Co-producing knowledge on wildfire fuel breaks to optimize benefits for multiple stakeholders

Todd Brinkman, UAF

Tom Paragi, ADFG

Co-production of Knowledge?

- General principles
  - Establishing relationships between scientists and stakeholders
  - Facilitating and ensuring two-way communication
  - Engaging stakeholders in the entire research process.
  - Keeping the focus on the production of usable science

Better Partnerships

Better Outcomes

Meadow et al. 2015, Reyer et al. 2015

Better Outcome?

- More likely to be at spatial and temporal scales useful to decision makers
- Easier to integrate with existing information because it fits into the decision framework of the agency or organization
  - “Little value in having research tools 20 years ahead of implementation”
- End users gain a greater sense of ownership over the final product because they have contributed to it
- Perceived to be more transparent and legitimate
- More likely to be accepted and used by decision makers

How is this different?

- Acknowledgement of accountability to society
  - Not basic science
- Goal to ensure uptake of science by decision makers
  - Example: Climate Science Data & Policy Direction
- Research is not solely scientist driven
  - More inclusive
  - Greater expression of humility
- Avoids the loading-dock model
- A better balance of data collection and dissemination

Co-producing knowledge on wildfire fuel breaks to optimize benefits for multiple stakeholders

Todd Brinkman, UAF

Tom Paragi, ADFG

Background

- Increasing wildfire activity and human development within the wildland-urban interface has elevated risk of property loss.

Background

- Agencies have increased the use of fuel-reduction treatments to make inhabited areas more defensible, and to reduce fire intensity and the likelihood of spread.

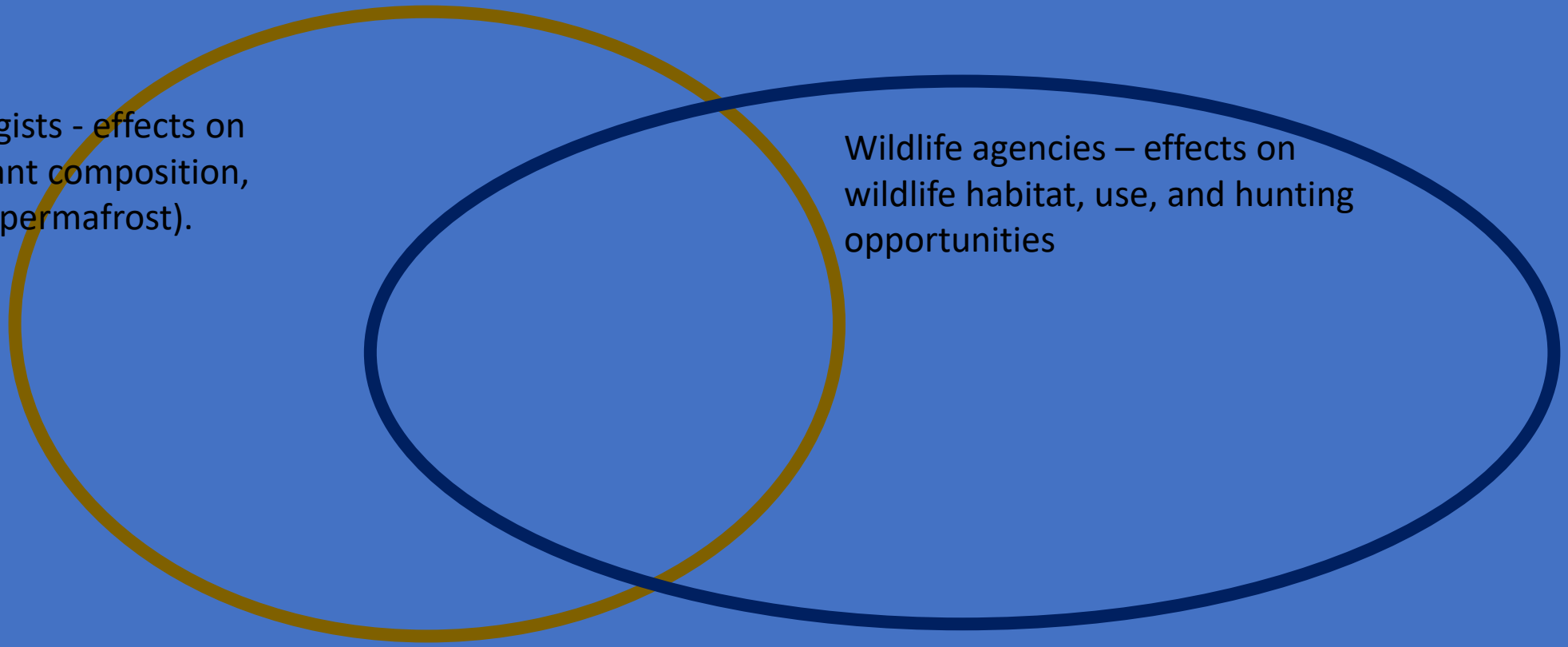
Background

- Although fire-fighting agencies normally assume the task of identifying where, when, and how fuel breaks are established, other groups also are interested in the positive and negative characteristics of fuel breaks beyond property protection

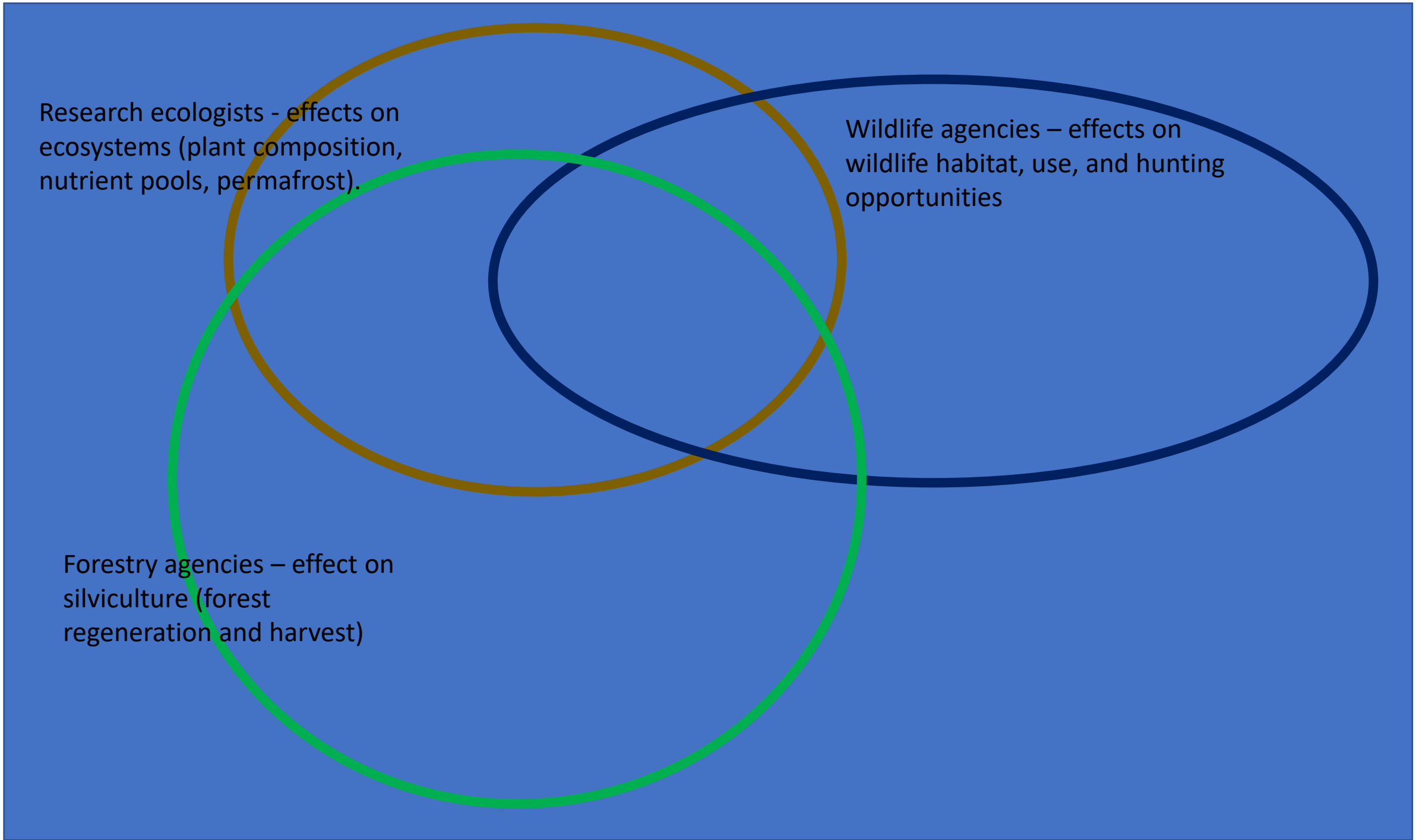
BERRIES

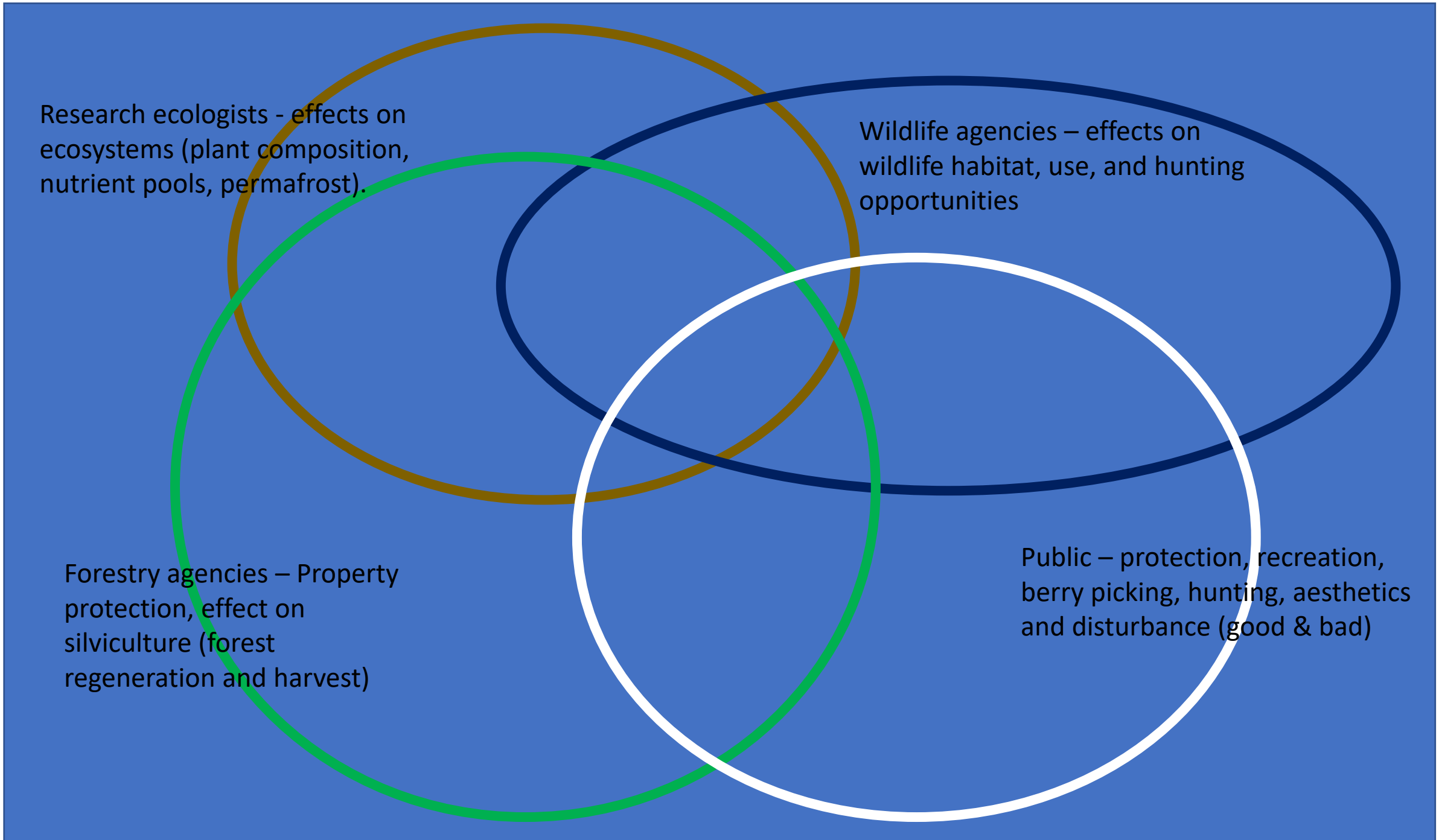
Research ecologists - effects on ecosystems (plant composition, nutrient pools, permafrost) (Melvin et. al. 2018).

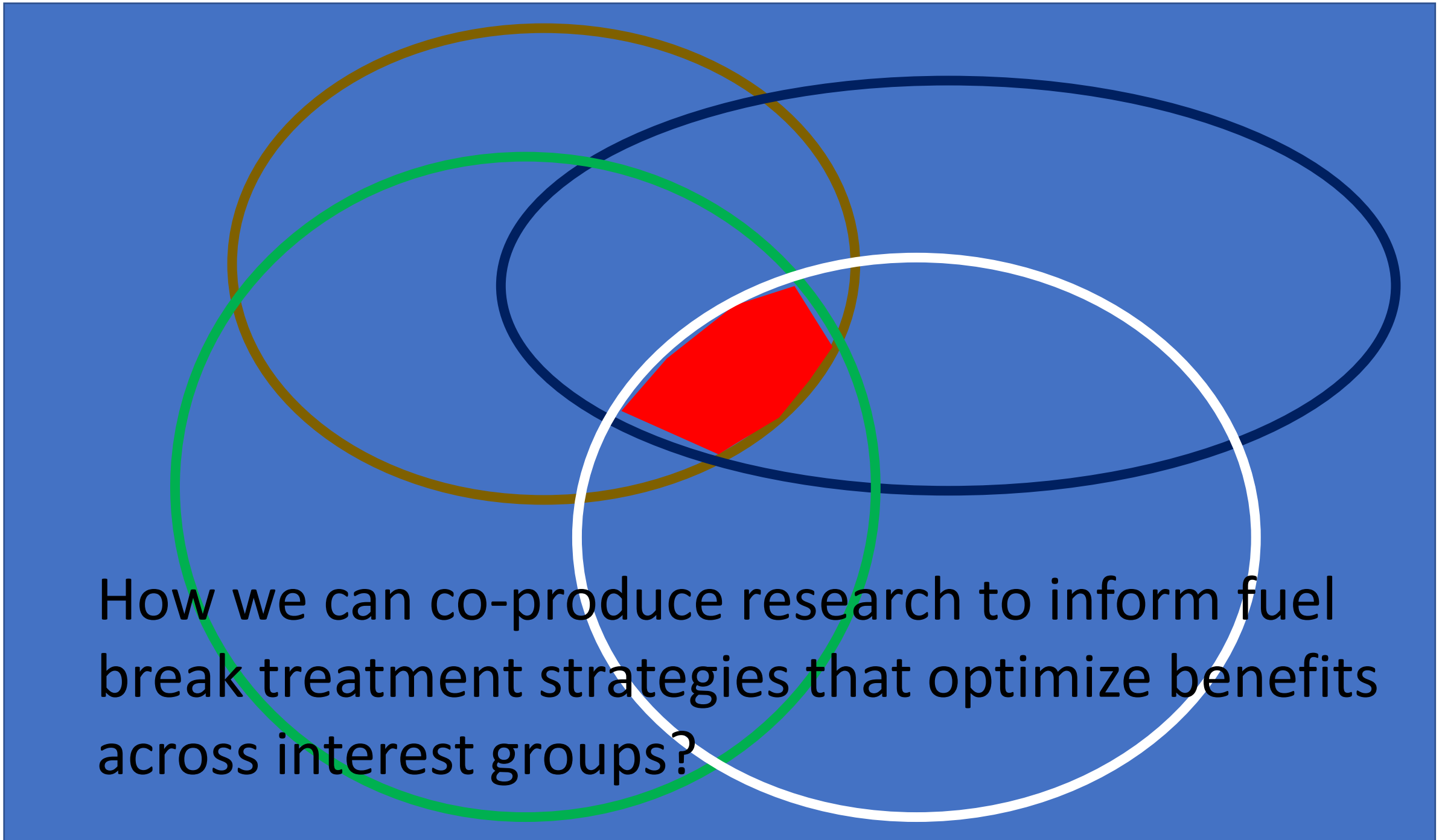
Research ecologists - effects on ecosystems (plant composition, nutrient pools, permafrost).



Wildlife agencies – effects on wildlife habitat, use, and hunting opportunities


Research ecologists - effects on ecosystems (plant composition, nutrient pools, permafrost).
Wildlife agencies – effects on wildlife habitat, use, and hunting opportunities
Forestry agencies – effect on silviculture (forest regeneration and harvest)


Research ecologists - effects on ecosystems (plant composition, nutrient pools, permafrost).
Wildlife agencies – effects on wildlife habitat, use, and hunting opportunities
Forestry agencies – Property protection, effect on silviculture (forest regeneration and harvest)
Public – protection, recreation, berry picking, hunting, aesthetics and disturbance (good & bad)



How we can co-produce research to inform fuel break treatment strategies that optimize benefits across interest groups?

Research Goal

- Partner with key stakeholders (& steering committee) to guide the fuel break research process from start to finish toward mutually beneficial outcomes.
  - Specific objectives:
  - 1) Summarize the state of knowledge and address data gaps on vegetation response to boreal fuel breaks to reduce initial establishment and long-term maintenance costs
  - 2) Quantify utility, opportunity, and perceptions (good & bad) for different stakeholder groups based on different fuel break treatments and characteristics.

Study Area

- Roughly 12 sites in Fairbanks area (just pretend).

Methods

- Measure vegetation response in existing breaks: refine the a rapid assessment tool using ground and drone imagery
  - Immediate need for DOF to prioritize areas where rapid conifer regeneration may require further treatment)
  - Assess berry production and moose activity during peak harvest times

Methods

- Identify future locations for fuel treatments and experimental controls
- Collect pre-treatment data
- Perform treatments (e.g., shear blading)
  - New LTER sites

Anticipated Outcomes: Agency Perspective

- Management implications
  - Regeneration of fuels (what's working, what isn't)
  - Analytical capacity (rapid assessment tool)
  - Quantification of externalities (ecosystem services that ADFG cares about)

Anticipated Outcomes: Academic Perspective

- Experimental social-ecological research at a landscape level is incredibly difficult. I think we have a really unique opportunity to pull it off with this project.
- This sets up BNZ LTER for long-term social-ecological research that is pragmatic (feasible to maintain logistically), engages the local community in our science, and informs decisions (management, policy).

Questions/Comments

Academic researcher	Agency manager
Slow variables (state factors)	Fast variables (legal mandates)
Long term: understanding	Short term: demands / problems
Ecological processes	Ecological patterns
General principles “science”	Specific local application “art”
Theoretical / mechanistic “why”	Empirical “how, when, where”
Reductionist / design control	Replication / market driven
Peer review / publication	Accomplishment / policy
Credentials as scientist	Respect as problem solver
Embraces change	Change comes slowly
On cutting edge	Continuing education (?)
Need time and $ (overhead)	Often don’t have much $…