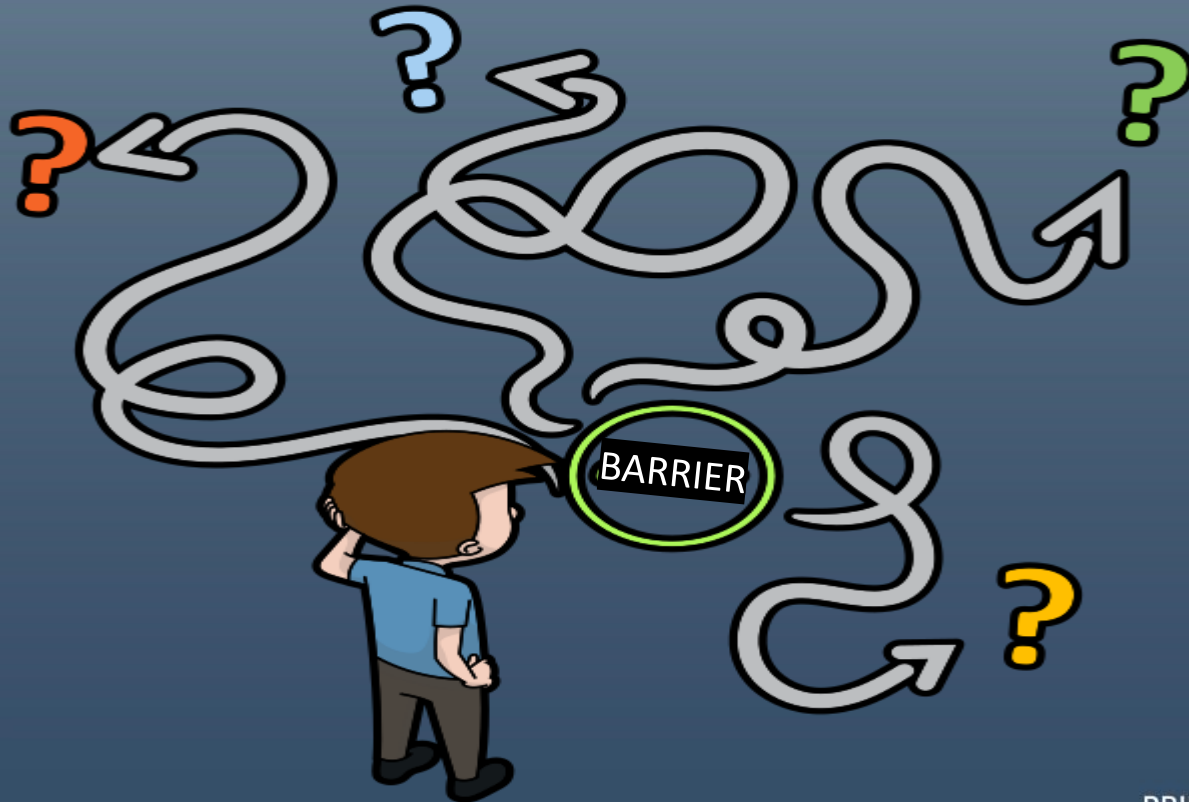


The known and unknown matrix

“There are known knowns; there are things we know we know. We also know there are known unknowns; that is to say we know there are some things we do not know.”

Donald Rumsfeld

(not an endorsement of him, just using this useful quote)



SCIENCE
ENGINEERING
DESIGN

The known and unknown matrix

The Uncertainty Project¹

Known knowns: These are facts or variables that we're aware of and understand. They form the basis of our knowledge and provide a solid foundation for decision making.

Known unknowns: These are factors we know exist, but don't fully understand. They represent gaps in our knowledge that we must address through research, investigation, or consultation with experts.

Unknown knowns: These are elements that we don't realize we know. They're typically buried in our subconscious, overlooked, or dismissed as irrelevant. Uncovering these insights can lead to surprising breakthroughs in decision making.

Unknown unknowns: These are factors that we're not aware of and can't predict. They represent the most significant source of uncertainty and risk, as they can catch us off guard and derail our plans.



Potentially confounding factors In using a prioritization tool

- Owner willingness
- Local stakeholders: for or against?
- Sediment
- Changes to flood regime
- Threatened & endangered species
- Invasive species
- Infrastructure (buried or surface)
- Morphology (anthropogenically modified and geologic)