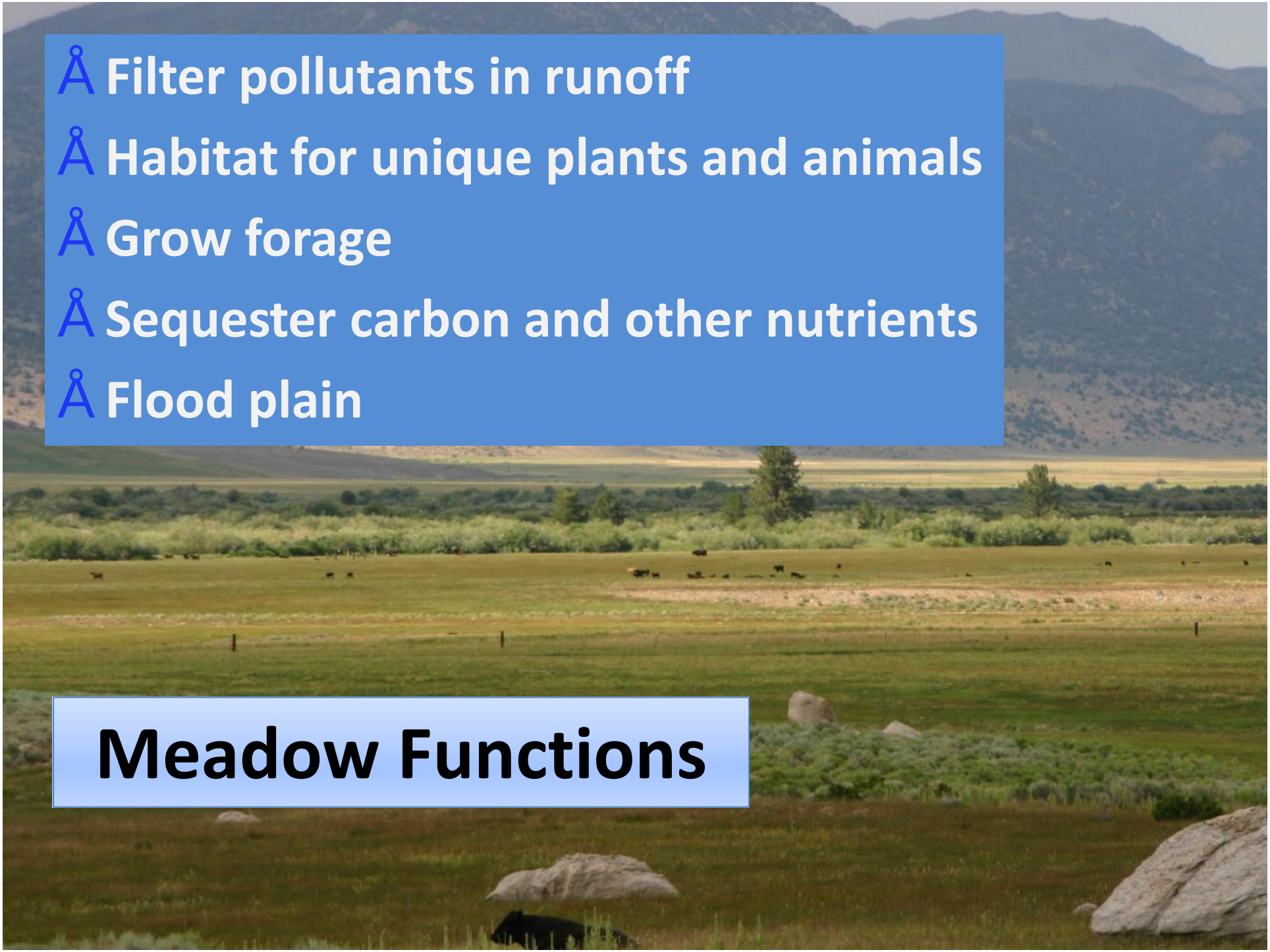
Mountain Meadow Function and Ecosystem Services

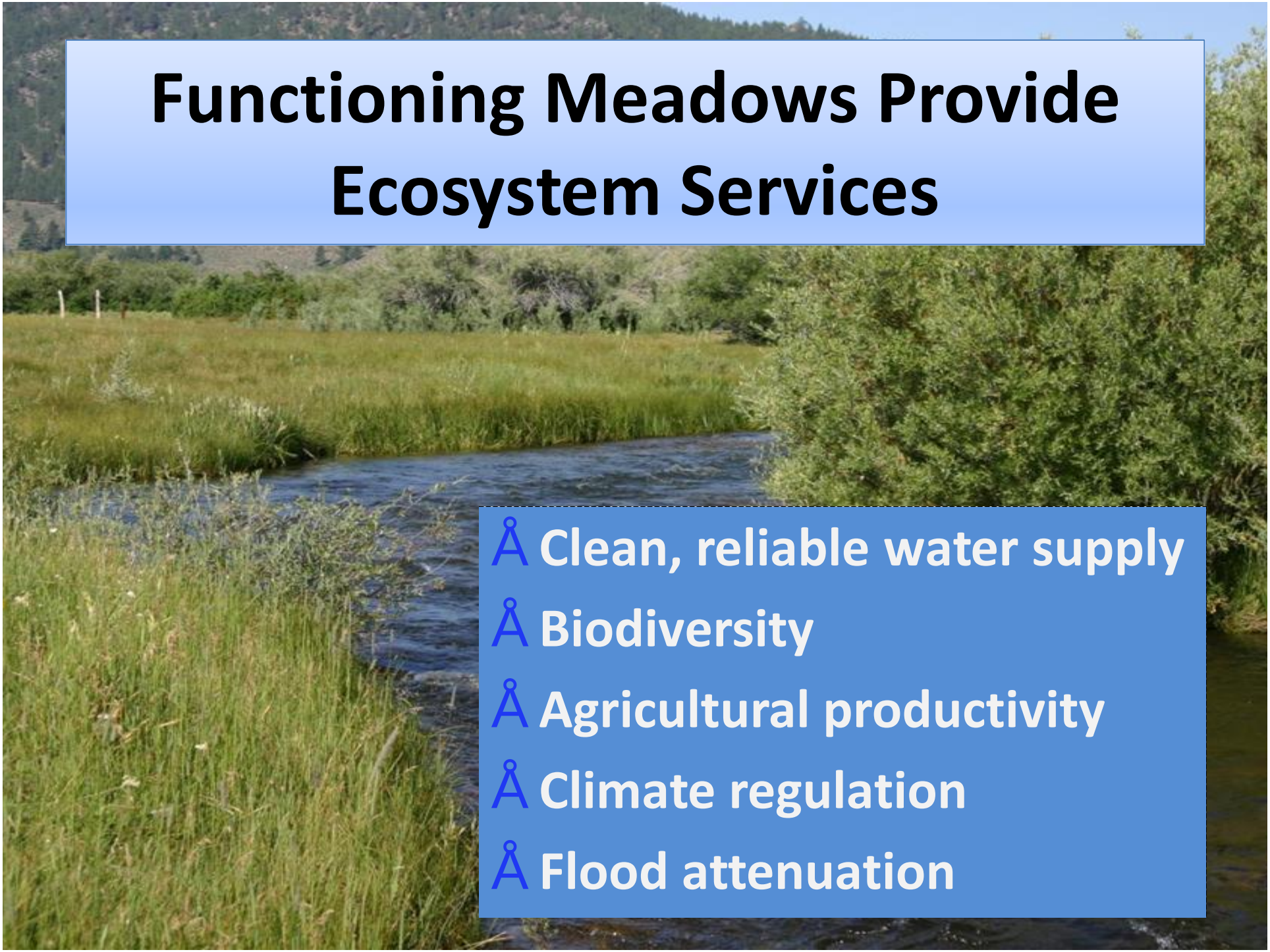
Ken Tate, UC Davis

http://rangelandwatersheds.ucdavis.edu

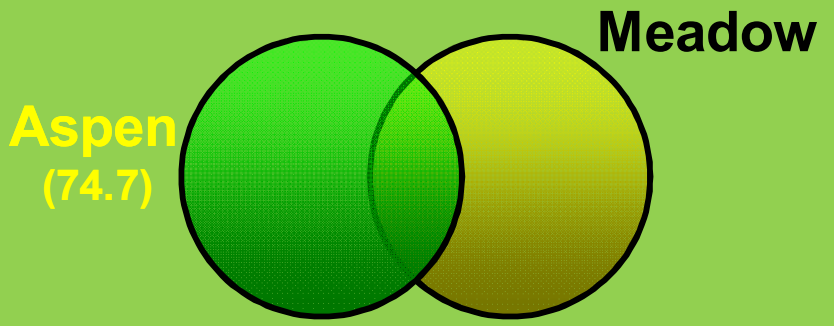
Mountain Meadow Function and Ecosystem Services

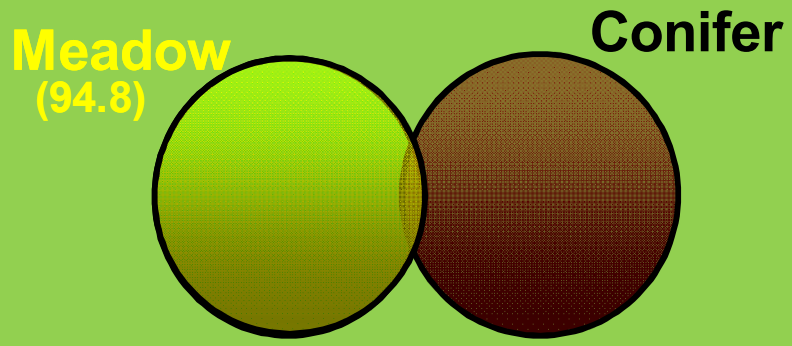
Mountain meadows in the Sierra Nevada and southern Cascade represent a small portion of the landscape, but provide a large number of critical services to the region.

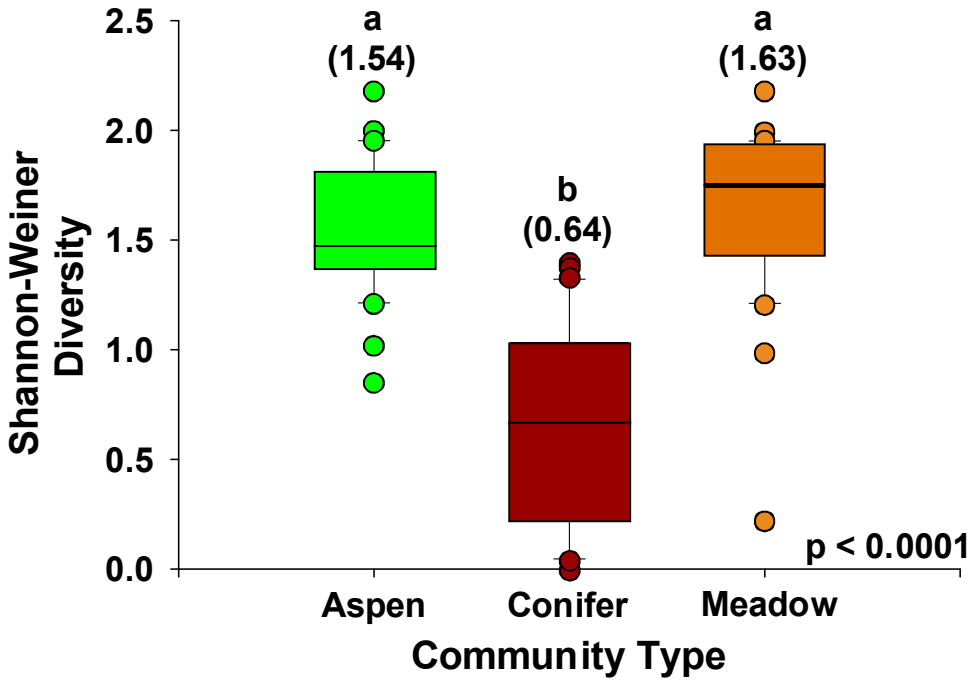

Å Filter pollutants in runoff
Å Habitat for unique plants and animals
Å Grow forage
Å Sequester carbon and other nutrients
Å Flood plain
Meadow Functions


Functioning Meadows Provide Ecosystem Services
Å Clean, reliable water supply
Å Biodiversity
Å Agricultural productivity
Å Climate regulation
Å Flood attenuation

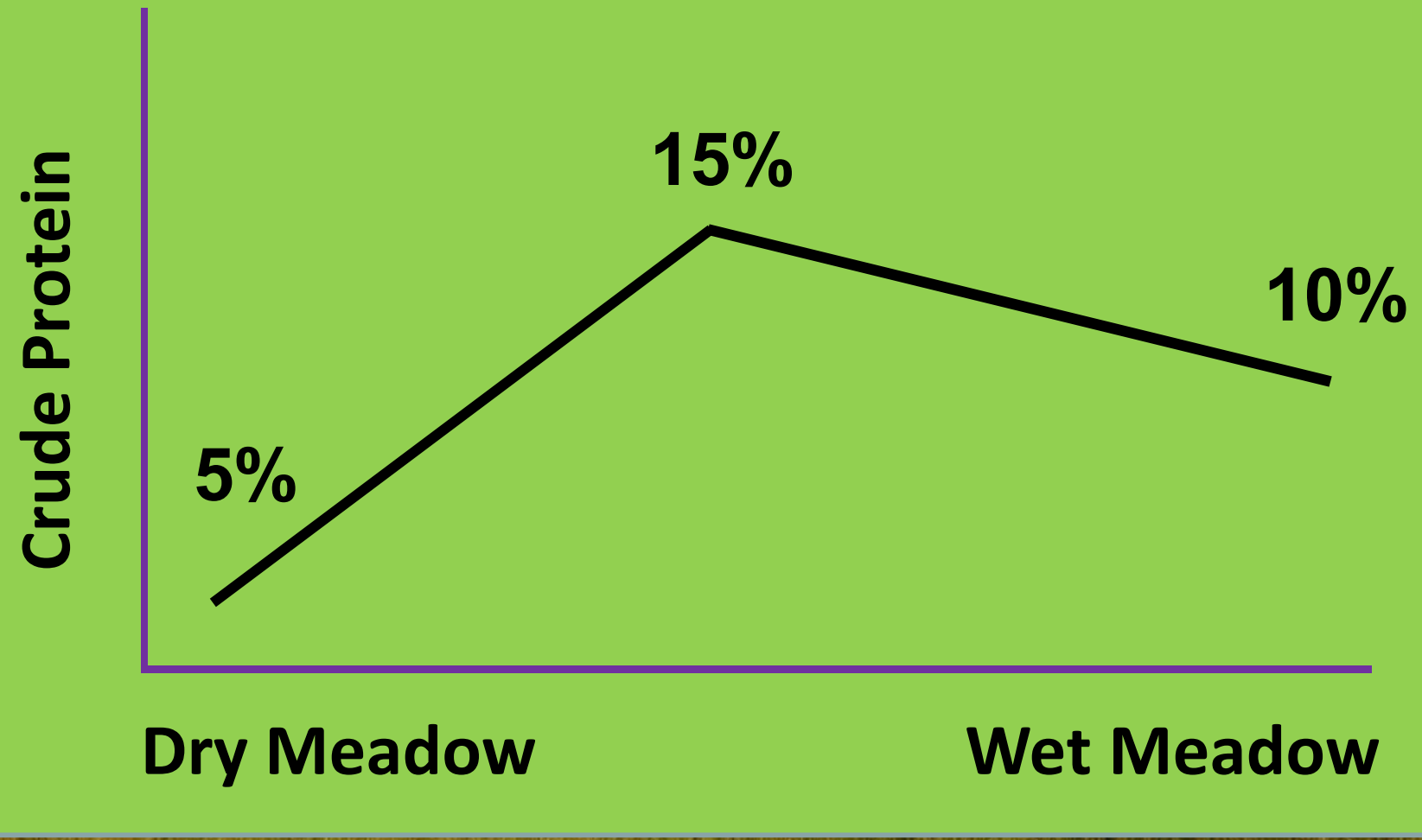
Plant Diversity



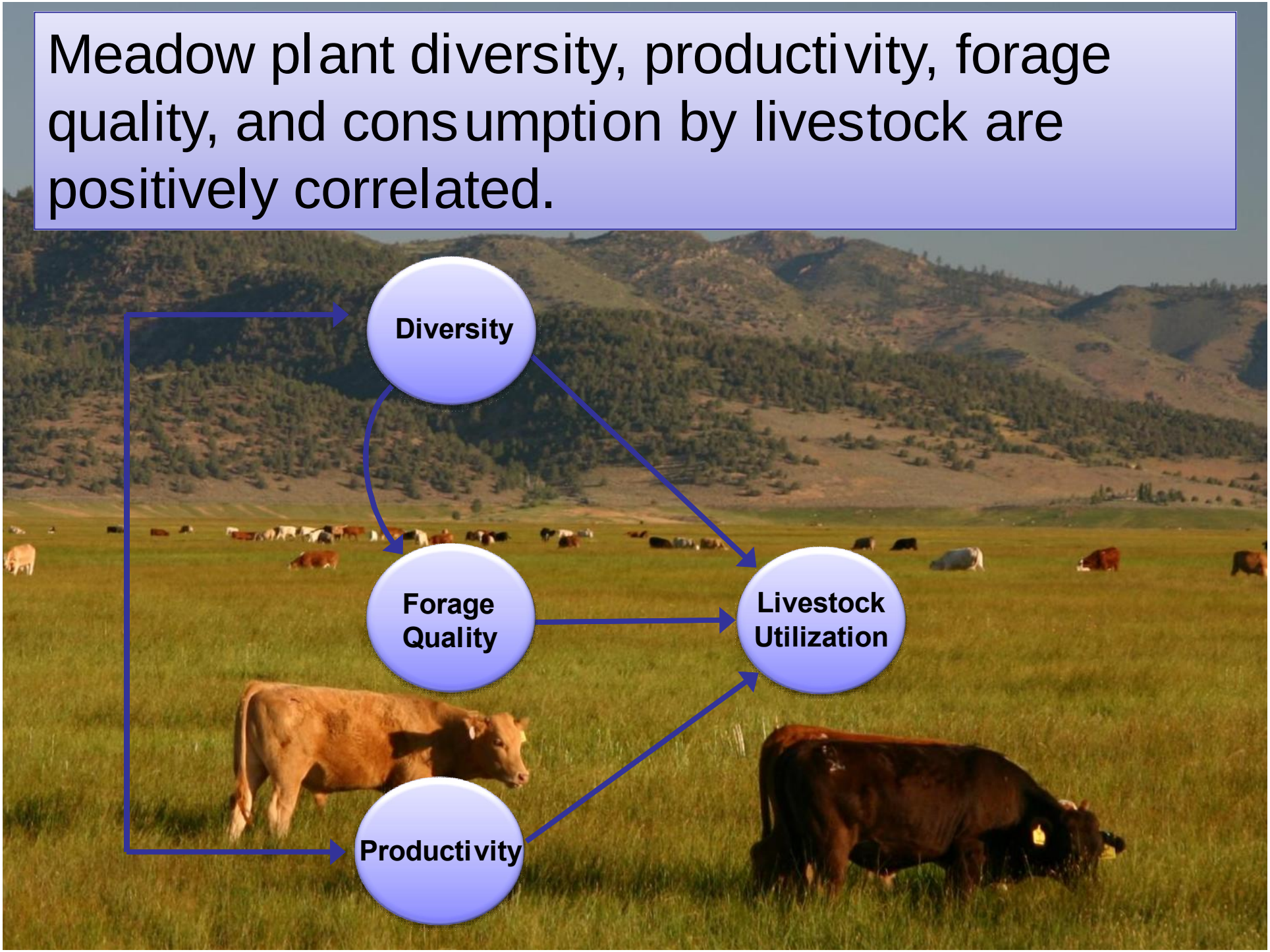




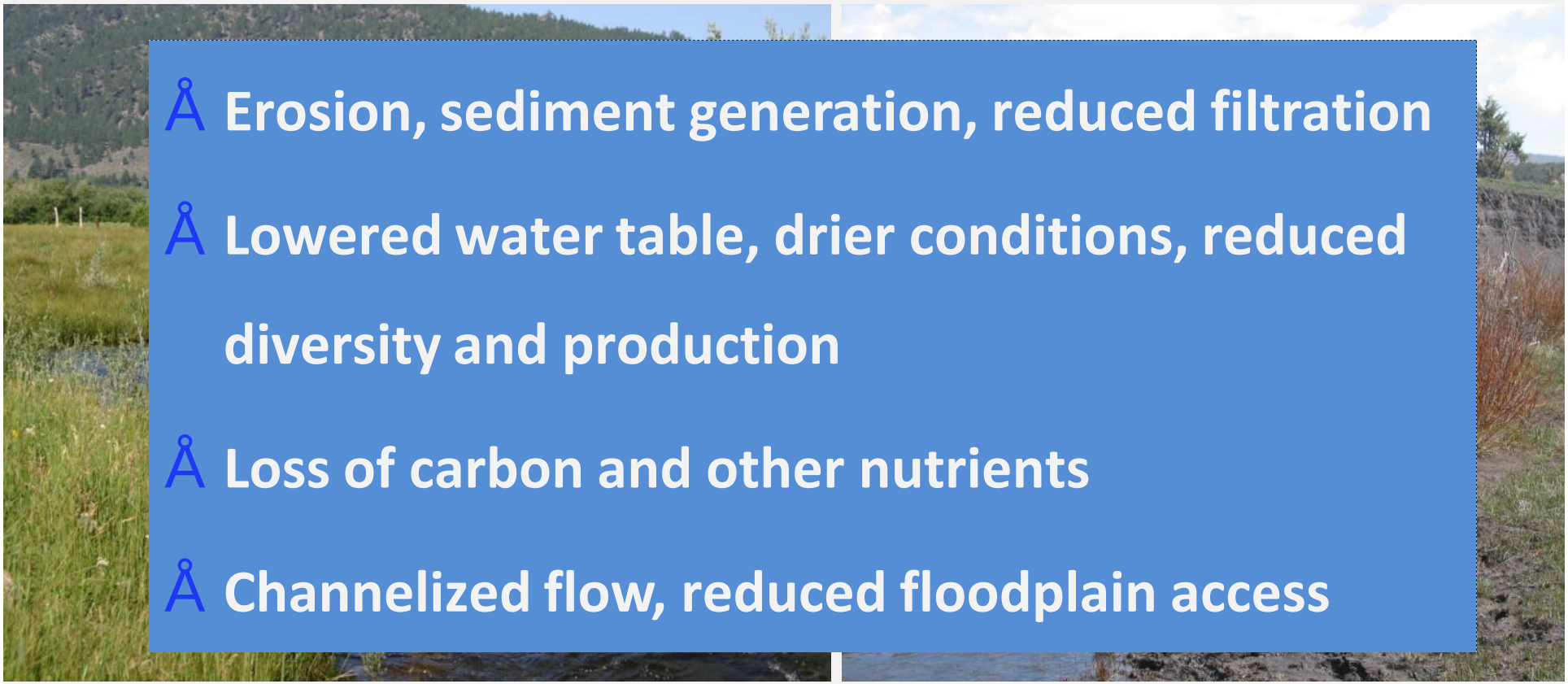
Meadow forage quality can be very high – particularly in moist meadows.



Meadow plant diversity, productivity, forage quality, and consumption by livestock are positively correlated.

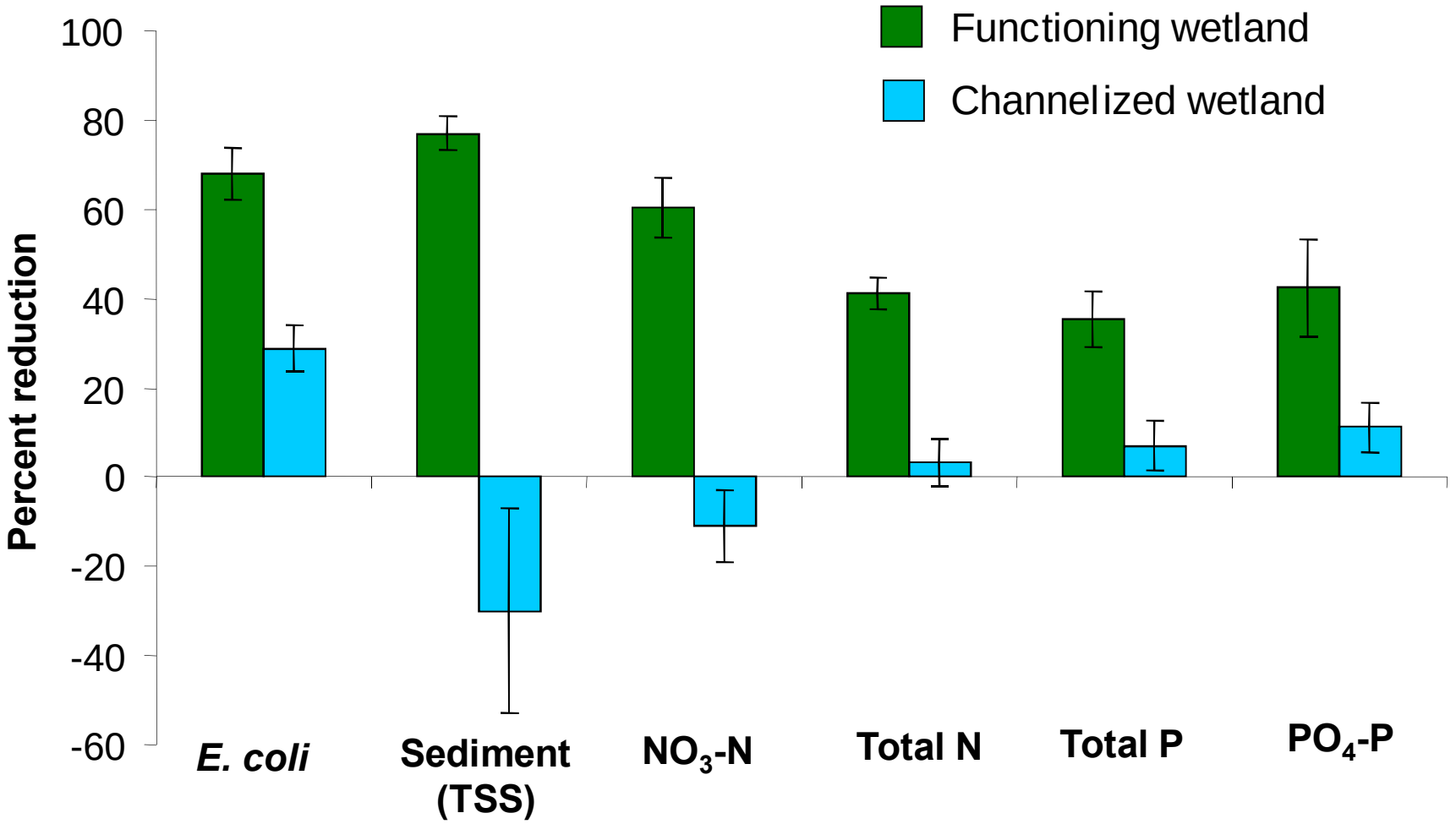


These functions and services are dependent upon the overall hydrologic function of the meadow and associated stream.

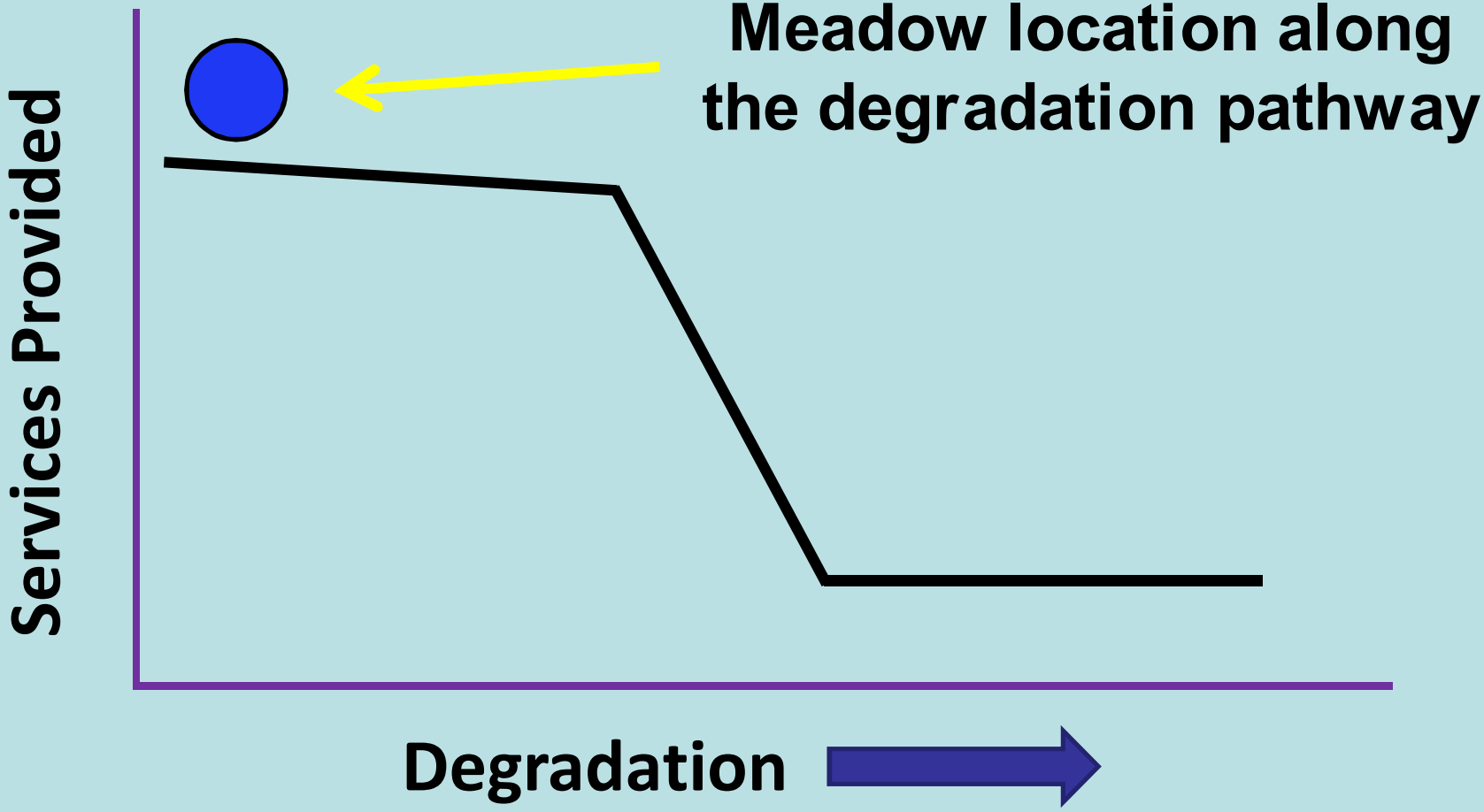


- Erosion, sediment generation, reduced filtration
- Lowered water table, drier conditions, reduced diversity and production
- Loss of carbon and other nutrients
- Channelized flow, reduced floodplain access

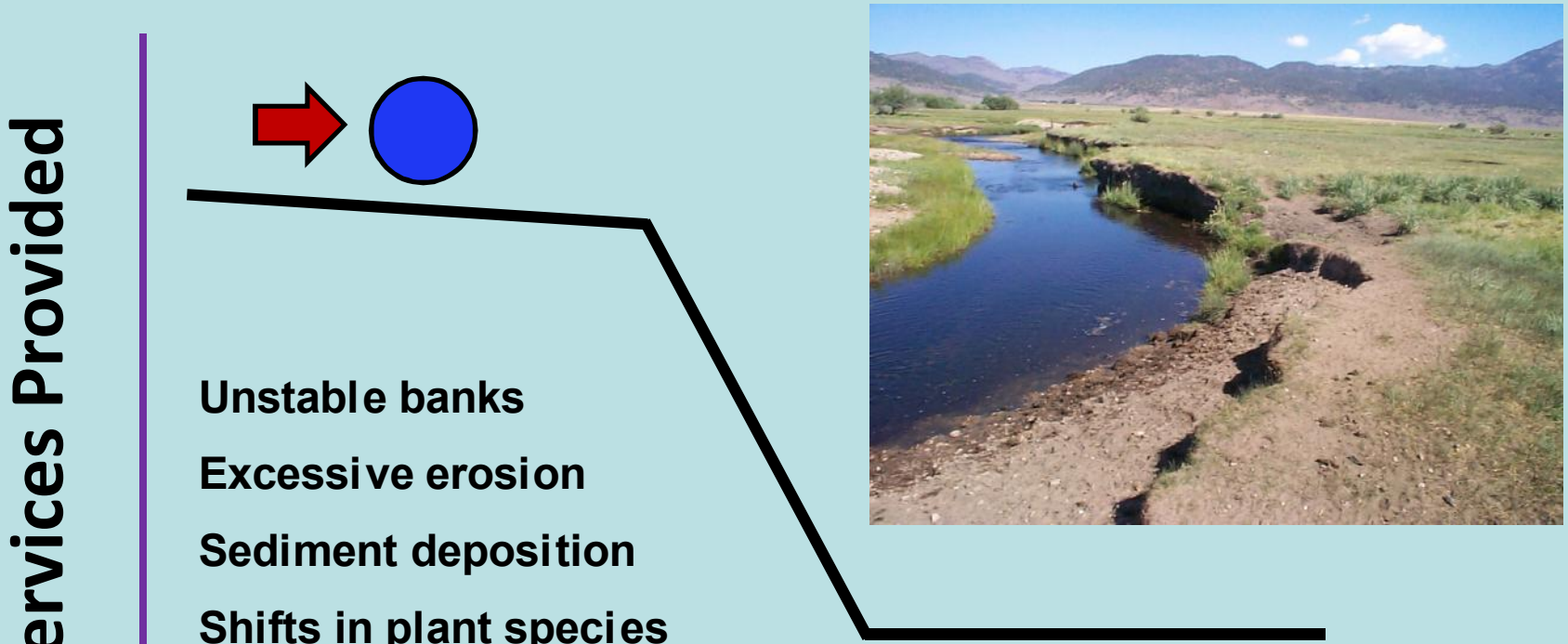
Attenuation of pollutants in runoff is reduced by channelization of flow through wetlands.



How meadow function and services are lost, and recovered



Many watershed and meadow scale stressors can drive degradation.



Services Provided

Unstable banks

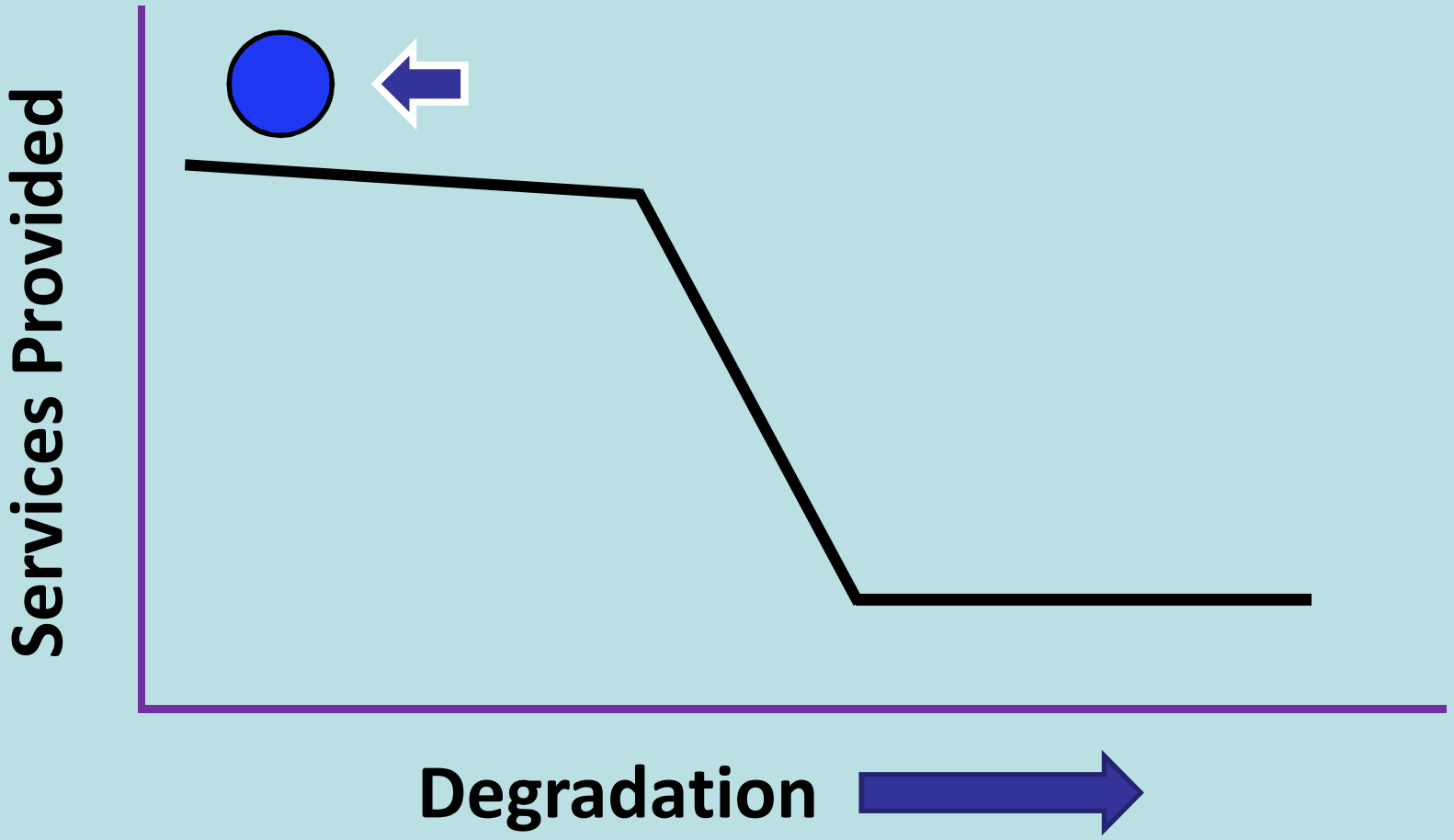
Excessive erosion

Sediment deposition

Shifts in plant species

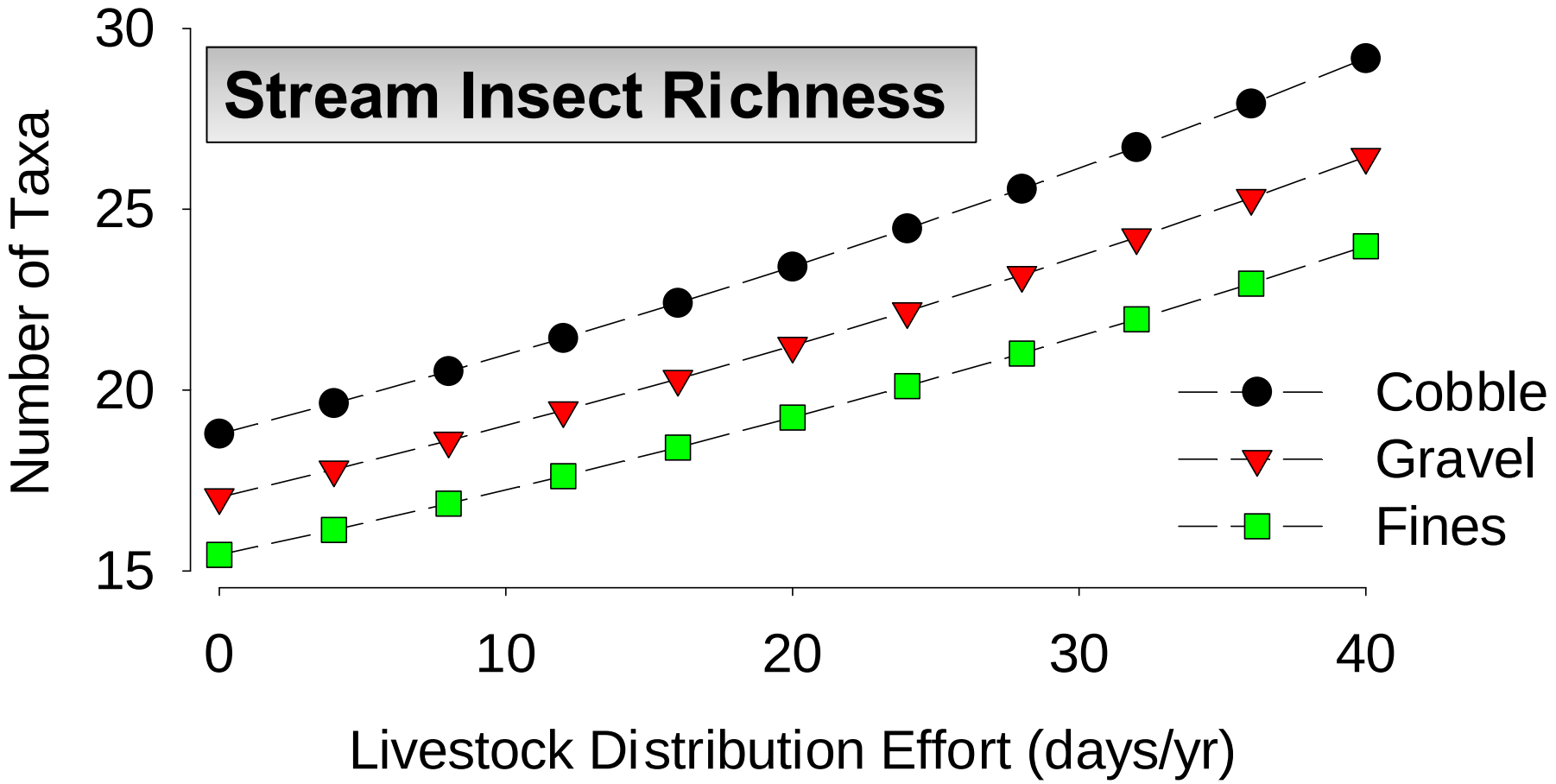
Degradation

Management effort an reverse degradation at this stage.

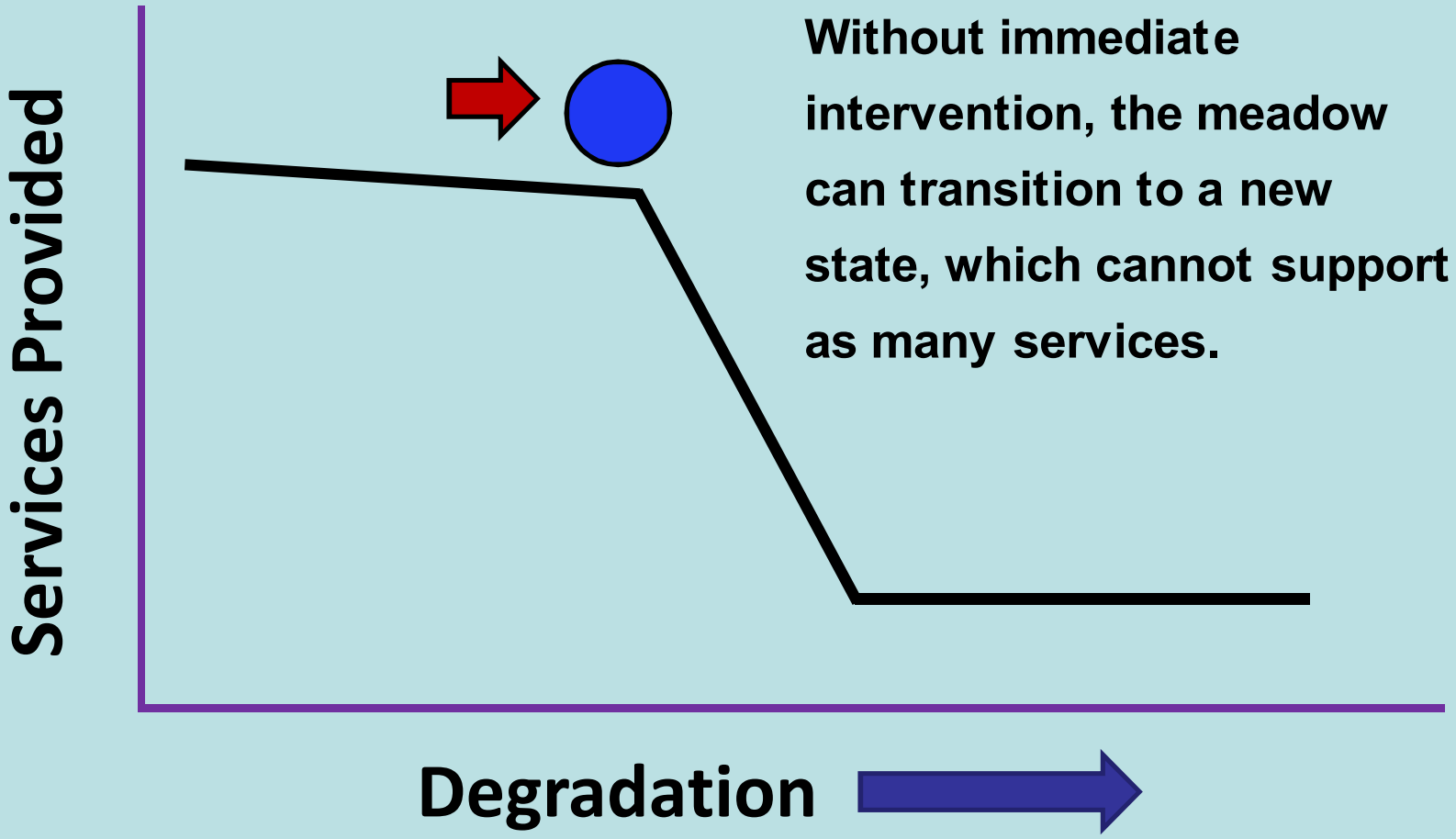


Grazing Management Example:

Time spent managing livestock utilization of riparian areas improves stream health

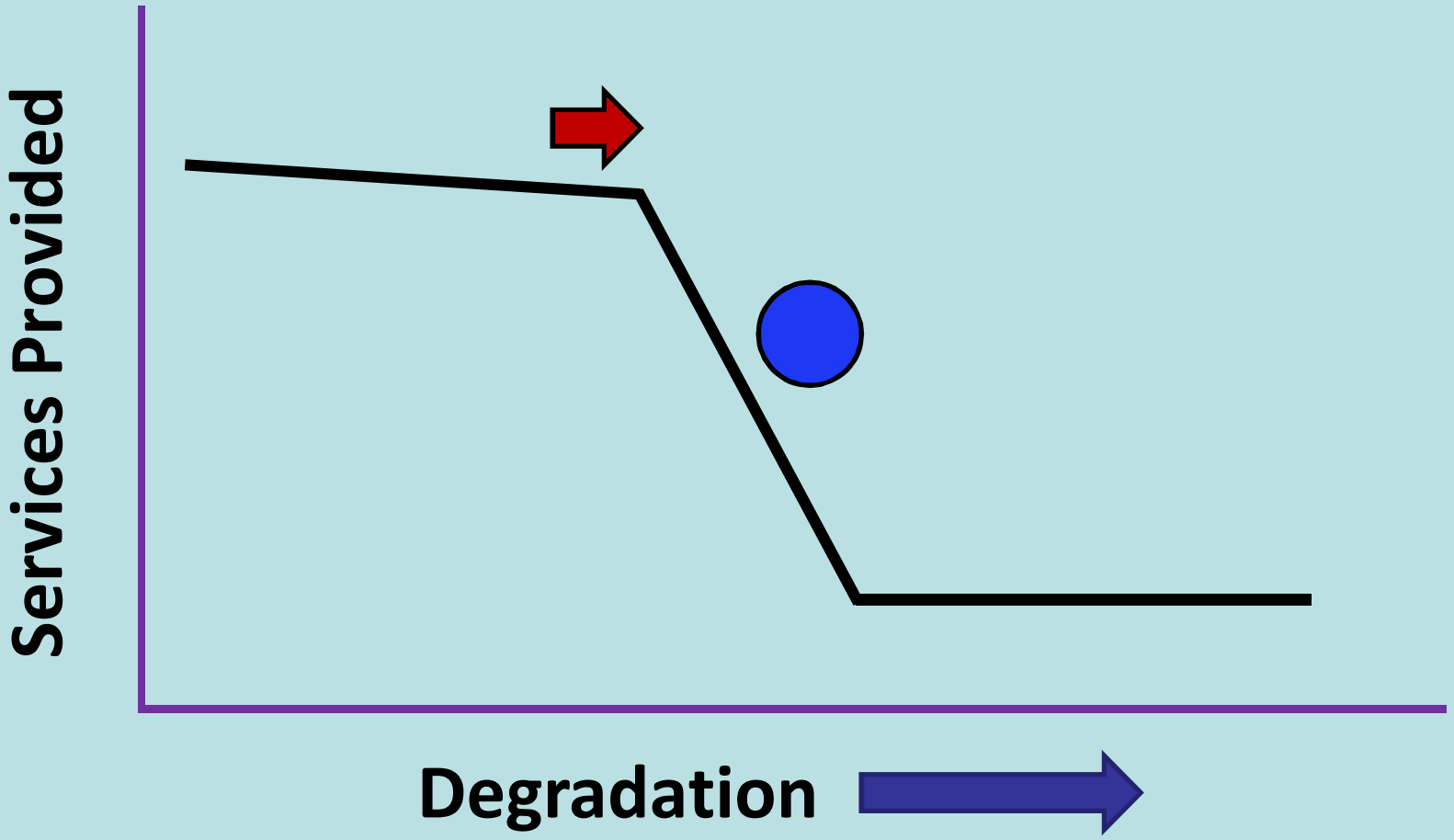


With enough stress, the meadow reaches a threshold, or tipping point.

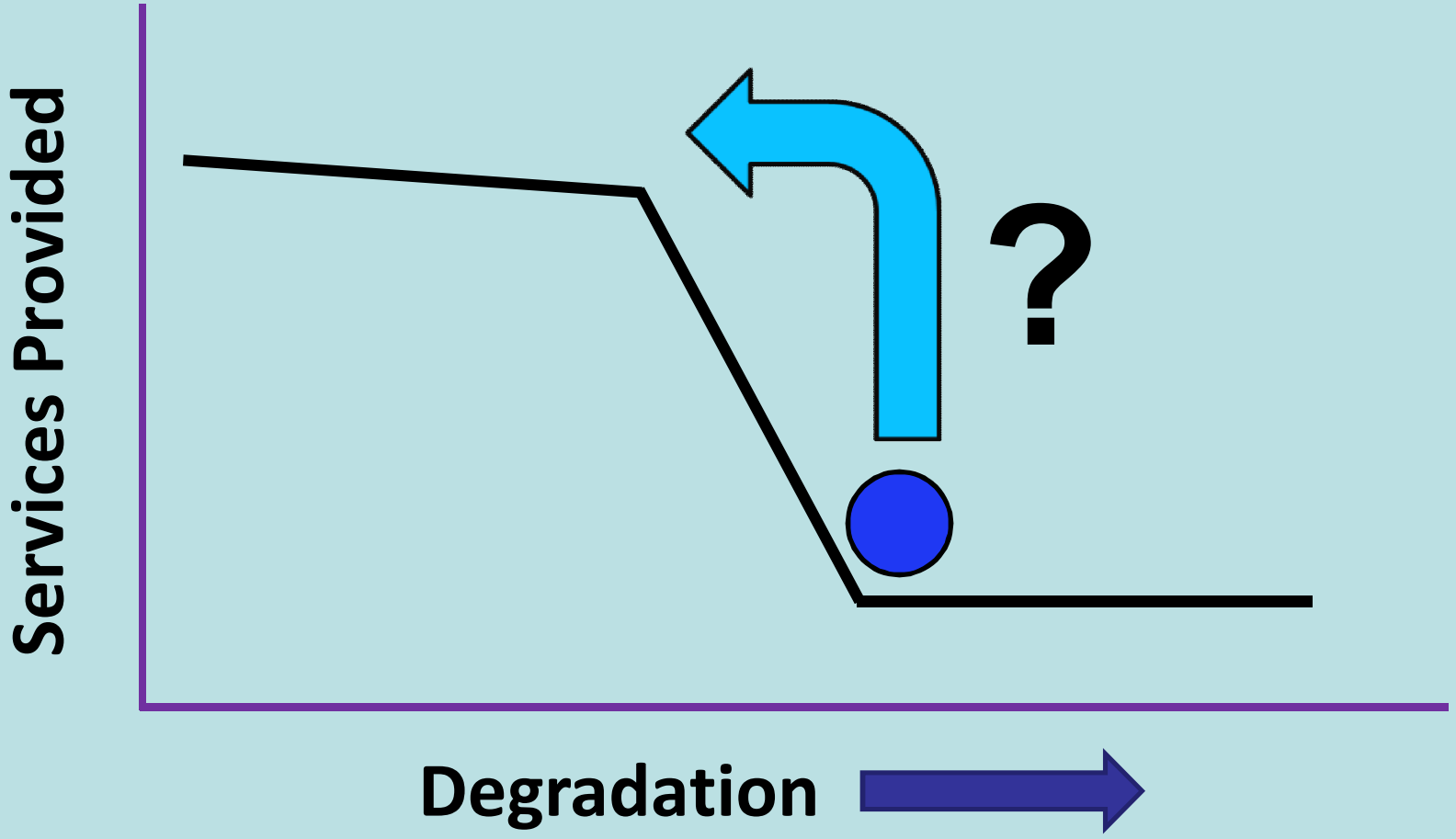


Without immediate intervention, the meadow can transition to a new state, which cannot support as many services.

Once crossed, significant effort and cost is required to return the meadow to a more functional state.



Today – Discuss restoration of degraded meadows, how to meet multiple goals with these activities, and move forward to meet these shared goals.

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