Why IYRP should matter to the United States

The "International Year of Rangelands and Pastoralists" (https://iyrp.info/) should be supported by the United States, and in particular by the US State Department, for reasons that go beyond merely improving "worldwide understanding of the importance of these lands and people to global food security and environmental services," as Mongolia's Minister of Food, Agriculture & Light Industry put it. Charles Hart, president of the Society for Rangeland Management, stated that IYRP would "…provide an opportunity to raise the profile and support for rangelands and pastoral issues globally and nationally, improve understanding of the challenges and opportunities faced by the rangeland ecosystem and pastoralists, and direct increased attention and resources to rangelands and those who manage them." More than 160 organizations have formally supported for IYRP, including such American organizations as the American Anthropological Association, the Ecological Society of America, Rangelands Partnership, Society for Range Management, American Forage & Grassland Council, Bird Conservancy of the Rockies, Global Diversity Foundation, and National Grazing Lands Coalition.

Rangelands are commonly described as uncultivated lands that include grasslands, savannahs, steppes, shrub lands, deserts and tundra. They make up about 770 million acres, or 30% of the land cover of the US, and about 53% of land cover in US Western States. Every citizen of the world is impacted by rangelands, which constitute approximately half of the earth's land surface area. Rangelands are primarily used for extensive livestock production through nomadic and transhumance systems, and their health, productivity and environmental sustainability are directly critical to the livelihoods and cultures of more than 500 million pastoralists in the world. Rangelands provide a diversity of ecosystems and therefore significant yet diverse economic benefits through goods and services. Principal among these are livestock production and wildlife populations; others are tourism, recreation, minerals/energy production, renewable energy, and other natural resources. Vital ecosystem services include clean water, clean air, fish and wildlife habitat, and intangible historical, cultural, aesthetic and spiritual services.

Poor stewardship, inappropriate policy, and climate change are just some of the factors that can degrade the value of rangeland economic benefits and ecosystem services, and these can be manifested through fire, drought, water and soil degradation, invasive and threatened species, and biodiversity loss. The annualized economic burden from wildfire alone in the US is estimated to be between $71.1 billion and $347.8 billion. The Bureau of Land Management (BLM), which governs most public rangeland in the Western States, experiences ever more massive and frequent range fires. Over the past decade, nearly every Western State has experienced a rangeland fire that has exceeded 100,000 acres, with some surpassing 500,000 acres. These massive fires reduce ecosystem services and necessitate substantial investments in rehabilitation projects to combat erosion, impede invasive species, and restore habitat. For example, the BLM invested $33.4 million to perform emergency stabilization and rehabilitation for the 2012 Holloway Fire, which burned 461,000 acres in Nevada and Oregon. Rangeland fires have unique factors that challenge fire managers, and as populations expand in the Western US, rangeland fires will increasingly threaten lives and resources.

Valuation of rangeland ecosystem services is not an exact science, but a rough estimate made for 2011 by Costanza and colleagues, which has been cited thousands of times, was $18.4 trillion per year globally, implying a U.S. value of about $1.3 trillion. Better understanding of those ecosystem services, which the IYRP promotes, could substantially increase rangeland economic value through improved management. For example, the Natural Resource Conservation Service estimates that implementation of conservation practices such as brush management and prescribed grazing on private rangelands in the central Great Plains winter wheat and range region increased the value of selected ecosystem services between 2008 and 2016 by $15 million to $33 million. Ecosystem services that contributed most to enhanced value were improved air quality, water quality, climate stability, disaster risk reduction, recreation and tourism, water capture, conveyance and supply, soil retention, habitat, and aesthetics. The California Rangeland Trust successfully preserved over 340,000 acres of rangeland using conservation easements to benefit generations to come. Depending on the methodology used, resulting annual ecosystem services were valued at between $900 million and $1.44 billion, or an astonishing $2,647 to $4,235 per acre per year.

Because of the vastness of rangelands, small increases in their soil carbon content would have a large impact on greenhouse gas balances. It has been estimated that US grazing lands, including managed pastures, have the potential to remove 198 million ton of CO_2 from the atmosphere annually. This would offset 3.3 % of US CO_2 emissions from fossil fuels, have an approximate value of $4 billion at current carbon prices of roughly $20 per ton, and further increase the value of rangeland ecosystem services through improved soil properties. Landowners could

encouraged to adopt C sequestration practices by biophysical benefits – soil C is positively correlated with productivity—and financial benefits from emission trade systems that give credits for soil C sequestration.

The benefits to the US of greater understanding of rangelands are not limited to ecosystem services, but extend to its international interests as well, including those associated with climate change, food security, equity, and rekindling international partnerships. Climate change is already affecting all four dimensions of food security: availability, accessibility, utilization and stability. Rural communities face immediate risk of increased crop failure, loss of livestock, and new patterns of pests and diseases outbreak. People living in fragile ecosystems in semi-arid landscapes, including pastoralists and sedentary farmers, are most at risk. The Intergovernmental Panel on Climate Change has noted that the greatest single impact of climate change would be on human migration—with millions of people displaced by agricultural disruption. The most widely repeated prediction on future flows of climate migrants is 200 million by 2050. Climate processes leading to out-migration include salinization of agricultural land, desertification, growing water scarcity, and extreme weather events such as droughts and floods. But non-climate drivers, such as government policy, population growth and community-level resilience to natural disaster, are also important. The US itself witnessed this during the 1930s when, after decades of government policy that encouraged expansion of dryland cropping, a pronounced period of drought and heat in the Great Plains coincided with the Great Depression, resulting in widespread failure of farms, and 300,000 "Okies" out-migrating during the "Dust Bowl".

Large population movements are already recognized by the UN Security Council as constituting a potential threat to international peace and security, particularly if there are existing ethnic and social tensions. John Ashton, the UK's climate change envoy, stated "Massive migrations, particularly in the arid or semi-arid areas in which more than a third of the world's people live, will turn fragile states into failed states." Climate migration is already underway in Africa and parts of the Middle East. In Mexico and Central America, rainfed croplands are likely to see climate out-migration, especially under the pessimistic reference scenarios, due to deteriorating water availability and crop productivity such as is now occurring in many rangelands. Pastoral systems can be more resilient in such situations and undergo less out-migration with appropriate policies in place. Far from being gender-neutral, climate change, and the use of migration as a coping mechanism, will have specific gendered impacts because there is a strong relationship between poverty and vulnerability to environmental change, and the stark fact that women as a group are poorer and less powerful than men.

In the late 1930s, W.C. Lowdermilk of the Soil Conservation Service studied agriculture in countries where land had been under cultivation for hundreds and even thousands of years as part of a search for ways to address ecological damage from the Dust Bowl. He discovered that soil erosion, deforestation, overgrazing, neglect, and conflicts between cultivators and herdsman had toppled empires and wiped out entire civilizations. He also learned that careful stewardship of the earth's resources had enabled other societies to flourish for centuries. The IYRP seeks to better understand at regional and global scales the stewardship, policies and processes that protect and improve ecosystem services and economic benefits provided by rangelands. Greater understanding will inform efforts to better manage rangelands to improve food security, habitat and biodiversity. Better management has potential to mitigate climate change, increase the value of ecosystem services, and limit out-migration. This in turn has the potential in many parts of the world to improve political stability, lessen conflict, and reduce gender inequity.

Each country will decide how to observe IYRP, but a global framework of 12 monthly themes is being advocated to highlight urgent and topical issues, and to demonstrate that pastoralists (ranchers, in the case of the US) and rangelands across the globe share similar issues and concerns despite their diversity and complexity. A Draft Action Plan, based on priorities and strategies formally recognized by various civil society partners and governments, has been prepared and will be finalized once the UN General Assembly designates 2026 as the IYRP. Tentative themes currently include 1) Importance of rangelands and pastoralists; 2) Access to rangelands by pastoralists; 3) Services and resources for pastoralists; 4) Climate change; 5) Biodiversity and ecosystem services; 6) Soils, water and land use; 7 Sustainable consumption of livestock products; 8) Indigenous and local knowledge, culture and innovation; 9) Sustainable livestock production; 10) Pastoralist women; 11) Pastoralist youth; and 12) Sustainable technologies and innovations. Possible activities under consideration include national events to showcase sustainable rangeland systems, an international congress on the state of science and knowledge on rangelands, and social media campaigns and video productions. Several global projects are already underway with participation of US institutions, including NASA, Smithsonian Institute, and several US universities, as well as international agricultural centers that US regularly supports, including ILRI, ICARDA, and the World Agroforestry Centre.