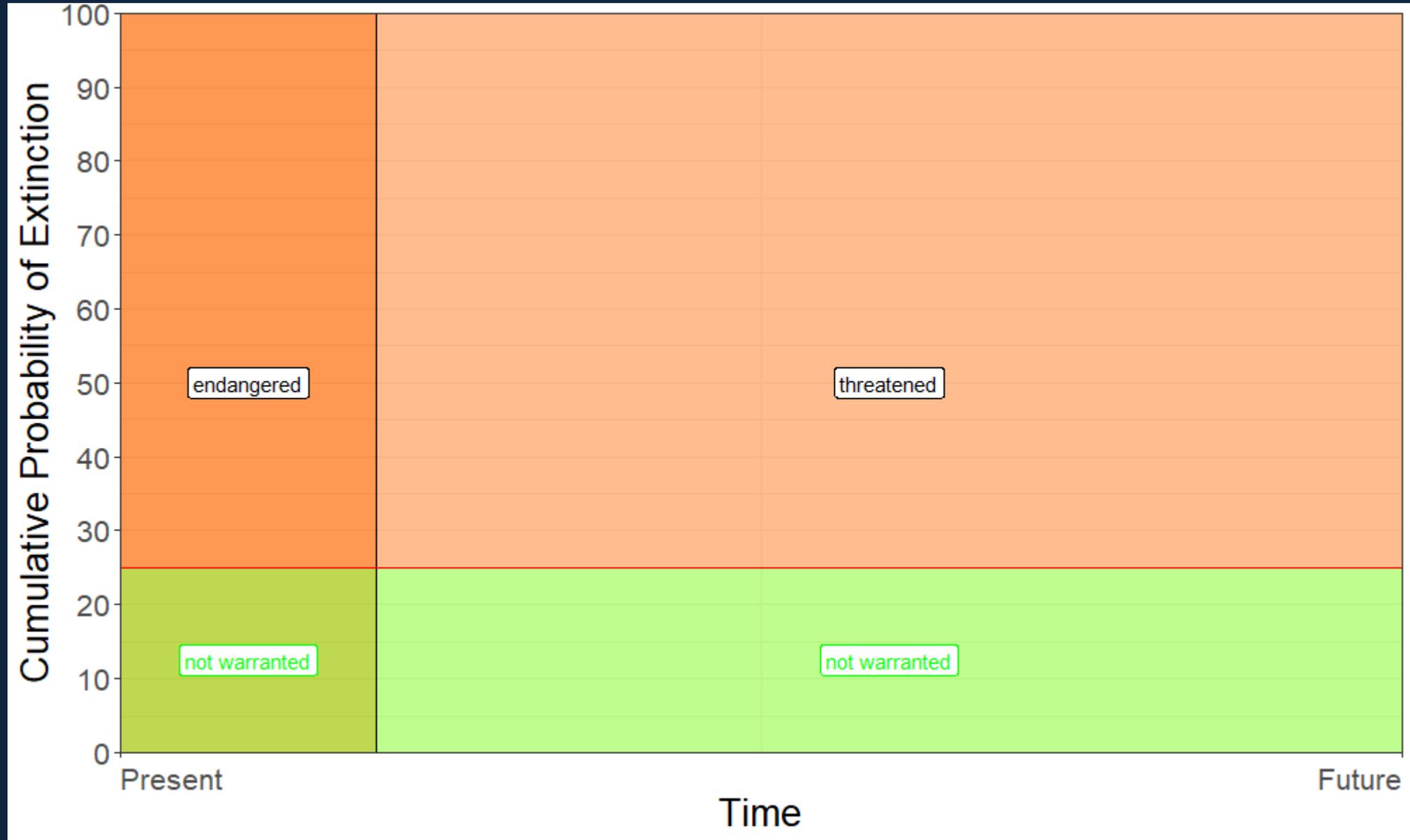
Risk Threshold



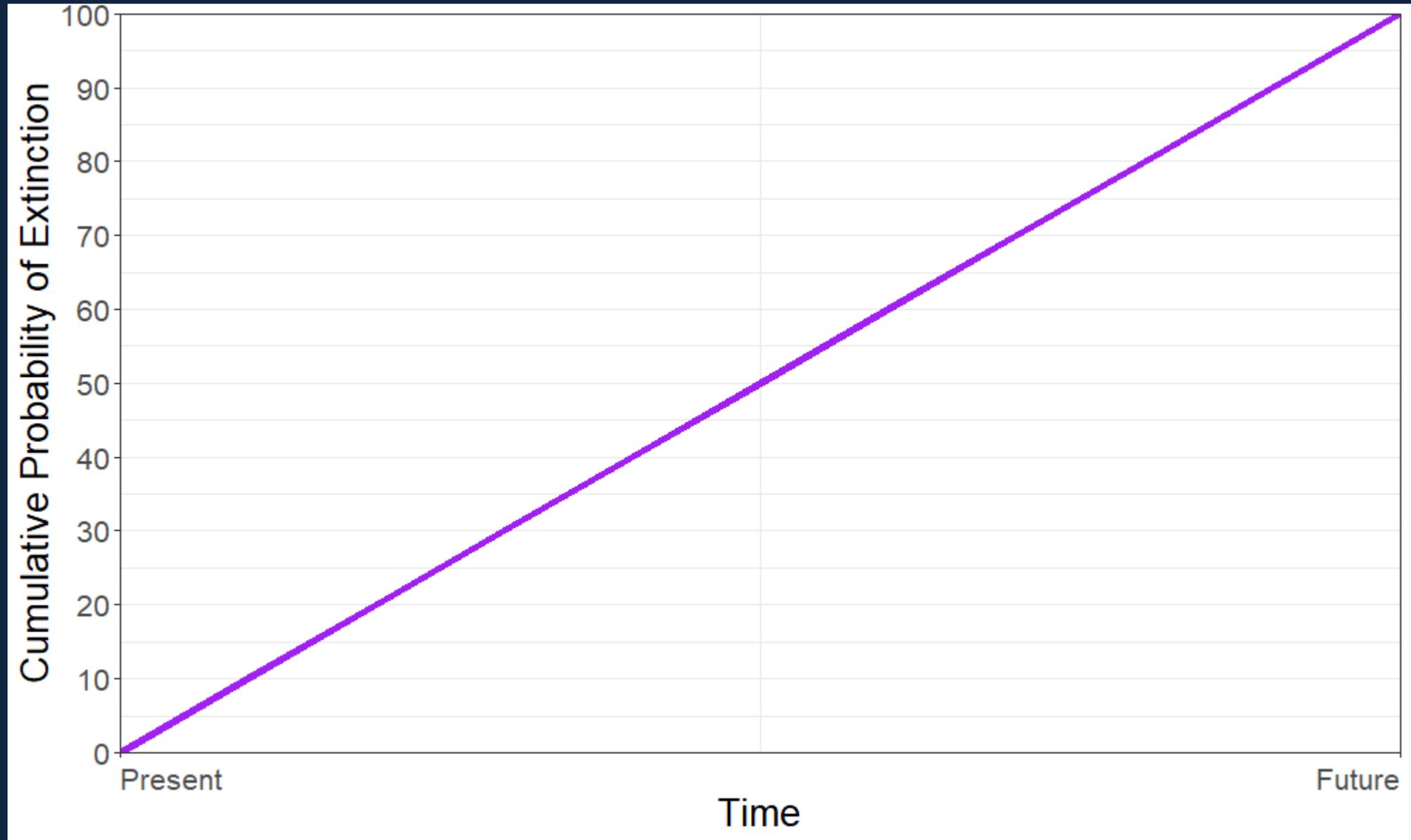
Time Threshold



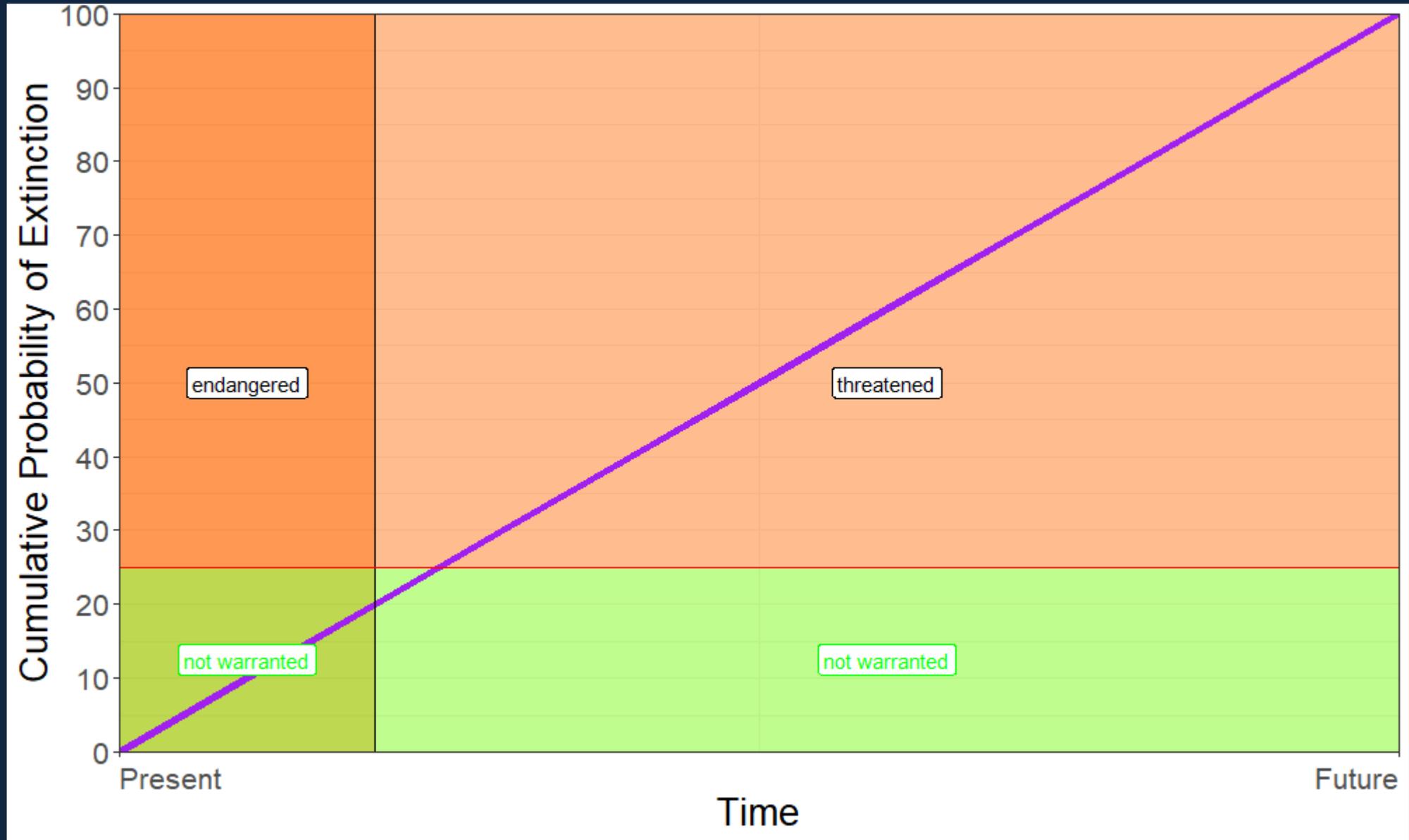
Policy Thresholds



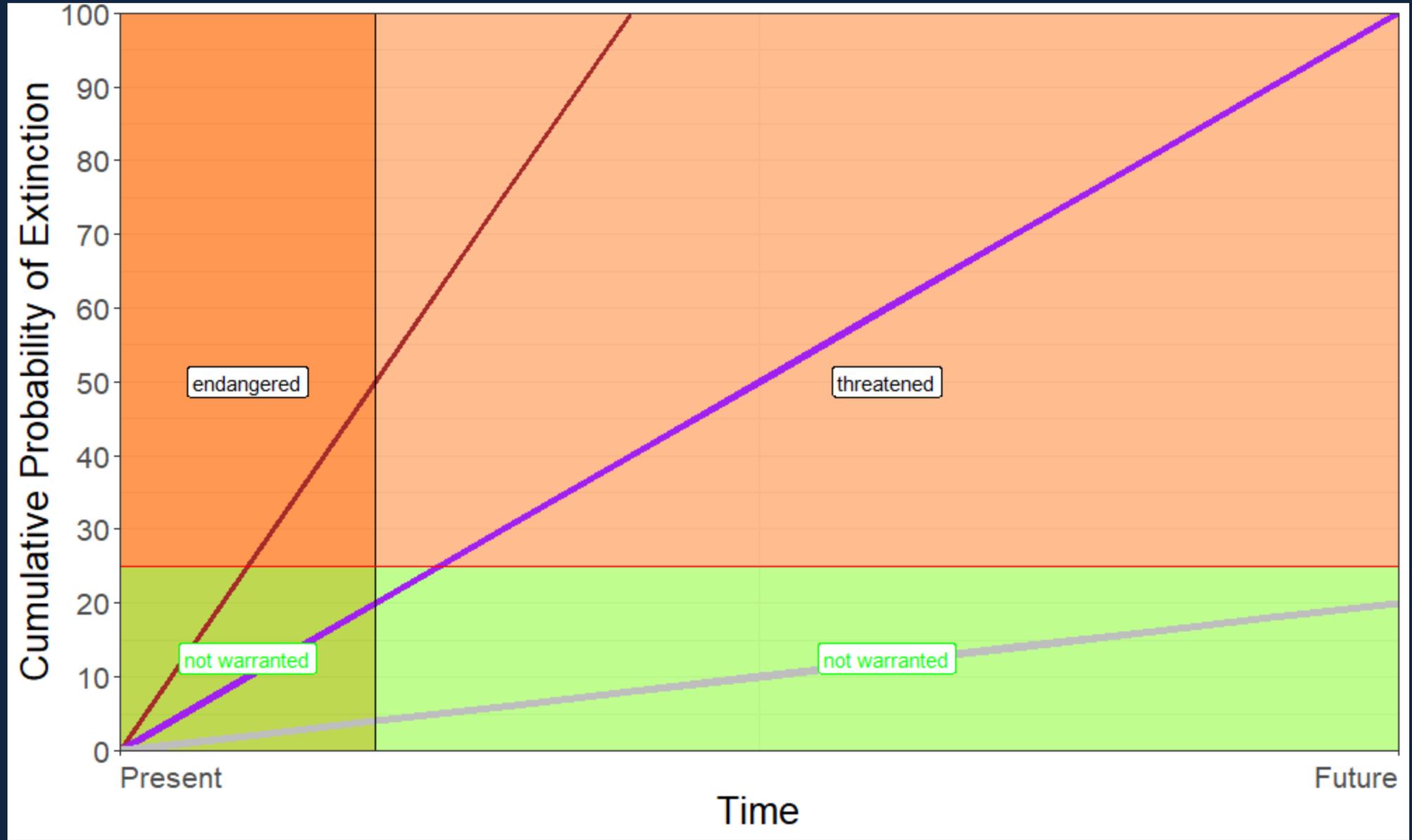
Species Risk Curve



As a Coordinate System

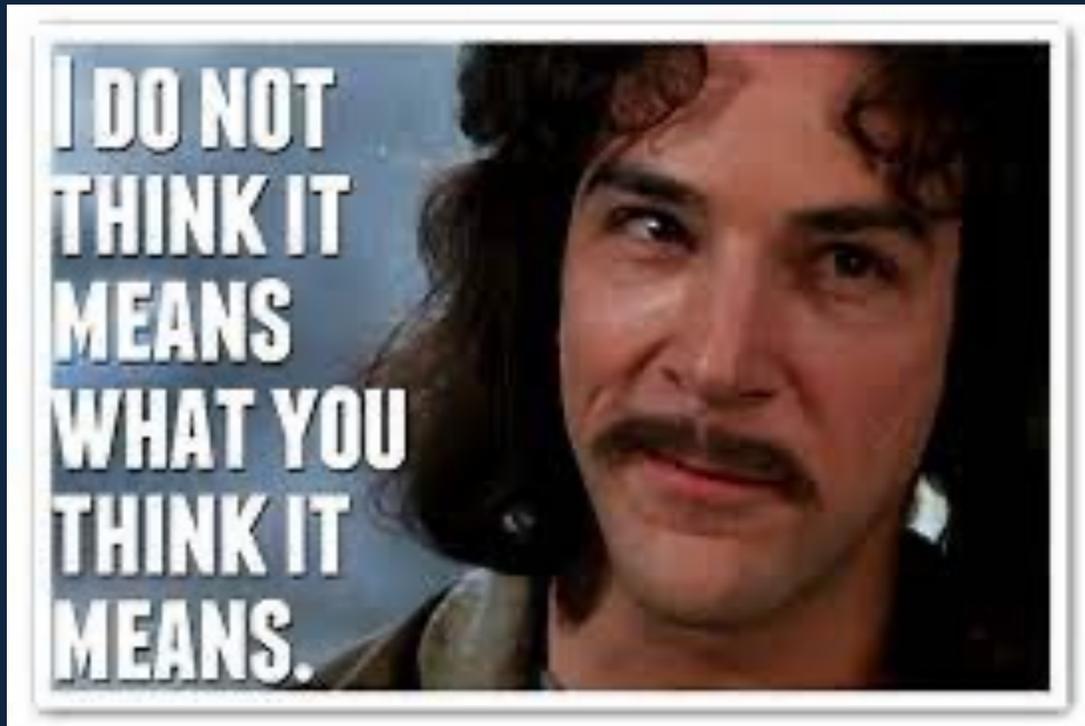


As a Coordinate System



My struggle with 'decision space'...

Different connotations



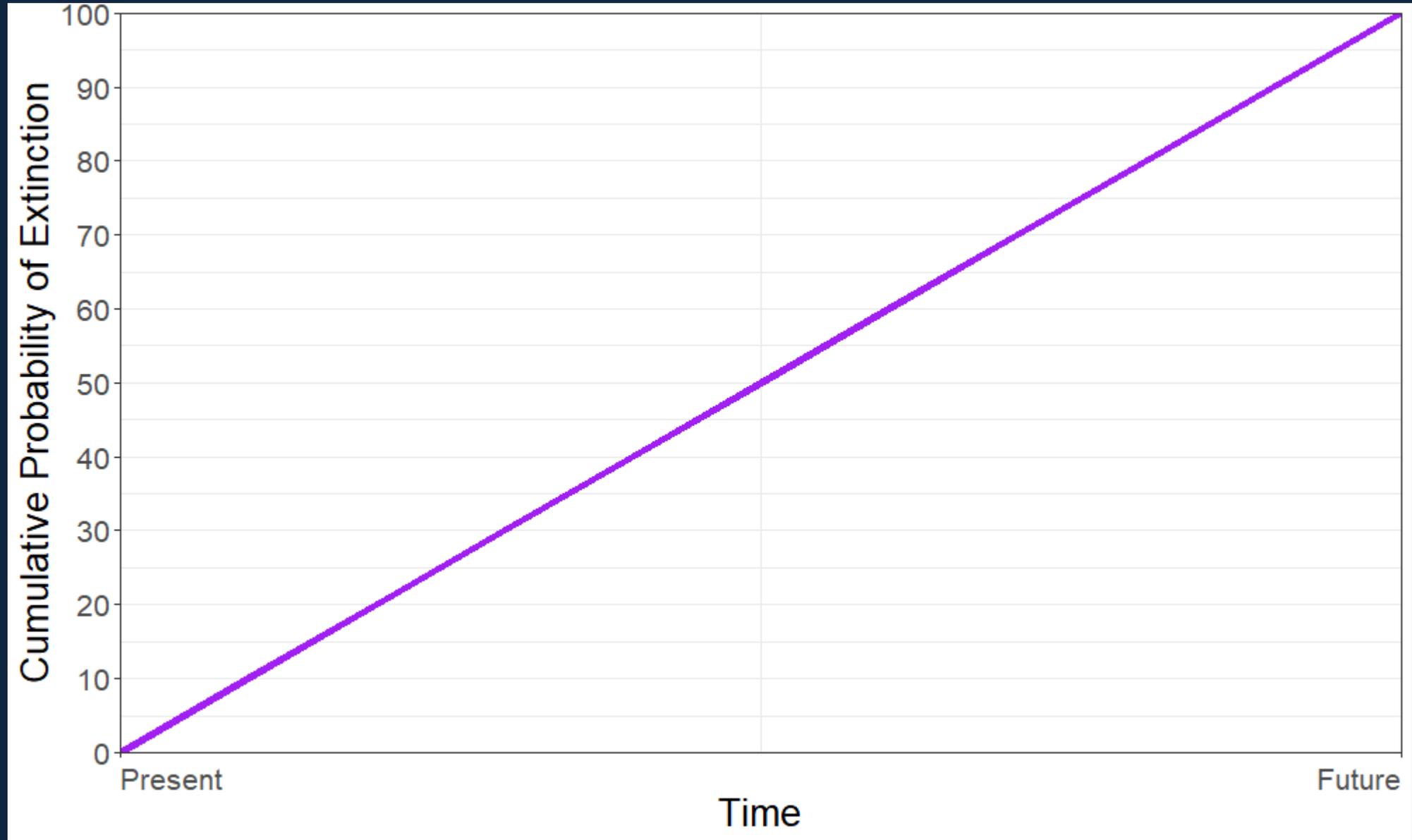
But when is there 'decision space'

When there is uncertainty

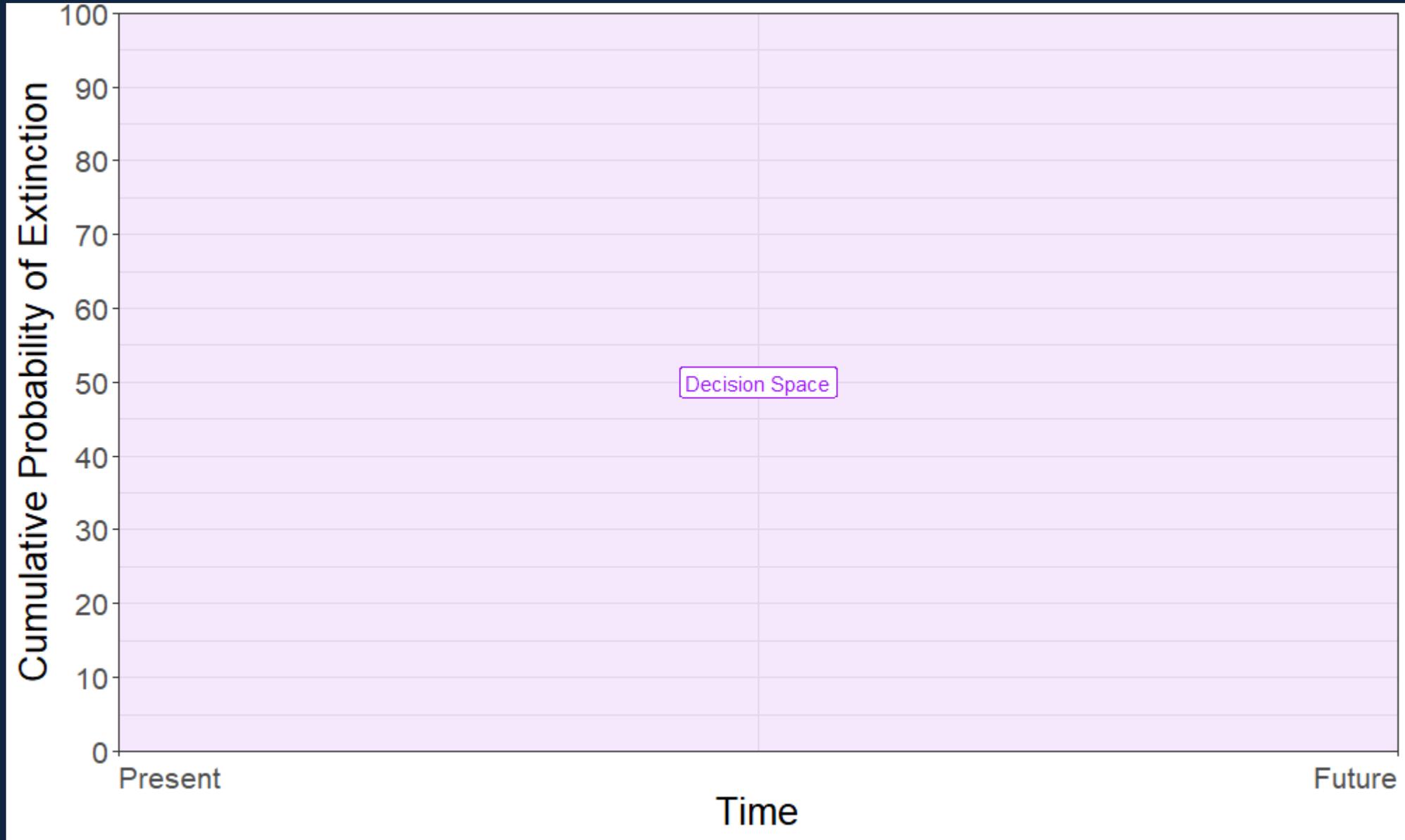
- Risk Tolerance
- Timing of endangered vs. threatened
- Species Risk



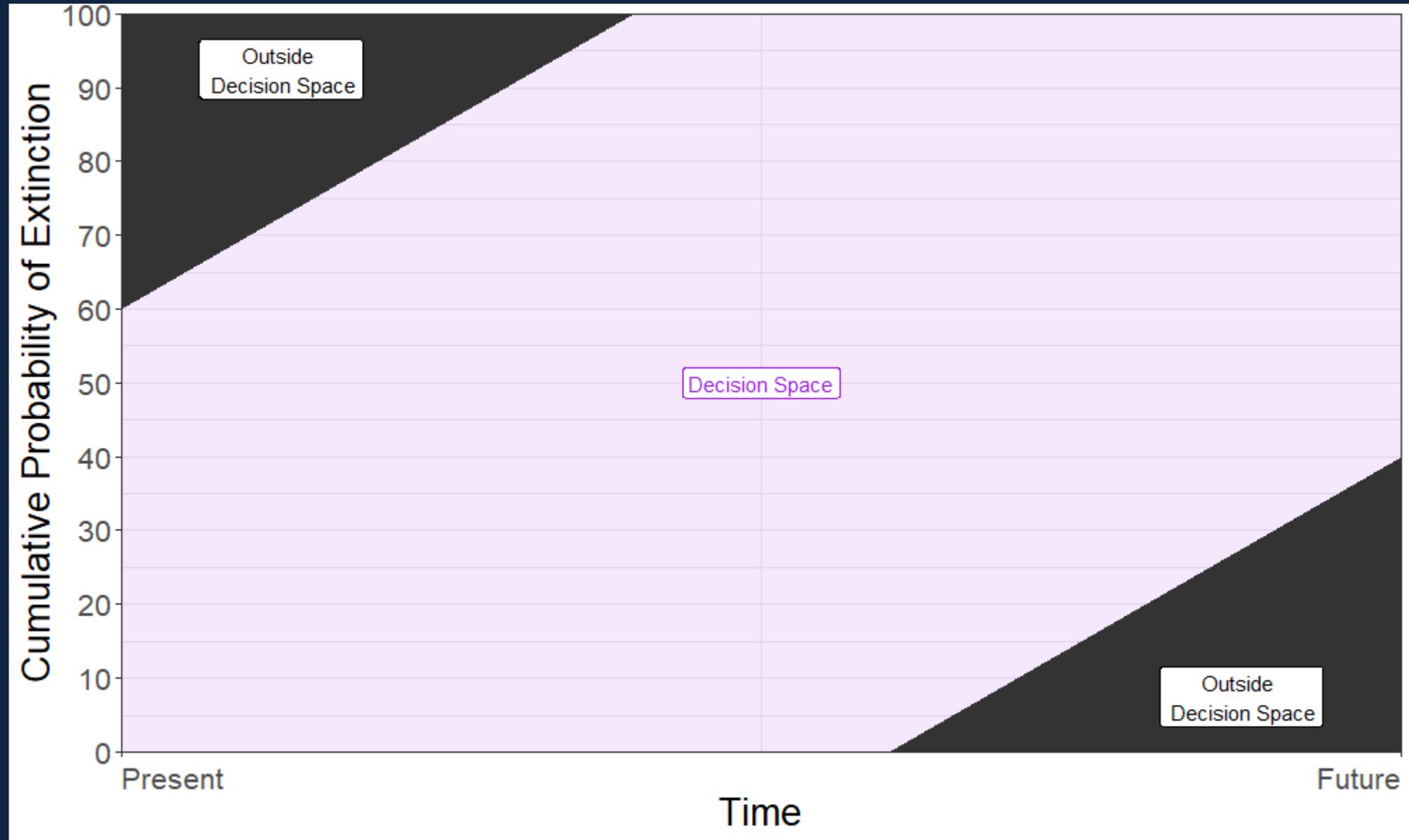
Species Risk Curve



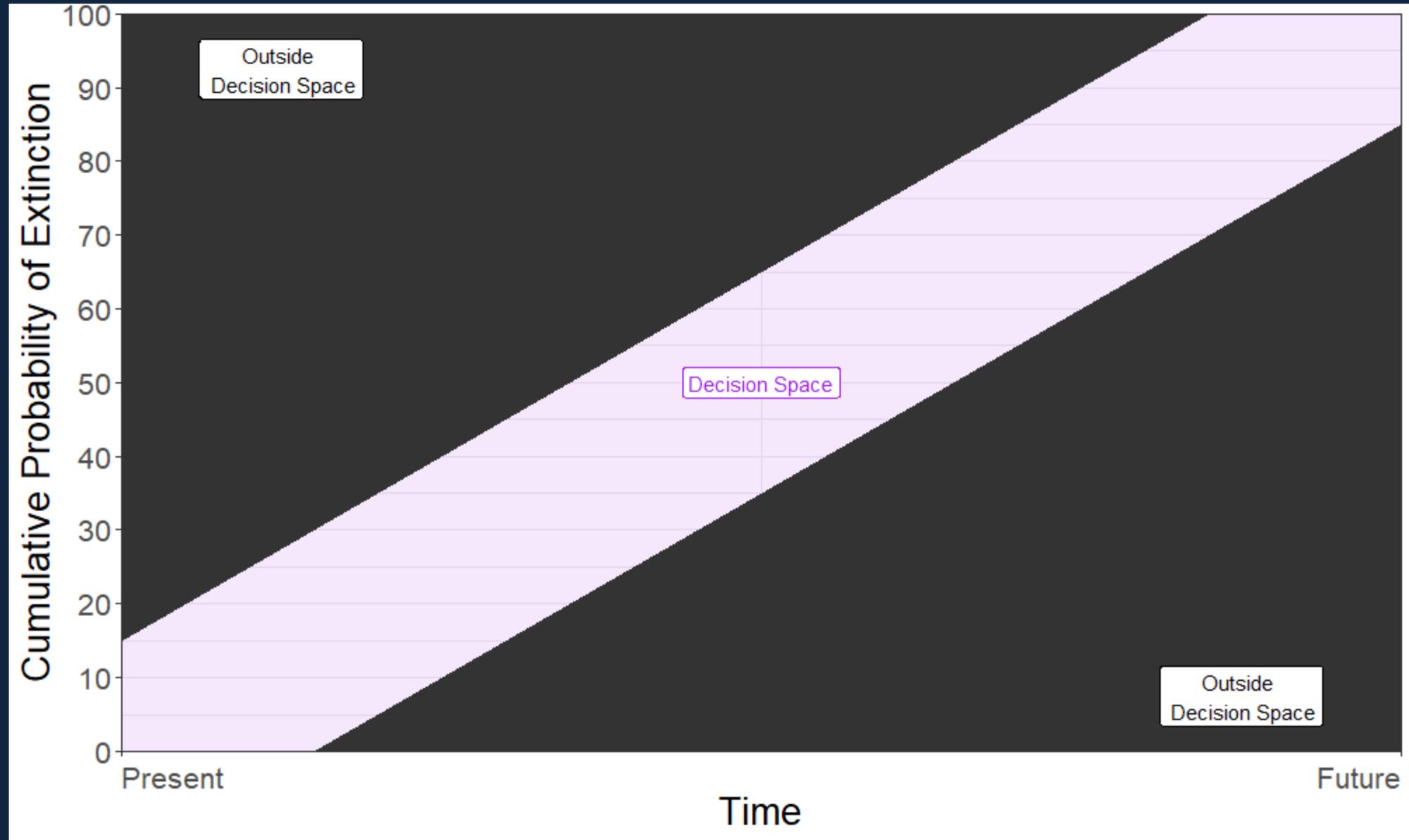
Unlimited Decision Space -



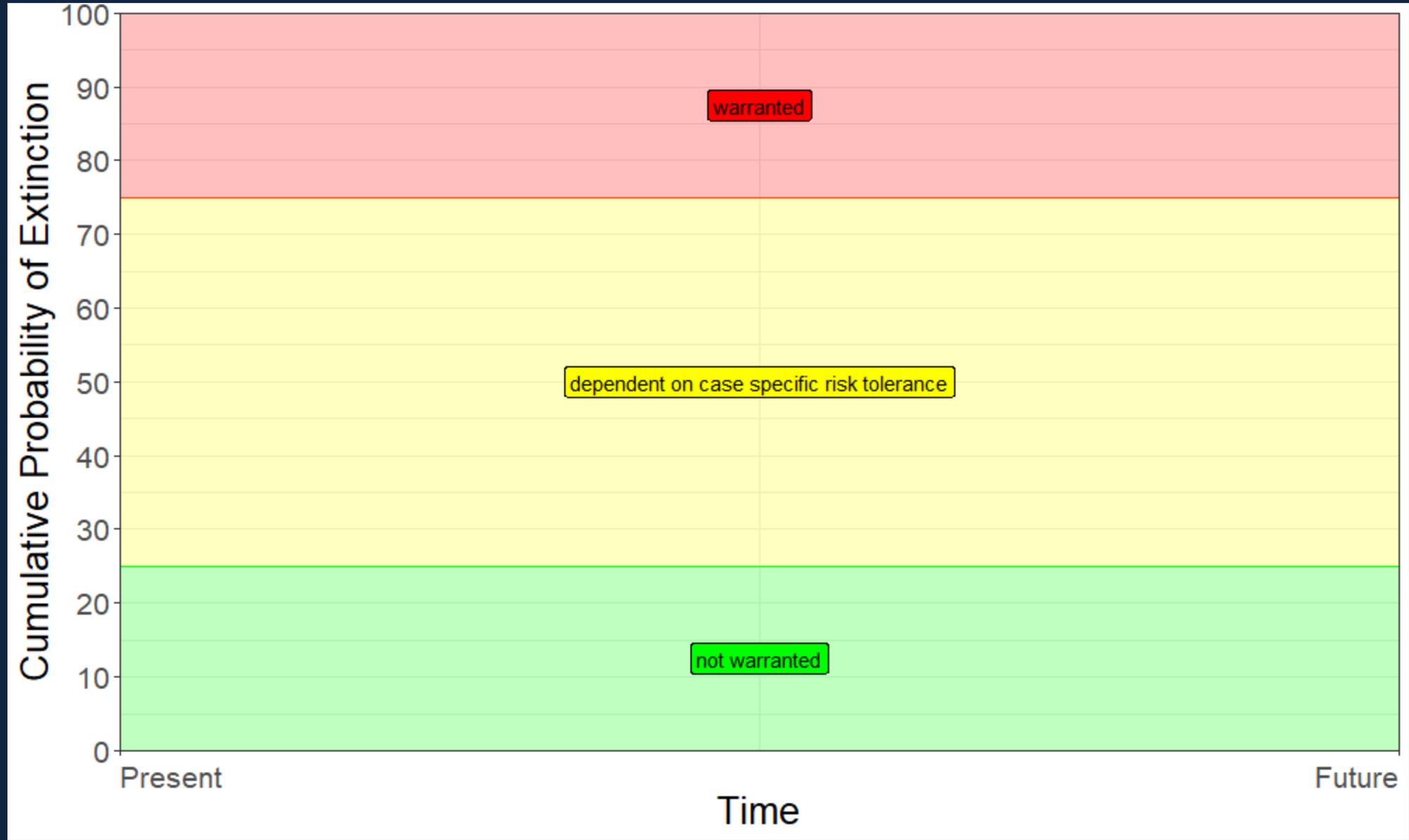
Large Decision Space, High Uncertainty



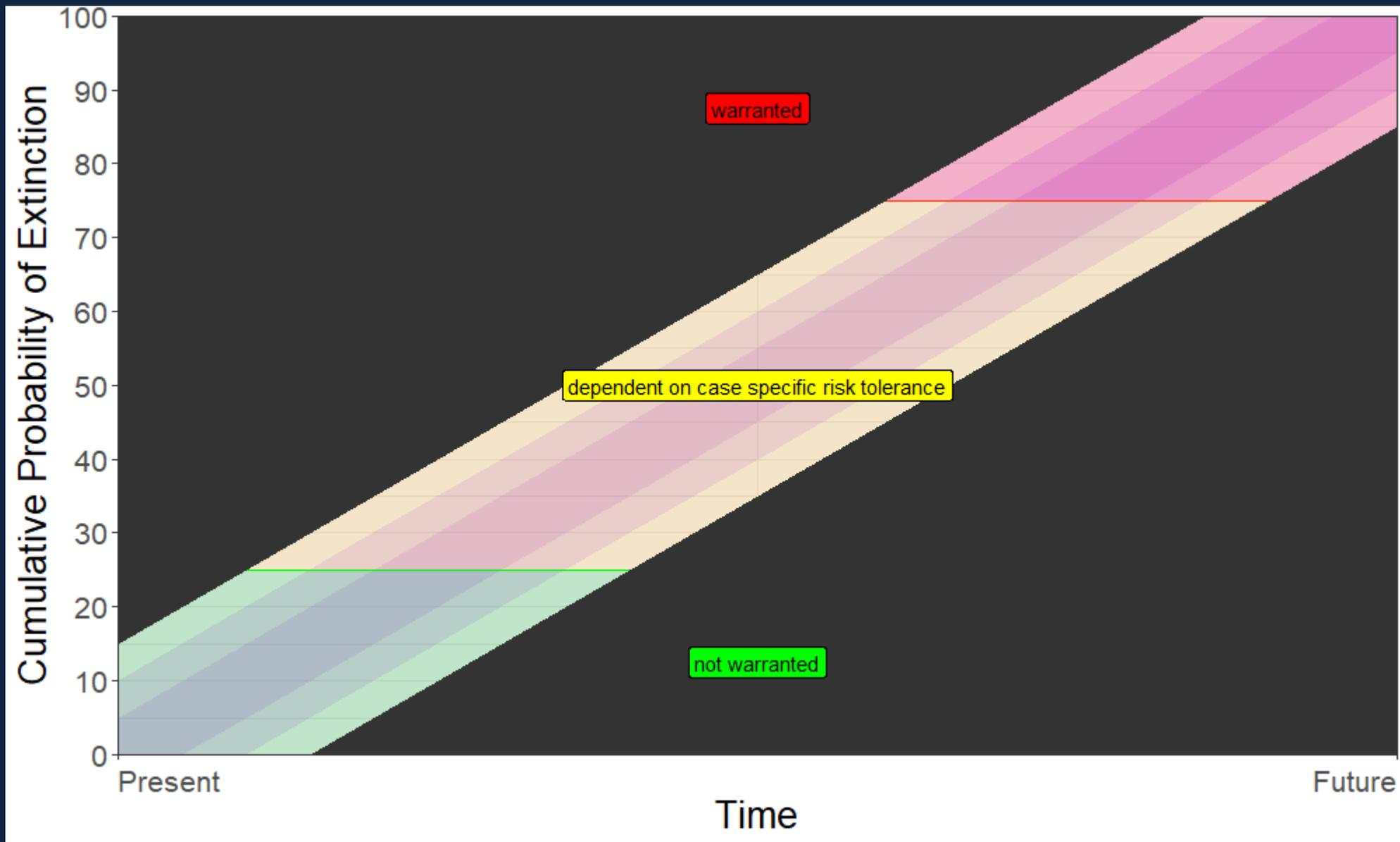
Small Decision Space, Low Uncertainty



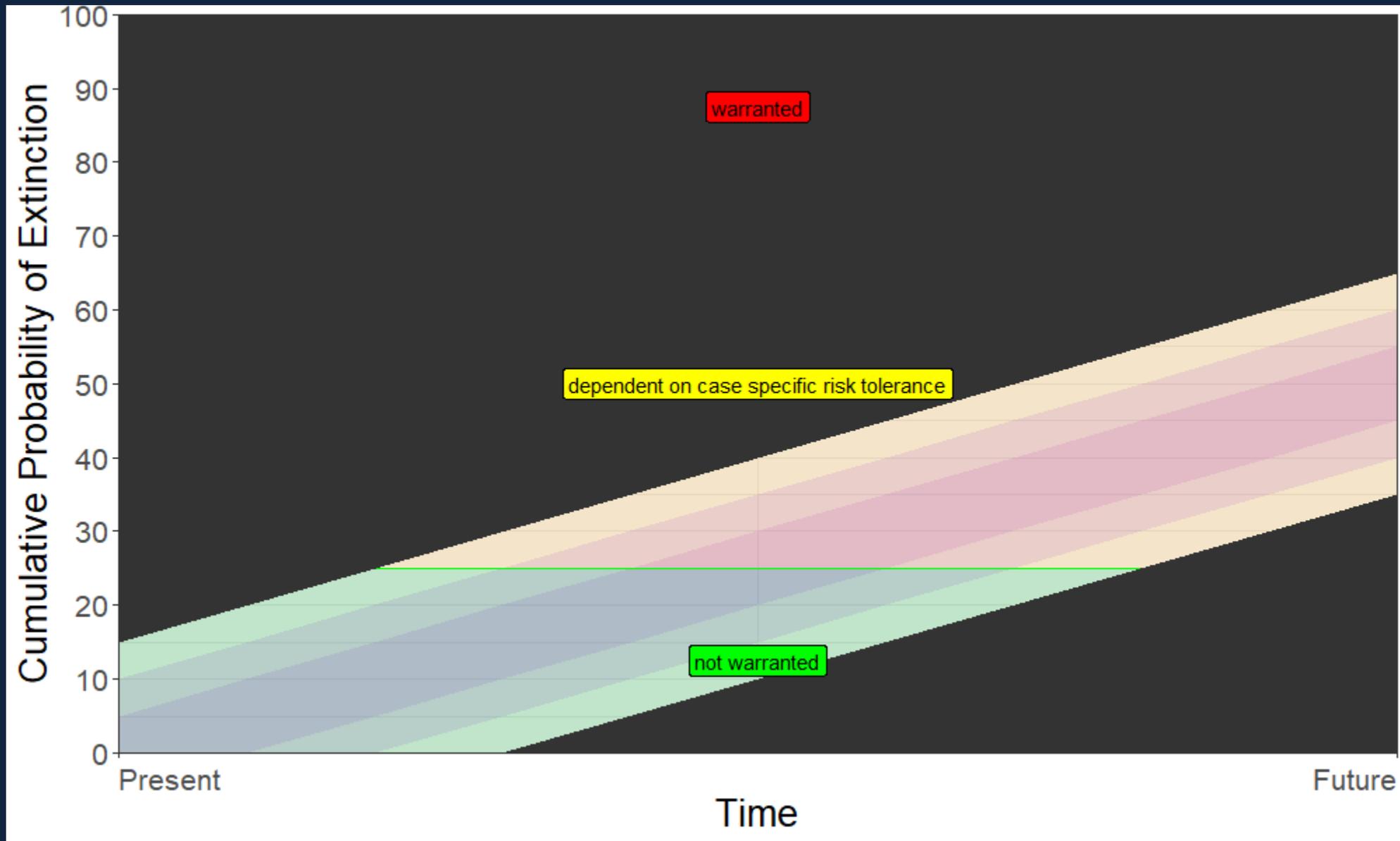
Risk Tolerance Impact



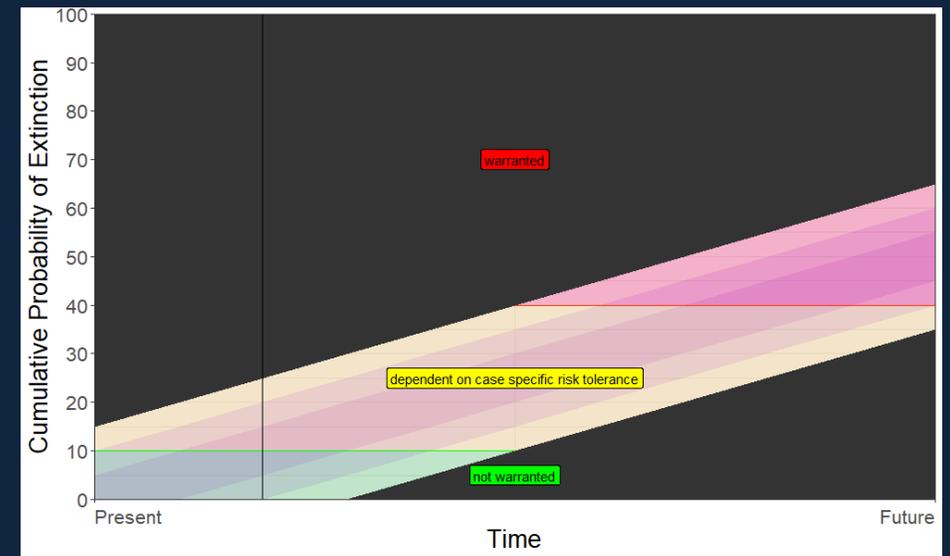
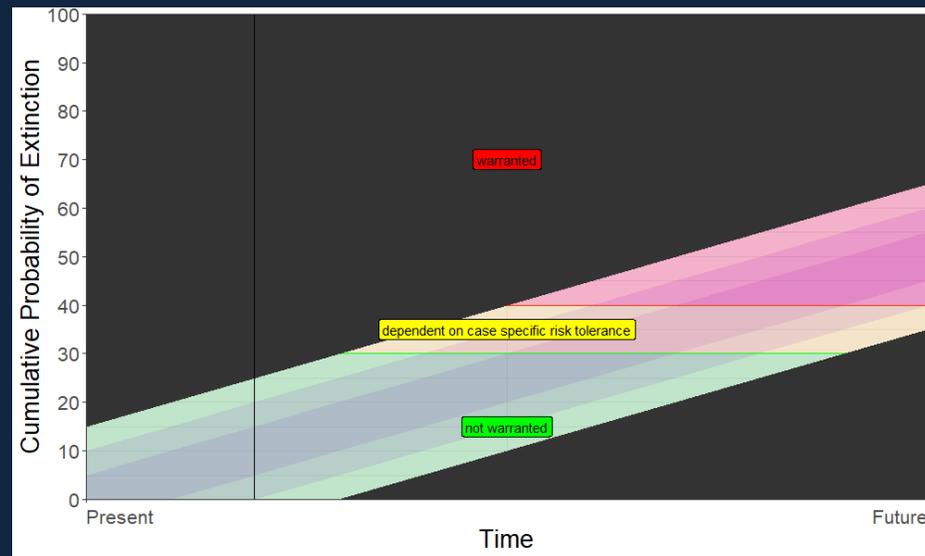
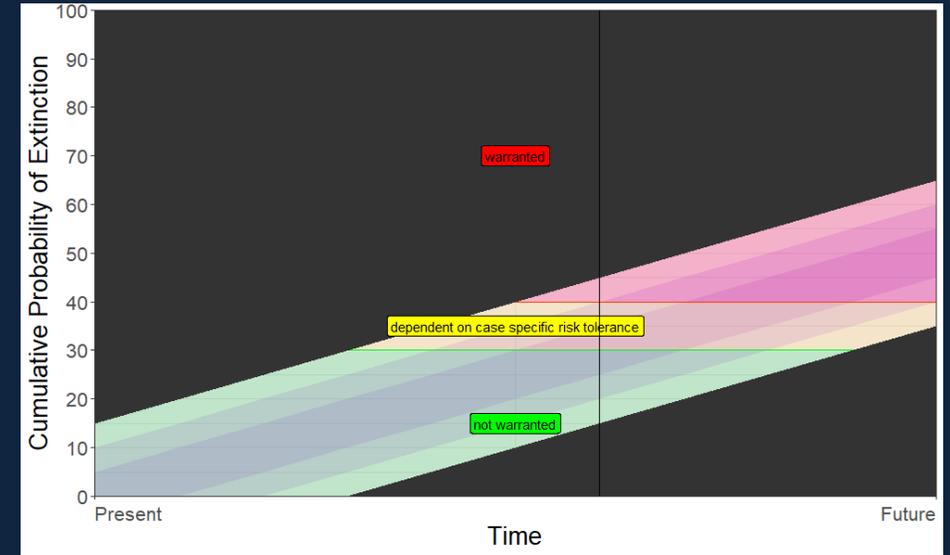
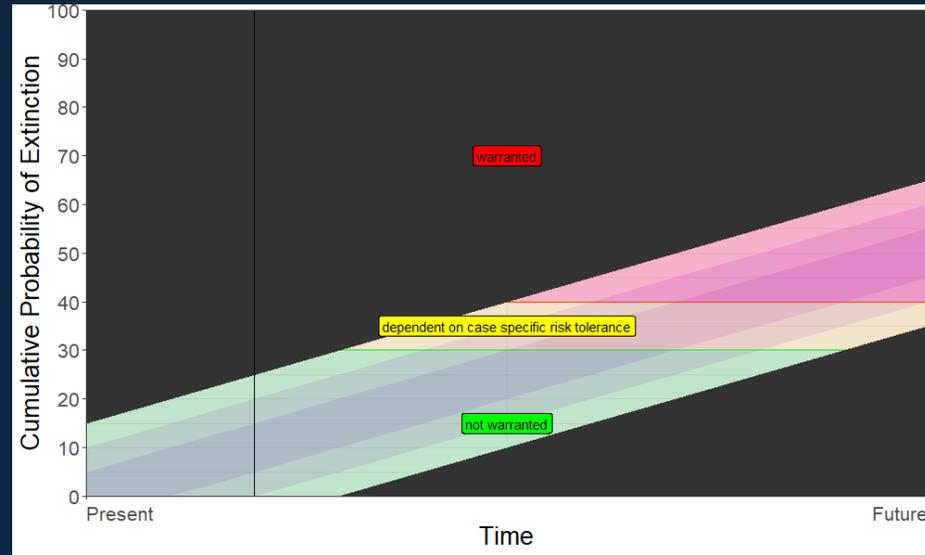
Actual Decision Space



Play What If?



Play What If?



Final Thoughts

Summary

- Helped me understand the inputs that define 'decision space'
- Communicate the importance of understanding risk tolerance to decision makers
- Communicate the value of additional information

My question for you

- Is decision space a relevant concept in your work?
 - How so?

