RESOURCE CONCERN CATEGORIES with definitions

1. Air Quality emissions
2. Aquatic Habitat
3. Concentrated Erosion
4. Degraded Plant Condition
5. Field Sediment, Nutrient, and Pathogen Loss
6. Field Pesticide Loss
7. Fire Management
8. Inefficient Energy Use
9. Livestock Production Limitation
10. Pest Pressure
11. Soil Quality Limitations
12. Source Water Depletion
13. Storage and Handling of Pollutants
14. Terrestrial Habitat
15. Weather Resilience
16. Wind and Water Erosion

Long-term Protection of Land

AIR QUALITY EMMISSIONS

- **Emissions of airborne reactive nitrogen:** Emissions of airborne reactive nitrogen – ammonia and oxides of nitrogen – can negatively impact atmospheric chemistry, cause unwanted fertilization via deposition in sensitive ecosystems, and degrade regional visibility.
- **Emissions of greenhouse gases – GHGs:** Emissions of methane, nitrous oxide, and carbon dioxide increase atmospheric concentrations of greenhouse gases
- **Emissions of ozone precursors:** Emissions of ozone precursors – oxides of nitrogen and volatile organic compounds (VOCs) – result in formation of ground-level ozone, which can have negative impacts to human, plant, and animal health.
- **Emmissions of particulate matter (PM) and PM precursors:** Direct emissions of particulate matter – dust and smoke – as well as the formation of fine particulate matter in the atmosphere from other agricultural emissions – ammonia, oxides of nitrogen, and volatile organic compounds – can cause multiple negative environmental impacts
- **Objectionable odor:** Emissions of odorous compounds – volatile organic compounds (VOCs) ammonia, and odorous sulfur compounds – can cause nuisance conditions.

AQUATIC HABITAT

- **Aquatic habitat for fish and other organisms**
- **Elevated water temperature:** Surface water temperatures exceed State/Federal standards in downstream receiving waters which limits its use for identified fish or as aquatic habitat

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CONCENTRATED EROSION

- **Bank erosion from streams, shorelines, or water conveyances channels** : Erosion resulting from poor land management practices, storm events, wave action, rain, ice, wind, runoff, loss of vegetation, hydrologic dynamics, stream isolation from floodplains, and/or other disturbed/altered geomorphological processes
- **Classic gully erosion**: Gullies created by runoff that can enlarge a channel progressively by head cutting and/or lateral widening.
- **Ephemeral gully erosion**: Soil erosion that results in small gullies in the same flow area that can be obscured by tillage or other soil distribution activities

DEGRADED PLANT CONDITION

- **Plant productivity and health:** Improper fertility, management or plants not adapted to site, negatively impact plant productivity, vigor and/or quality
- **Plant structure and composition:** Plant communities have insufficient composition and structure to achieve ecological functions and management objectives. This resource concern includes degradation of wetland habitat, targeted ecosystems, or unique plant communities

FIELD SEDIMENT, NUTRIENT, AND PATHOGEN LOSS

- **Nutrients transported to groundwater:** Nutrients (organic and inorganic) stored, concentrated, or applied are transported to groundwaters in quantities that degrade water quality and limit its use for intended purposes
- **Nutrients transported to surface water:** Nutrients (organic and inorganic) stored, concentrated, or applied are transported to receiving surface waters in quantities that degrade water quality and limit its use for intended purposes
- **Pathogens and chemicals from manure, biosolids, or compost applications transported to groundwater:** Pathogens, pharmaceuticals, leachate and chemicals from manure, biosolids or compost transported to groundwaters in quantities that degrade water quality and limit uses
- **Pathogens and chemicals from manure, biosolids, or compost applications transported to surface water:** Pathogens, pharmaceuticals, leachate and chemicals from manure, bio-solids or compost transported to receiving waters in quantities that degrade water quality and limit uses.
- **Sediment transported to surface water** : Offsite transport of sediment to surface water degrades water quality and limits use for intended purposes

FIELD PESTICIDE LOSS

- **Pesticides transported to groundwater :** Pesticide loses from the application area are transported to groundwater sources in quantities that degrade water quality and limit its use for intended purposes
- **Pesticides transported to surface water**

FIRE MANAGEMENT

- **Wildfire hazard from biomass accumulation:** The kinds and amounts of plant biomass create wildfire hazards that pose risks to human safety, structures, plants, animals, and air resources.

INEFFICIENT ENERGY USE

- **Energy efficient equipment and facilities:** Stationary equipment or facilities are using energy inefficiently. In addition to energy use in and around buildings on the farmstead, this includes other stationary equipment such as grain dryers or commodity storages as well as equipment in the field such as irrigation pumps, irrigation systems, and center pivots.

- **Energy efficient farming/ranching practices and field operations:** Mobile on-farm, field operations are using energy inefficiently. This includes use of tractors, trucks or other mobile equipment as well as changes in farming/ranching and forestry practices that reduce energy use such as making fewer trips across the field or implementing practices that result in less energy use.

LIVESTOCK PRODUCTION LIMITATION

- **Feed and forage balance:** Feed and Forage quality and/or quantity is inadequate for nutritional needs and production goals of the kinds and classes of livestock
- **Inadequate livestock shelter:** Livestock lack adequate shelter from climatic conditions to meet basic needs
- **Inadequate livestock water quantity, quality, and distribution**

PEST PRESSURE

- **Plant pest pressure:** Excessive pest damage to plants including that from undesired plants, diseases, animals, soil borne pathogens, and nematodes. This concern addresses invasive plant, animal and insect species

SOIL QUALITY LIMITATIONS

- **Aggregate instability**: Management-induced degradation of water stable soil aggregates resulting in destabilized soil carbon; surface crusting; reduced water infiltration, water holding capacity, and aeration; depressed resilience to extreme weather; increased ponding and flooding; increased soil erosion and plant stress; and reduced habitat and soil biological activity.

- **Compaction**: Management-induced soil compaction at any level throughout the soil profile resulting in reduced plant productivity, biological activity, infiltration and aeration

- **Concentration of salts or other chemicals:** Concentration of salts leading to salinity and/or sodicity reducing productivity or limiting desired use, or concentrations of other chemicals impacting productivity, populations of beneficial organisms or limiting desired use.

- **Organic matter depletion**: Management-induced depletion of any or all pools of soil organic matter resulting in limited soil function and processes that support plant productivity, biological activity and water and nutrient cycling
- **Soil organism habitat loss or degradation:** Quantity, quality, diversity or connectivity of food, cover, space, shelter and/or water is inadequate to meet requirements of beneficial soil organisms
- **Subsidence:** Loss of volume and depth of organic soils due to oxidation caused by above normal microbial activity resulting from excessive water drainage, soil disturbance, or extended drought. This excludes naturally occurring sinkholes and issues, or depressions caused by underground activities

SOURCE WATER DEPLETION

- **Groundwater depletion:** Underground water is used at a rate greater than aquifer recharge
- **Inefficient irrigation water use:** Irrigation water is not stored, delivered, scheduled and/or applied efficiently
- **Surface water depletion:** Water from collected precipitation runoff, ponds, lakes, surface watercourses and reservoirs is used at a rate that is detrimental to ecological functions or other identified uses and threatens sustained availability of surface water.

STORAGE AND HANDLING OF POLLUTANTS

- **Nutrients transported to groundwater :** Nutrients (organic and inorganic) stored, concentrated, or applied are transported to groundwaters in quantities that degrade water quality and limit its use for intended purposes
- **Nutrients transported to surface water** Nutrients (organic and inorganic) stored, concentrated, or applied are transported to receiving surface waters in quantities that degrade water quality and limit its use for intended purposes
- **Pesticides transported to surface water:** Pesticides are lost from their application area and transported to surface water sources in quantities that degrade water quality and limit its use for intended purposes
- **Petroleum, heavy metals, and other pollutants transported to groundwater:** Petroleum, heavy metals, and other pollutants for on-farm use are lost from areas of concentration (handling, storage, or processing facilities and areas) to receiving groundwater in quantities that degrade water quality and limit its use for intended purposes. This resource concern does not cover pathogens/manure, sediment (although sediment contaminated with petroleum, heavy metals, or other pollutants would be covered), nor naturally occurring salts
- **Petroleum, heavy metals, and other pollutants transported to surface water:** Petroleum, heavy metals, and other pollutants for on-farm use are lost from areas of concentration (handling, storage, or processing facilities and areas) to receiving surface waters in quantities that degrade water quality and limits its use for intended purposes. This resource concern does not cover pathogens/manure, sediment (although sediment contaminated with petroleum, heavy metals, or other pollutants would be covered), nor naturally occurring salts

TERRESTRIAL HABITAT

- **Terrestrial habitat for wildlife and invertebrates:** Quantity, quality or connectivity of food, cover, space, and/or water is inadequate to meet requirements of identified terrestrial wildlife or invertebrate species.

WEATHER RESILIENCE

- **Naturally available moisture use:** Natural precipitation is not optimally managed to support desired land use goals or ecological processes.
- **Ponding and flooding:** Water covering the land surface, along with saturated conditions below the surface, degrades natural resources, or restricts capability of land to support its intended use
- **Seasonal high water table:** Groundwater or a perched water table causing saturated conditions near the surface degrades water resources or restricts capability of land to support its intended use.
- **Seeps:** Sub-surface saturated flows that percolates slowly to the surface, degrades water resources, or restricts capability of land to support its intended use.

WIND AND WATER EROSION

- **Sheet and rill erosion**: Detachment and transport of soil particles caused by rainfall, melting snow, or irrigation
- **Wind erosion**: Detachment and transport of soil particles caused by wind.

LONG TERM PROTECTION OF LAND

- **Threat of Conversion:** Development pressure

Loss of functions and values: No longer able to support agricultural or wildlife habitat purposes