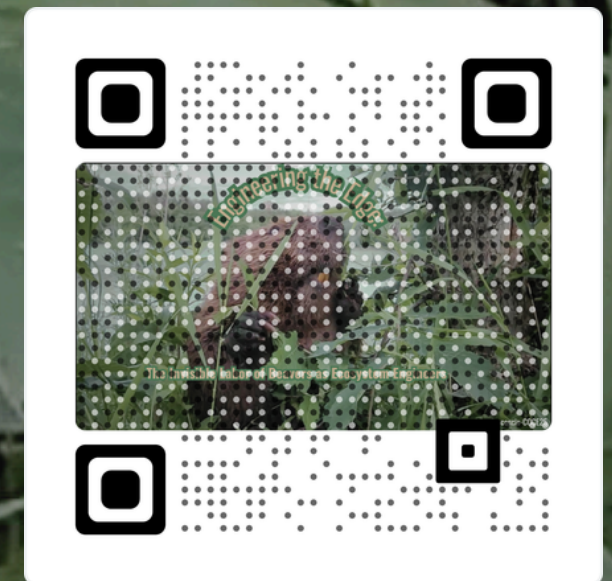


Engineering the Edge!

The Covert Labor of Beavers as Ecosystem Engineers



Are humans asking the wrong questions about climate resilience?



Historical Perspective

1600s: 400 Million Beavers

1800s: Fur Trade Boom

1900s: 100,000 Survivors

2025: Co-Constitution



Human Perspective:



How many beavers?

Non-Human Perspective:



What do beavers need?



Erasure of More-Than-Human Labor

The Covert Metabolic Labor of Ecosystem Engineers

- Metabolic colonialism: extraction that severs relationships and reduces beings to units
- Beaver near extinction story (1600s-1900s): 99.75% collapse
- Institutional frameworks obscure complex metabolic relationships
- Affective labor of ecosystem engineering

Indigenous Knowledge Systems



Anishinaabe culture recognizes the beaver (Amik) as kin:

- knowledge
- wisdom
- industriousness

Covert Labor of Wetland Creation

- Nitrogen cycling, carbon sequestration, water infiltration
- Hydrological engineering creating climate resilience
- Supporting North American wildlife species
- Quantifying the unquantifiable: millions of hours of ecological labor



PBS NewsHour

The Social Fabric of Beaver Communities

- Family structures
- Grief, play, and learning in beaver society
- How dam maintenance reflects care practices
- Parallels human affective labor scholarship

Who depends on beaver labor?

- Moose, waterfowl, fish, amphibians, insects, plants
- Riparian forest regeneration
- Groundwater recharge supporting human communities
- Climate adaptation corridors for species migration





When Labor Relationships are Severed

- Ecological collapse following beaver removal
- Loss of wetland ecosystem services
- Increased flooding, drought vulnerability
- Cultural knowledge disruption in Indigenous communities
- Economic costs of trying to replace beaver labor with human infrastructure

Centering Relationships, Not Management Units

- Shifting from numbers to needs
- Recognize beaver agency and decision-making
- Human participation in, rather than domination of, ecological relationships
- Examples of successful coexistence models: (e.g., “beaver deceivers”)



Making the Covert Overt

- Language shapes human ability to see ecological labor
- Develop vocabulary for more-than-human agency
- Center storytelling focused on relationships over resources
- Institutional change to support ecological care ethics



Toward Labor Solidarity

- Challenge extractive frameworks through scholarship
- Advocate for policies that support ecological labor
- Develop new rhetorical tools for multispecies justice
- Build partnerships with Indigenous knowledge keepers



“Mikes photos and videos of beavers”



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