





Grizzly-PAW: Grizzly Population Assessment in yelloWhead: Integrated Approaches Toward Conserving Grizzly Bears On A Human-Dominated Landscape Of Western Alberta.

Annual General Meeting – 3

Christopher Souliere October 18th 2019



Research question

Q2.2. How does food supply change as a function of landscape change and how can this directly be incorporated into forest harvest planning?

How does food supply change as a function of landscape change: **Fire and Forest Harvests**

- Forestry a dominant contributor
- Bears frequent both post-fire and post-harvests stands
- Limited supply of open habitats
- Better understanding and management
- Forest harvests as surrogate to forest fires





How does food supply change as a function of landscape change: **Field Sampling**

- Bear Management Areas 2 and 3
- Fire vs. Forest harvests
- Three Age-Classes (~ 5, 20, and 60 years)
- Vegetative Sampling
- Transects





How does food supply change as a function of landscape change: **Hypotheses**

- Quantify differences in digestible energy between post-fire and post-harvest stands
- Digestible energy from fruits, digestible energy from forbs, and total (fruit + forb) available digestible energy will not vary between postharvest and post-fire stands.
- 2) Whereas digestible energy from fruits, digestible energy from forbs, and total available digestible energy **will vary** between age-classes

How does food supply change as a function of landscape change: **Digestible energy conversion**

- Converted fruit (berry) abundance for 12 fruiting species into a measure of digestible energy using the following
 dig ene_i = fruit count (berry/ha) X fruit DM_i (gram DM/berry) X digestible energy (kcal/gram DM)
 digestible energy = Σⁿ_{i=1} dig ene_i
 DM = Dry Mass
- Digestible energy conversions were obtained from López-Alfaro et al. (2015), and fruit dry weights (mass in g) were estimated using data from the literature
- Converted percent cover of forbs into biomass using allometric conversion equations, with this further converted into digestible energy.
- Estimated total available digestible energy in the upper foothills by multiplying the average energy per hectare by the area disturbed by forestry and fire in the study area, respectively.

How does food supply change as a function of landscape change: **Fruit and Forb Productivity**

Fruit (berry)

Forb





How does food supply change as a function of landscape change: **Digestible Energy (fruit and forb)**

Digestible energy from fruits

Digestible energy from forbs



How does food supply change as a function of landscape change: **Total Digestible Energy (fruit + forb)**

Total digestible energy (fruit + forb)

Total digestible energy adjusted for disturbance area on the landscape



How does food supply change as a function of landscape change: **Discussion**

Digestible energy from **fruits**: Support our hypothesis that post-harvest and post-fire stands are not different from one another.

Digestible energy from **forbs**: Does not support our hypothesis that post-harvest and post-fire stands are not different from one another.

Total digestible energy: Support our hypothesis that post-harvest and post-fire stands are not different from one another.

For all digestible energy variations, our age-class hypothesis supports that there are differences between age classes.

What does this tell us: Harvested areas can potentially act as a surrogate to wildfire disturbances.

Thank You for Attending





Teck











SEVEN GENERATIONS

ConocoPhillips

Canada 🕊



Forest Resource Improvement Association of Alberta



